

APPENDIX E
First Quarter 2023 Analytical Laboratory
Reports, Chain of Custody Forms, and
Validation Reports

APPENDIX E
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Number	Outfall/Location	Eurofins Calscience Laboratory Report Number	Sampling Date
1	Arroyo Simi	570-122377-1	January 1, 2023
2	Arroyo Simi	570-122377-2	January 1, 2023
3	Arroyo Simi	570-122377-3	January 1, 2023
4	Arroyo Simi	570-122377-4	January 1, 2023
5	Arroyo Simi	570-122377-5	January 1, 2023
6	Arroyo Simi	570-122423-1	January 3, 2023
7	Arroyo Simi	570-123237-1	January 9, 2023
8	Arroyo Simi	570-123258-1	January 9, 2023
9	Arroyo Simi	570-123258-2	January 9, 2023
10	Arroyo Simi	570-124079-1	January 13, 2023
11	Arroyo Simi	570-124388-1	January 17, 2023
12	Arroyo Simi	570-124899-1	January 21, 2023
13	Arroyo Simi	570-129004-1	February 24, 2023
14	Outfall 001	570-122682-1	January 5, 2023
15	Outfall 001	570-122682-2	January 5, 2023
16	Outfall 001	570-122682-3	January 5, 2023
17	Outfall 001	570-123016-1	January 6, 2023
18	Outfall 001	570-123016-2	January 6, 2023
19	Outfall 001	570-123016-3	January 6, 2023
20	Outfall 001	570-123016-4	January 6, 2023
21	Outfall 001	570-123016-5	January 6, 2023
22	Outfall 001	570-123016-6	January 6, 2023
23	Outfall 001	570-123265-1	January 9, 2023
24	Outfall 001	570-123650-1	January 11, 2023
25	Outfall 001	570-123650-2	January 11, 2023
26	Outfall 001	570-123650-3	January 11, 2023
27	Outfall 001	570-123650-4	January 11, 2023
28	Outfall 001	570-124243-1	January 15, 2023
29	Outfall 001	570-124243-2	January 15, 2023
30	Outfall 001	570-124243-3	January 15, 2023
31	Outfall 001	570-124244-1	January 14, 2023
32	Outfall 001	570-124865-1	January 20, 2023
33	Outfall 001	570-124868-1	January 20, 2023
34	Outfall 001	570-124868-2	January 20, 2023
35	Outfall 001	570-124868-3	January 20, 2023
36	Outfall 001	570-129006-1	February 25, 2023
37	Outfall 001	570-129083-1	February 26, 2023
38	Outfall 001	570-129083-2	February 26, 2023

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39	Outfall 001	570-129083-3	February 26, 2023
40	Outfall 001	570-129853-1	March 4, 2023
41	Outfall 001	570-129907-1	March 5, 2023
42	Outfall 001	570-129907-2	March 5, 2023
43	Outfall 001	570-129907-3	March 5, 2023
44	Outfall 001	570-129989-1	March 6, 2023
45	Outfall 001	570-130078-1	March 7, 2023
46	Outfall 001	570-130078-2	March 7, 2023
47	Outfall 001	570-130078-3	March 7, 2023
48	Outfall 001	570-130857-1	March 10, 2023
49	Outfall 001	570-130859-1	March 11, 2023
50	Outfall 001	570-130859-2	March 11, 2023
51	Outfall 001	570-130859-3	March 11, 2023
52	Outfall 001	570-131818-1	March 20, 2023
53	Outfall 001	570-131945-1	March 21, 2023
54	Outfall 001	570-131945-2	March 21, 2023
55	Outfall 001	570-131945-3	March 21, 2023
56	Outfall 001	570-133102-1	March 30, 2023
57	Outfall 001	570-133102-2	March 30, 2023
58	Outfall 001	570-133102-3	March 30, 2023
59	Outfall 001	570-133103-1	March 29, 2023
60	Outfall 002	570-122386-1	January 1, 2023
61	Outfall 002	570-122386-2	January 1, 2023
62	Outfall 002	570-122386-3	January 1, 2023
63	Outfall 002	570-122390-1	January 2, 2023
64	Outfall 002	570-122390-2	January 2, 2023
65	Outfall 002	570-122390-3	January 2, 2023
66	Outfall 002	570-122390-4	January 2, 2023
67	Outfall 002	570-122390-5	January 2, 2023
68	Outfall 002	570-122390-6	January 2, 2023
69	Outfall 002	570-122425-1	January 3, 2023
70	Outfall 002	570-122503-1	January 4, 2023
71	Outfall 002	570-122671-1	January 5, 2023
72	Outfall 002	570-122949-1	January 5, 2023
73	Outfall 002	570-122959-1	January 6, 2023
74	Outfall 002	570-122959-2	January 6, 2023
75	Outfall 002	570-122959-3	January 6, 2023
76	Outfall 002	570-122986-1	January 6, 2023
77	Outfall 002	570-123264-1	January 9, 2023
78	Outfall 002	570-123414-1	January 10, 2023

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79	Outfall 002	570-123414-2	January 10, 2023
80	Outfall 002	570-123414-3	January 10, 2023
81	Outfall 002	570-123414-4	January 10, 2023
82	Outfall 002	570-124245-1	January 14, 2023
83	Outfall 002	570-124247-1	January 15, 2023
84	Outfall 002	570-124247-2	January 15, 2023
85	Outfall 002	570-124247-3	January 15, 2023
86	Outfall 002	570-124869-1	January 20, 2023
87	Outfall 002	570-124887-1	January 21, 2023
88	Outfall 002	570-124887-2	January 21, 2023
89	Outfall 002	570-124887-3	January 21, 2023
90	Outfall 002	570-125743-1	January 30, 2023
91	Outfall 002	570-125840-1	January 31, 2023
92	Outfall 002	570-125840-2	January 31, 2023
93	Outfall 002	570-125840-3	January 31, 2023
94	Outfall 002	570-128840-1	February 24, 2023
95	Outfall 002	570-128840-2	February 24, 2023
96	Outfall 002	570-128840-3	February 24, 2023
97	Outfall 002	570-128844-1	February 23, 2023
98	Outfall 002	570-129813-1	March 3, 2023
99	Outfall 002	570-129852-1	March 4, 2023
100	Outfall 002	570-129852-2	March 4, 2023
101	Outfall 002	570-129852-3	March 4, 2023
102	Outfall 002	570-129988-1	March 6, 2023
103	Outfall 002	570-130108-1	March 7, 2023
104	Outfall 002	570-130108-2	March 7, 2023
105	Outfall 002	570-130108-3	March 7, 2023
106	Outfall 002	570-130858-1	March 10, 2023
107	Outfall 002	570-130860-1	March 11, 2023
108	Outfall 002	570-130860-2	March 11, 2023
109	Outfall 002	570-130860-3	March 11, 2023
110	Outfall 002	570-130860-4	March 11, 2023
111	Outfall 002	570-131815-1	March 20, 2023
112	Outfall 002	570-131940-1	March 21, 2023
113	Outfall 002	570-131940-2	March 21, 2023
114	Outfall 002	570-131940-3	March 21, 2023
115	Outfall 002	570-132956-1	March 29, 2023
116	Outfall 002	570-133036-1	March 30, 2023
117	Outfall 002	570-133036-2	March 30, 2023
118	Outfall 002	570-133036-3	March 30, 2023

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119	Outfall 008	570-122678-1	January 5, 2023
120	Outfall 008	570-122678-2	January 5, 2023
121	Outfall 008	570-122678-3	January 5, 2023
122	Outfall 008	570-122945-1	January 6, 2023
123	Outfall 008	570-122945-2	January 6, 2023
124	Outfall 008	570-122945-3	January 6, 2023
125	Outfall 008	570-122945-4	January 6, 2023
126	Outfall 008	570-122945-5	January 6, 2023
127	Outfall 008	570-122945-6	January 6, 2023
128	Outfall 008	570-122945-7	January 6, 2023
129	Outfall 008	570-123267-1	January 9, 2023
130	Outfall 008	570-123670-1	January 11, 2023
131	Outfall 008	570-123670-2	January 11, 2023
132	Outfall 008	570-123670-3	January 11, 2023
133	Outfall 008	570-123670-4	January 11, 2023
134	Outfall 008	570-124233-1	January 15, 2023
135	Outfall 008	570-124233-2	January 15, 2023
136	Outfall 008	570-124233-4	January 15, 2023
137	Outfall 008	570-124236-1	January 14, 2023
138	Outfall 008	570-124870-1	January 20, 2023
139	Outfall 008	570-124890-1	January 21, 2023
140	Outfall 008	570-124890-2	January 21, 2023
141	Outfall 008	570-124890-3	January 21, 2023
142	Outfall 008	570-129008-1	February 25, 2023
143	Outfall 008	570-129009-1	February 25, 2023
144	Outfall 008	570-129009-2	February 25, 2023
145	Outfall 008	570-129009-3	February 25, 2023
146	Outfall 008	570-129926-1	March 5, 2023
147	Outfall 008	570-129991-1	March 6, 2023
148	Outfall 008	570-129992-1	March 6, 2023
149	Outfall 008	570-129992-2	March 6, 2023
150	Outfall 008	570-129992-3	March 6, 2023
151	Outfall 008	570-130109-1	March 7, 2023
152	Outfall 008	570-130109-2	March 7, 2023
153	Outfall 008	570-130109-3	March 7, 2023
154	Outfall 008	570-130855-1	March 10, 2023
155	Outfall 008	570-130861-1	March 11, 2023
156	Outfall 008	570-130861-2	March 11, 2023
157	Outfall 008	570-130861-3	March 11, 2023
158	Outfall 008	570-131811-1	March 20, 2023
159	Outfall 008	570-131948-1	March 21, 2023

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160	Outfall 008	570-131948-2	March 21, 2023
161	Outfall 008	570-131948-3	March 21, 2023
162	Outfall 008	570-133054-1	March 30, 2023
163	Outfall 008	570-133054-2	March 30, 2023
164	Outfall 008	570-133054-3	March 30, 2023
165	Outfall 008	570-133104-1	March 29, 2023
166	Outfall 009	570-122379-1	January 1, 2023
167	Outfall 009	570-122379-2	January 1, 2023
168	Outfall 009	570-122379-3	January 1, 2023
169	Outfall 009	570-122381-1	January 2, 2023
170	Outfall 009	570-122381-2	January 2, 2023
171	Outfall 009	570-122381-3	January 2, 2023
172	Outfall 009	570-122381-4	January 2, 2023
173	Outfall 009	570-122381-5	January 2, 2023
174	Outfall 009	570-122381-6	January 2, 2023
175	Outfall 009	570-122381-7	January 2, 2023
176	Outfall 009	570-123266-1	January 9, 2023
177	Outfall 009	570-123393-1	January 10, 2023
178	Outfall 009	570-123393-2	January 10, 2023
179	Outfall 009	570-123393-3	January 10, 2023
180	Outfall 009	570-123393-4	January 10, 2023
181	Outfall 009	570-123393-5	January 10, 2023
182	Outfall 009	570-124239-1	January 15, 2023
183	Outfall 009	570-124239-2	January 15, 2023
184	Outfall 009	570-124239-4	January 15, 2023
185	Outfall 009	570-124241-1	January 14, 2023
186	Outfall 009	570-124871-1	January 20, 2023
187	Outfall 009	570-124891-1	January 21, 2023
188	Outfall 009	570-124891-2	January 21, 2023
189	Outfall 009	570-124891-3	January 21, 2023
190	Outfall 009	570-125741-1	January 30, 2023
191	Outfall 009	570-125839-1	January 31, 2023
192	Outfall 009	570-125839-2	January 31, 2023
193	Outfall 009	570-125839-3	January 31, 2023
194	Outfall 009	570-128846-1	February 24, 2023
195	Outfall 009	570-129010-1	February 25, 2023
196	Outfall 009	570-129010-2	February 25, 2023
197	Outfall 009	570-129010-3	February 25, 2023
198	Outfall 009	570-129851-1	March 4, 2023
199	Outfall 009	570-129959-1	March 5, 2023

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201	Outfall 009	570-129959-3	March 5, 2023
202	Outfall 009	570-129990-1	March 6, 2023
203	Outfall 009	570-130127-1	March 7, 2023
204	Outfall 009	570-130127-2	March 7, 2023
205	Outfall 009	570-130127-3	March 7, 2023
206	Outfall 009	570-130856-1	March 10, 2023
207	Outfall 009	570-130862-1	March 11, 2023
208	Outfall 009	570-130862-2	March 11, 2023
209	Outfall 009	570-130862-3	March 11, 2023
210	Outfall 009	570-131814-1	March 20, 2023
211	Outfall 009	570-131938-1	March 21, 2023
212	Outfall 009	570-131938-2	March 21, 2023
213	Outfall 009	570-131938-3	March 21, 2023
214	Outfall 009	570-132955-1	March 29, 2023
215	Outfall 009	570-133059-1	March 30, 2023
216	Outfall 009	570-133059-2	March 30, 2023
217	Outfall 009	570-133059-3	March 30, 2023
218	Outfall 010	570-123417-1	January 10, 2023
219	Outfall 010	570-123417-2	January 10, 2023
220	Outfall 010	570-123417-3	January 10, 2023
221	Outfall 010	570-123653-1	January 11, 2023
222	Outfall 010	570-123653-2	January 11, 2023
223	Outfall 010	570-123653-3	January 11, 2023
224	Outfall 010	570-123653-4	January 11, 2023
225	Outfall 010	570-123653-5	January 11, 2023
226	Outfall 010	570-123653-6	January 11, 2023
227	Outfall 010	570-123653-7	January 11, 2023
228	Outfall 011	570-123256-1	January 8, 2023
229	Outfall 011	570-123256-2	January 8, 2023
230	Outfall 011	570-123256-3	January 8, 2023
231	Outfall 011	570-123391-1	January 10, 2023
232	Outfall 011	570-123391-2	January 10, 2023
233	Outfall 011	570-123391-3	January 10, 2023
234	Outfall 011	570-123391-4	January 10, 2023
235	Outfall 011	570-123391-5	January 10, 2023
236	Outfall 011	570-123391-6	January 10, 2023
237	Outfall 011	570-124229-1	January 15, 2023
238	Outfall 011	570-124392-1	January 17, 2023

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240	Outfall 011	570-124392-3	January 17, 2023
241	Outfall 011	570-124392-4	January 17, 2023
242	Outfall 011	570-124872-1	January 20, 2023
243	Outfall 011	570-124873-1	January 20, 2023
244	Outfall 011	570-124873-2	January 20, 2023
245	Outfall 011	570-124873-3	January 20, 2023
246	Outfall 011	570-129007-1	February 25, 2023
247	Outfall 011	570-129011-1	February 25, 2023
248	Outfall 011	570-129011-2	February 25, 2023
249	Outfall 011	570-129011-3	February 25, 2023
250	Outfall 011	570-129011-4	February 25, 2023
251	Outfall 011	570-131178-1	March 14, 2023
252	Outfall 011	570-131456-1	March 16, 2023
253	Outfall 011	570-131456-2	March 16, 2023
254	Outfall 011	570-131456-3	March 16, 2023
255	Outfall 011	570-131947-1	March 21, 2023
256	Outfall 011	570-132136-1	March 21, 2023
257	Outfall 011	570-132136-2	March 21, 2023
258	Outfall 011	570-132136-3	March 21, 2023
259	Outfall 018	570-122522-1	January 4, 2023
260	Outfall 018	570-122522-2	January 4, 2023
261	Outfall 018	570-122522-3	January 4, 2023
262	Outfall 018	570-123038-1	January 6, 2023
263	Outfall 018	570-123038-2	January 6, 2023
264	Outfall 018	570-123038-3	January 6, 2023
265	Outfall 018	570-123038-4	January 6, 2023
266	Outfall 018	570-123038-5	January 6, 2023
267	Outfall 018	570-123038-6	January 6, 2023
268	Outfall 018	570-123261-1	January 9, 2023
269	Outfall 018	570-123665-1	January 11, 2023
270	Outfall 018	570-123665-2	January 11, 2023
271	Outfall 018	570-123665-3	January 11, 2023
272	Outfall 018	570-123665-4	January 11, 2023
273	Outfall 018	570-124230-1	January 15, 2023
274	Outfall 018	570-124230-2	January 15, 2023
275	Outfall 018	570-124230-3	January 15, 2023
276	Outfall 018	570-124231-1	January 14, 2023
277	Outfall 018	570-124874-1	January 20, 2023
278	Outfall 018	570-124898-1	January 21, 2023

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Number	Outfall/Location	Eurofins Calscience Laboratory Report Number	Sampling Date
279	Outfall 018	570-124898-2	January 21, 2023
280	Outfall 018	570-124898-3	January 21, 2023
281	Outfall 018	570-128843-1	February 24, 2023
282	Outfall 018	570-129084-1	February 26, 2023
283	Outfall 018	570-129084-2	February 26, 2023
284	Outfall 018	570-129084-3	February 26, 2023
285	Outfall 018	570-129850-1	March 4, 2023
286	Outfall 018	570-129968-1	March 5, 2023
287	Outfall 018	570-129968-2	March 5, 2023
288	Outfall 018	570-129968-3	March 5, 2023
289	Outfall 018	570-129985-1	March 6, 2023
290	Outfall 018	570-130128-1	March 7, 2023
291	Outfall 018	570-130128-2	March 7, 2023
292	Outfall 018	570-130128-3	March 7, 2023
293	Outfall 018	570-130920-1	March 13, 2023
294	Outfall 018	570-131459-1	March 16, 2023
295	Outfall 018	570-131459-2	March 16, 2023
296	Outfall 018	570-131459-3	March 16, 2023
297	Outfall 018	570-131817-1	March 20, 2023
298	Outfall 018	570-131952-1	March 21, 2023
299	Outfall 018	570-131952-2	March 21, 2023
300	Outfall 018	570-131952-3	March 21, 2023
301	Outfall 018	570-132958-1	March 29, 2023
302	Outfall 018	570-133047-1	March 30, 2023
303	Outfall 018	570-133047-2	March 30, 2023
304	Outfall 018	570-133047-3	March 30, 2023

Number	Outfall/Location	LuminUltra Laboratory Report Number	Sampling Date
305	Outfall 002	SM23A04007	January 1, 2023
	Outfall 009	SM23A04008	January 1, 2023
	Outfall 018	SM23A09005	January 4, 2023
306	Outfall 001	SM23A09006	January 5, 2023
	Outfall 008	SM23A09007	January 5, 2023
	Outfall 001	SM23A10025	January 9, 2023
307	Outfall 008	SM23A10026	January 9, 2023
	Outfall 011	SM23A10027	January 8, 2023
	Outfall 018	SM23A10028	January 9, 2023
308	Outfall 010	SM23A11054	January 10, 2023

Number	Outfall/Location	Data Usability Summary Reports (Validation Reports)	Sampling Date
309	Various	01_2023_NPDES_Q1_Rad_DUSR	2 through 31 January 2023
310	Various	02_2023_NPDES_Q1_Feb_Mar_Met_DUSR	25 February through 16 March 2023
311	Various	03_2023_NPDES_Q1_Feb_Mar_Diox_DUSR	24 February through 30 March 2023
312	Various	04_2023_NPDES_Q1_Feb_Mar_Diox_Tox_E.coli_DUSR	24 February through 30 March 2023
313	Various	05_2023_NPDES_Q1_Jan_Feb_Mar_DUSR	January through March 2023

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 009 GRAB

JOB NUMBER

570-122379-1

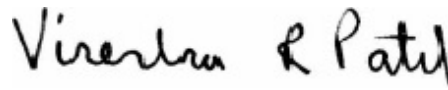
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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization

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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-1

Job ID: 570-122379-1

Laboratory: Eurofins Calscience

Narrative

**Job Narrative
570-122379-1**

Comments

No additional comments.

Receipt

The samples were received on 1/3/2023 5:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.4° C and 1.9° C.

GC/MS VOA

Method 624.1: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 570-293391.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 1664A: The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-293695.

Method: 1664.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-1

Client Sample ID: Outfall009_20230101_Grab

Lab Sample ID: 570-122379-1

No Detections.

Client Sample ID: TB-20230101

Lab Sample ID: 570-122379-3

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-1

Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS)

Client Sample ID: Outfall009_20230101_Grab

Lab Sample ID: 570-122379-1

Date Collected: 01/01/23 10:05

Matrix: Water

Date Received: 01/03/23 17:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			01/04/23 00:28	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.20	ug/L			01/04/23 00:28	1
1,1,2-Trichloroethane	ND		0.50	0.17	ug/L			01/04/23 00:28	1
1,1-Dichloroethane	ND		0.50	0.39	ug/L			01/04/23 00:28	1
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/04/23 00:28	1
1,2-Dichlorobenzene	ND		0.50	0.16	ug/L			01/04/23 00:28	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/04/23 00:28	1
1,2-Dichloropropane	ND		0.50	0.17	ug/L			01/04/23 00:28	1
1,3-Dichlorobenzene	ND		0.50	0.16	ug/L			01/04/23 00:28	1
1,4-Dichlorobenzene	ND		0.50	0.11	ug/L			01/04/23 00:28	1
2-Chloroethyl vinyl ether	ND		2.0	1.1	ug/L			01/04/23 00:28	1
Acrolein	ND		5.0	4.6	ug/L			01/04/23 00:28	1
Acrylonitrile	ND		2.0	1.4	ug/L			01/04/23 00:28	1
Benzene	ND		0.50	0.28	ug/L			01/04/23 00:28	1
Bromoform	ND		1.0	0.25	ug/L			01/04/23 00:28	1
Bromomethane	ND		0.50	0.22	ug/L			01/04/23 00:28	1
Carbon tetrachloride	ND		0.50	0.28	ug/L			01/04/23 00:28	1
Chlorobenzene	ND		0.50	0.19	ug/L			01/04/23 00:28	1
Dibromochloromethane	ND		0.50	0.15	ug/L			01/04/23 00:28	1
Chloroethane	ND		1.0	0.29	ug/L			01/04/23 00:28	1
Chloroform	ND		0.50	0.19	ug/L			01/04/23 00:28	1
Chloromethane	ND		0.50	0.30	ug/L			01/04/23 00:28	1
cis-1,2-Dichloroethene	ND		0.50	0.21	ug/L			01/04/23 00:28	1
cis-1,3-Dichloropropene	ND		0.50	0.30	ug/L			01/04/23 00:28	1
Bromodichloromethane	ND		0.50	0.19	ug/L			01/04/23 00:28	1
Ethylbenzene	ND		0.50	0.25	ug/L			01/04/23 00:28	1
Methylene Chloride	ND		2.0	0.57	ug/L			01/04/23 00:28	1
m,p-Xylene	ND		1.0	0.17	ug/L			01/04/23 00:28	1
Naphthalene	ND		1.0	0.33	ug/L			01/04/23 00:28	1
o-Xylene	ND		0.50	0.15	ug/L			01/04/23 00:28	1
Tetrachloroethene	ND		0.50	0.21	ug/L			01/04/23 00:28	1
Toluene	ND		0.50	0.23	ug/L			01/04/23 00:28	1
trans-1,2-Dichloroethene	ND		0.50	0.24	ug/L			01/04/23 00:28	1
trans-1,3-Dichloropropene	ND		0.50	0.18	ug/L			01/04/23 00:28	1
Trichloroethene	ND		0.50	0.17	ug/L			01/04/23 00:28	1
Trichlorofluoromethane	ND		0.50	0.29	ug/L			01/04/23 00:28	1
Vinyl chloride	ND		0.50	0.47	ug/L			01/04/23 00:28	1
Xylenes, Total	ND		1.0	0.17	ug/L			01/04/23 00:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		60 - 140		01/04/23 00:28	1
Toluene-d8 (Surr)	97		60 - 140		01/04/23 00:28	1
Dibromofluoromethane (Surr)	97		60 - 140		01/04/23 00:28	1

Client Sample ID: TB-20230101

Lab Sample ID: 570-122379-3

Date Collected: 01/01/23 10:05

Matrix: Water

Date Received: 01/03/23 17:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			01/04/23 00:06	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.20	ug/L			01/04/23 00:06	1

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-1

Method: 40CFR136A 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TB-20230101
Date Collected: 01/01/23 10:05
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122379-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		0.50	0.17	ug/L			01/04/23 00:06	1
1,1-Dichloroethane	ND		0.50	0.39	ug/L			01/04/23 00:06	1
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/04/23 00:06	1
1,2-Dichlorobenzene	ND		0.50	0.16	ug/L			01/04/23 00:06	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/04/23 00:06	1
1,2-Dichloropropane	ND		0.50	0.17	ug/L			01/04/23 00:06	1
1,3-Dichlorobenzene	ND		0.50	0.16	ug/L			01/04/23 00:06	1
1,4-Dichlorobenzene	ND		0.50	0.11	ug/L			01/04/23 00:06	1
2-Chloroethyl vinyl ether	ND		2.0	1.1	ug/L			01/04/23 00:06	1
Acrolein	ND		5.0	4.6	ug/L			01/04/23 00:06	1
Acrylonitrile	ND		2.0	1.4	ug/L			01/04/23 00:06	1
Benzene	ND		0.50	0.28	ug/L			01/04/23 00:06	1
Bromoform	ND		1.0	0.25	ug/L			01/04/23 00:06	1
Bromomethane	ND		0.50	0.22	ug/L			01/04/23 00:06	1
Carbon tetrachloride	ND		0.50	0.28	ug/L			01/04/23 00:06	1
Chlorobenzene	ND		0.50	0.19	ug/L			01/04/23 00:06	1
Dibromochloromethane	ND		0.50	0.15	ug/L			01/04/23 00:06	1
Chloroethane	ND		1.0	0.29	ug/L			01/04/23 00:06	1
Chloroform	ND		0.50	0.19	ug/L			01/04/23 00:06	1
Chloromethane	ND		0.50	0.30	ug/L			01/04/23 00:06	1
cis-1,2-Dichloroethene	ND		0.50	0.21	ug/L			01/04/23 00:06	1
cis-1,3-Dichloropropene	ND		0.50	0.30	ug/L			01/04/23 00:06	1
Bromodichloromethane	ND		0.50	0.19	ug/L			01/04/23 00:06	1
Ethylbenzene	ND		0.50	0.25	ug/L			01/04/23 00:06	1
Methylene Chloride	ND		2.0	0.57	ug/L			01/04/23 00:06	1
m,p-Xylene	ND		1.0	0.17	ug/L			01/04/23 00:06	1
Naphthalene	ND		1.0	0.33	ug/L			01/04/23 00:06	1
o-Xylene	ND		0.50	0.15	ug/L			01/04/23 00:06	1
Tetrachloroethene	ND		0.50	0.21	ug/L			01/04/23 00:06	1
Toluene	ND		0.50	0.23	ug/L			01/04/23 00:06	1
trans-1,2-Dichloroethene	ND		0.50	0.24	ug/L			01/04/23 00:06	1
trans-1,3-Dichloropropene	ND		0.50	0.18	ug/L			01/04/23 00:06	1
Trichloroethene	ND		0.50	0.17	ug/L			01/04/23 00:06	1
Trichlorofluoromethane	ND		0.50	0.29	ug/L			01/04/23 00:06	1
Vinyl chloride	ND		0.50	0.47	ug/L			01/04/23 00:06	1
Xylenes, Total	ND		1.0	0.17	ug/L			01/04/23 00:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		60 - 140					01/04/23 00:06	1
Toluene-d8 (Surr)	101		60 - 140					01/04/23 00:06	1
Dibromofluoromethane (Surr)	99		60 - 140					01/04/23 00:06	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-1

General Chemistry

Client Sample ID: Outfall009_20230101_Grab
Date Collected: 01/01/23 10:05
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122379-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease (1664A)	ND		1.1	0.58	mg/L		01/04/23 15:48	01/07/23 10:38	1

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Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	TOL	DBFM
		(60-140)	(60-140)	(60-140)
570-122379-1	Outfall009_20230101_Grab	102	97	97
570-122379-3	TB-20230101	95	101	99
LCS 570-293391/1018	Lab Control Sample	97	100	100
LCSD 570-293391/19	Lab Control Sample Dup	101	102	103
MB 570-293391/21	Method Blank	101	100	101

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-293391/21
 Matrix: Water
 Analysis Batch: 293391

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L			01/03/23 23:43	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.20	ug/L			01/03/23 23:43	1
1,1,2-Trichloroethane	ND		0.50	0.17	ug/L			01/03/23 23:43	1
1,1-Dichloroethane	ND		0.50	0.39	ug/L			01/03/23 23:43	1
1,1-Dichloroethene	ND		0.50	0.33	ug/L			01/03/23 23:43	1
1,2-Dichlorobenzene	ND		0.50	0.16	ug/L			01/03/23 23:43	1
1,2-Dichloroethane	ND		0.50	0.15	ug/L			01/03/23 23:43	1
1,2-Dichloropropane	ND		0.50	0.17	ug/L			01/03/23 23:43	1
1,3-Dichlorobenzene	ND		0.50	0.16	ug/L			01/03/23 23:43	1
1,4-Dichlorobenzene	ND		0.50	0.11	ug/L			01/03/23 23:43	1
2-Chloroethyl vinyl ether	ND		2.0	1.1	ug/L			01/03/23 23:43	1
Acrolein	ND		5.0	4.6	ug/L			01/03/23 23:43	1
Acrylonitrile	ND		2.0	1.4	ug/L			01/03/23 23:43	1
Benzene	ND		0.50	0.28	ug/L			01/03/23 23:43	1
Bromoform	ND		1.0	0.25	ug/L			01/03/23 23:43	1
Bromomethane	ND		0.50	0.22	ug/L			01/03/23 23:43	1
Carbon tetrachloride	ND		0.50	0.28	ug/L			01/03/23 23:43	1
Chlorobenzene	ND		0.50	0.19	ug/L			01/03/23 23:43	1
Dibromochloromethane	ND		0.50	0.15	ug/L			01/03/23 23:43	1
Chloroethane	ND		1.0	0.29	ug/L			01/03/23 23:43	1
Chloroform	ND		0.50	0.19	ug/L			01/03/23 23:43	1
Chloromethane	ND		0.50	0.30	ug/L			01/03/23 23:43	1
cis-1,2-Dichloroethene	ND		0.50	0.21	ug/L			01/03/23 23:43	1
cis-1,3-Dichloropropene	ND		0.50	0.30	ug/L			01/03/23 23:43	1
Bromodichloromethane	ND		0.50	0.19	ug/L			01/03/23 23:43	1
Ethylbenzene	ND		0.50	0.25	ug/L			01/03/23 23:43	1
Methylene Chloride	ND		2.0	0.57	ug/L			01/03/23 23:43	1
m,p-Xylene	ND		1.0	0.17	ug/L			01/03/23 23:43	1
Naphthalene	ND		1.0	0.33	ug/L			01/03/23 23:43	1
o-Xylene	ND		0.50	0.15	ug/L			01/03/23 23:43	1
Tetrachloroethene	ND		0.50	0.21	ug/L			01/03/23 23:43	1
Toluene	ND		0.50	0.23	ug/L			01/03/23 23:43	1
trans-1,2-Dichloroethene	ND		0.50	0.24	ug/L			01/03/23 23:43	1
trans-1,3-Dichloropropene	ND		0.50	0.18	ug/L			01/03/23 23:43	1
Trichloroethene	ND		0.50	0.17	ug/L			01/03/23 23:43	1
Trichlorofluoromethane	ND		0.50	0.29	ug/L			01/03/23 23:43	1
Vinyl chloride	ND		0.50	0.47	ug/L			01/03/23 23:43	1
Xylenes, Total	ND		1.0	0.17	ug/L			01/03/23 23:43	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		60 - 140		01/03/23 23:43	1
Toluene-d8 (Surr)	100		60 - 140		01/03/23 23:43	1
Dibromofluoromethane (Surr)	101		60 - 140		01/03/23 23:43	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-293391/1018
Matrix: Water
Analysis Batch: 293391

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	10.0	9.04		ug/L		90	70 - 130
1,1,2,2-Tetrachloroethane	10.0	9.00		ug/L		90	60 - 140
1,1,2-Trichloroethane	10.0	8.93		ug/L		89	70 - 130
1,1-Dichloroethane	10.0	9.59		ug/L		96	70 - 130
1,1-Dichloroethene	10.0	8.43		ug/L		84	50 - 150
1,2-Dichlorobenzene	10.0	9.63		ug/L		96	65 - 135
1,2-Dichloroethane	10.0	9.09		ug/L		91	70 - 130
1,2-Dichloropropane	10.0	8.99		ug/L		90	35 - 165
1,3-Dichlorobenzene	10.0	9.97		ug/L		100	70 - 130
1,4-Dichlorobenzene	10.0	9.24		ug/L		92	65 - 135
2-Chloroethyl vinyl ether	10.0	8.55		ug/L		85	1 - 225
Acrolein	20.0	14.4		ug/L		72	60 - 140
Acrylonitrile	100	89.4		ug/L		89	60 - 140
Benzene	10.0	9.43		ug/L		94	65 - 135
Bromoform	10.0	9.20		ug/L		92	70 - 130
Bromomethane	10.0	11.2		ug/L		112	15 - 185
Carbon tetrachloride	10.0	8.99		ug/L		90	70 - 130
Chlorobenzene	10.0	9.33		ug/L		93	65 - 135
Dibromochloromethane	10.0	9.05		ug/L		90	70 - 135
Chloroethane	10.0	10.4		ug/L		104	40 - 160
Chloroform	10.0	8.90		ug/L		89	70 - 135
Chloromethane	10.0	11.4		ug/L		114	1 - 205
cis-1,2-Dichloroethene	10.0	9.34		ug/L		93	60 - 140
cis-1,3-Dichloropropene	10.0	9.60		ug/L		96	25 - 175
Bromodichloromethane	10.0	9.37		ug/L		94	65 - 135
Ethylbenzene	10.0	9.72		ug/L		97	60 - 140
Methylene Chloride	10.0	8.45		ug/L		85	60 - 140
m,p-Xylene	10.0	9.72		ug/L		97	60 - 140
Naphthalene	10.0	9.57		ug/L		96	60 - 140
o-Xylene	10.0	9.69		ug/L		97	60 - 140
Tetrachloroethene	10.0	9.61		ug/L		96	70 - 130
Toluene	10.0	9.53		ug/L		95	70 - 130
trans-1,2-Dichloroethene	10.0	8.98		ug/L		90	70 - 130
trans-1,3-Dichloropropene	10.0	9.66		ug/L		97	50 - 150
Trichloroethene	10.0	9.25		ug/L		92	65 - 135
Trichlorofluoromethane	10.0	10.6		ug/L		106	50 - 150
Vinyl chloride	10.0	10.5		ug/L		105	5 - 195
Xylenes, Total	20.0	19.4		ug/L		97	60 - 140

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	97		60 - 140
Toluene-d8 (Surr)	100		60 - 140
Dibromofluoromethane (Surr)	100		60 - 140

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-293391/19
Matrix: Water
Analysis Batch: 293391

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane	10.0	9.60		ug/L		96	70 - 130	6	36
1,1,2,2-Tetrachloroethane	10.0	9.35		ug/L		93	60 - 140	4	61
1,1,2-Trichloroethane	10.0	9.40		ug/L		94	70 - 130	5	45
1,1-Dichloroethane	10.0	10.1		ug/L		101	70 - 130	5	40
1,1-Dichloroethene	10.0	9.11		ug/L		91	50 - 150	8	32
1,2-Dichlorobenzene	10.0	9.96		ug/L		100	65 - 135	3	57
1,2-Dichloroethane	10.0	9.39		ug/L		94	70 - 130	3	49
1,2-Dichloropropane	10.0	9.20		ug/L		92	35 - 165	2	55
1,3-Dichlorobenzene	10.0	9.78		ug/L		98	70 - 130	2	43
1,4-Dichlorobenzene	10.0	9.50		ug/L		95	65 - 135	3	57
2-Chloroethyl vinyl ether	10.0	9.34		ug/L		93	1 - 225	9	71
Acrolein	20.0	17.8		ug/L		89	60 - 140	21	60
Acrylonitrile	100	97.9		ug/L		98	60 - 140	9	60
Benzene	10.0	9.48		ug/L		95	65 - 135	1	61
Bromoform	10.0	9.41		ug/L		94	70 - 130	2	42
Bromomethane	10.0	11.3		ug/L		113	15 - 185	0	61
Carbon tetrachloride	10.0	9.32		ug/L		93	70 - 130	4	41
Chlorobenzene	10.0	9.63		ug/L		96	65 - 135	3	53
Dibromochloromethane	10.0	9.40		ug/L		94	70 - 135	4	50
Chloroethane	10.0	11.0		ug/L		110	40 - 160	5	78
Chloroform	10.0	9.57		ug/L		96	70 - 135	7	30
Chloromethane	10.0	12.4		ug/L		124	1 - 205	8	60
cis-1,2-Dichloroethene	10.0	9.99		ug/L		100	60 - 140	7	30
cis-1,3-Dichloropropene	10.0	9.94		ug/L		99	25 - 175	3	58
Bromodichloromethane	10.0	9.70		ug/L		97	65 - 135	3	56
Ethylbenzene	10.0	9.99		ug/L		100	60 - 140	3	63
Methylene Chloride	10.0	9.09		ug/L		91	60 - 140	7	28
m,p-Xylene	10.0	9.64		ug/L		96	60 - 140	1	30
Naphthalene	10.0	10.7		ug/L		107	60 - 140	11	30
o-Xylene	10.0	10.0		ug/L		100	60 - 140	3	30
Tetrachloroethene	10.0	9.45		ug/L		94	70 - 130	2	39
Toluene	10.0	9.93		ug/L		99	70 - 130	4	41
trans-1,2-Dichloroethene	10.0	9.85		ug/L		98	70 - 130	9	45
trans-1,3-Dichloropropene	10.0	9.66		ug/L		97	50 - 150	0	86
Trichloroethene	10.0	9.41		ug/L		94	65 - 135	2	48
Trichlorofluoromethane	10.0	11.3		ug/L		113	50 - 150	6	84
Vinyl chloride	10.0	11.2		ug/L		112	5 - 195	6	66
Xylenes, Total	20.0	19.6		ug/L		98	60 - 140	1	30

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	101		60 - 140
Toluene-d8 (Surr)	102		60 - 140
Dibromofluoromethane (Surr)	103		60 - 140

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-293695/1-A
Matrix: Water
Analysis Batch: 294323

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 293695

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	ND		1.0	0.51	mg/L		01/04/23 15:48	01/07/23 10:38	1

Lab Sample ID: LCS 570-293695/2-A
Matrix: Water
Analysis Batch: 294323

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 293695

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM: Oil and Grease	40.0	37.0		mg/L		92	78 - 114

Lab Sample ID: LCSD 570-293695/3-A
Matrix: Water
Analysis Batch: 294323

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 293695

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	38.1		mg/L		95	78 - 114	3	18

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-1

GC/MS VOA

Analysis Batch: 293391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122379-1	Outfall009_20230101_Grab	Total/NA	Water	624.1	
570-122379-3	TB-20230101	Total/NA	Water	624.1	
MB 570-293391/21	Method Blank	Total/NA	Water	624.1	
LCS 570-293391/1018	Lab Control Sample	Total/NA	Water	624.1	
LCSD 570-293391/19	Lab Control Sample Dup	Total/NA	Water	624.1	

General Chemistry

Prep Batch: 293695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122379-1	Outfall009_20230101_Grab	Total/NA	Water	1664A	
MB 570-293695/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-293695/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-293695/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 294323

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122379-1	Outfall009_20230101_Grab	Total/NA	Water	1664A	293695
MB 570-293695/1-A	Method Blank	Total/NA	Water	1664A	293695
LCS 570-293695/2-A	Lab Control Sample	Total/NA	Water	1664A	293695
LCSD 570-293695/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	293695

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-1

Client Sample ID: Outfall009_20230101_Grab

Lab Sample ID: 570-122379-1

Date Collected: 01/01/23 10:05

Matrix: Water

Date Received: 01/03/23 17:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	293391	01/04/23 00:28	UX77	EET CAL 4
Instrument ID: GCMSJJ										
Total/NA	Prep	1664A			873 mL	1000 mL	293695	01/04/23 15:48	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			294323	01/07/23 10:38	L6IE	EET CAL 4
Instrument ID: NO EQUIQ										

Client Sample ID: TB-20230101

Lab Sample ID: 570-122379-3

Date Collected: 01/01/23 10:05

Matrix: Water

Date Received: 01/03/23 17:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	10 mL	10 mL	293391	01/04/23 00:06	UX77	EET CAL 4
Instrument ID: GCMSJJ										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	State	3082	07-31-23
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-23
USDA	US Federal Programs	P330-20-00034	02-10-23
Washington	State	C916-18	10-12-22 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	EET CAL 4
1664A	HEM and SGT-HEM	1664A	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122379-1	Outfall009_20230101_Grab	Water	01/01/23 10:05	01/03/23 17:05
570-122379-3	TB-20230101	Water	01/01/23 10:05	01/03/23 17:05

1

2

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122379

VLDUVKT

CHAIN OF CUSTODY FORM

Client Name/Address: Hayley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall 003-007, 009, 010 Outfall 009 Grab		Field Readings (Include units) Time of Readings: 10:00 pH 8.35 pH unit Temp 50.4 °C		Meter serial #												
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Field readings QC Checked by: <i>[Signature]</i>														
Test America's services under this CoC shall be performed in accordance with the TCOs within Binding Service Agreement # 2019-22. Test America, its subsidiaries and affiliates, and Test America Laboratories Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Date/Time: 10:10														
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	MST-Bacteroidales, Human (SAM348-357)	Oil & Grease (E1664-HEM)	VOCs PP + xylenes, Freon 11 (E824)	VOCs - only A+A+2CVE (E824)						
Outfall 009	Outfall009_20230101_Grab	11/2023 11005	WM	125 mL Sterile Poly	1	None	5	No	X	X	X							
	Outfall009_20230101_Grab_Extra	11/2023 11005	WM	1 L Glass Amber	3	HCl	15	No										
			WM	40 mL VOA	3	HCl	40	No										
			WM	40 mL VOA	3	None	55	No										
			WM	1 L Glass Amber	2	HCl	15	No										
			WM	40 mL VOA	3	HCl	40	No										
			WM	40 mL VOA	3	None	55	No										
			WQ	40 mL VOA	2	HCl	40	No										
			WQ	40 mL VOA	2	None	55	No										
Frip Blanks	TB-20230101	11/2023 12005	WQ	40 mL VOA	2	None	55	No										
<p>Relinquished By: <i>[Signature]</i> Date/Time: 1-3-23/1045 Company: HA</p> <p>Relinquished By: <i>[Signature]</i> Date/Time: 01/03/23 1705 Company: EC</p> <p>Relinquished By: <i>[Signature]</i> Date/Time: 1-3-23/1245 Company: EC</p> <p>Relinquished By: <i>[Signature]</i> Date/Time: EC 1-3-23 17:05 Company: EC</p>																		
<p>Legend: R = Routine, A = Annual</p> <p>Turn-around time: (Check) 24 Hour ___ 72 Hour ___ 10 Day ___ X ___ 48 Hour ___ 5 Day ___ Normal: ___</p> <p>Sample integrity: (Check) Intact: ___ On Ice: ___ Store samples for 6 months: ___ Data Requirements: (Check) No Level IV: ___ All Level IV: ___ X ___</p>																		

14/19 scil 1.9/1.9 scil



570-122379 Chain of Custody



Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Patel, Virendra	Carrier Tracking No(s):	COC No: 570-203155-1
Shipping/Receiving		E-Mail: Virendra.Patel@eurofins.com	State of Origin: California	Page: Page 1 of 1
Company: Enthalpy Analytical LLC		Job #: 570-122379-2		
Address: 931 W. Barkley Ave.		Preservation Codes: M - Hexane N - None O - AsNaOH P - Na2CO3 Q - Nitric Acid R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)		
City: Orange		Analysis Requested		
State, Zip: CA, 92868		Total Number of Containers: 3		
Phone:		Special Instructions/Note: See Attached Instructions		
Email:		Other:		
Project Name: Boeing SSFL NPDES - Outfall 009 GRAB		Special Instructions/Note: See Attached Instructions		
Site:		Other:		
Due Date Requested: 1/17/2023		Special Instructions/Note: See Attached Instructions		
TAT Requested (days):		Special Instructions/Note: See Attached Instructions		
PO #:		Special Instructions/Note: See Attached Instructions		
WO #:		Special Instructions/Note: See Attached Instructions		
Project #: 44024446		Special Instructions/Note: See Attached Instructions		
SSOW#:		Special Instructions/Note: See Attached Instructions		
Sample Identification - Client ID (Lab ID)		Special Instructions/Note: See Attached Instructions		
Outfall009_20230101_Grab (570-122379-1)		Special Instructions/Note: See Attached Instructions		
Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=Water, S=Soil, O=Organic, B=Blood, E=EtOH, A=Air)	Preservation Code:
1/1/23	10:05 Pacific		Water	
Field Filtered Sample (Yes or No)		SUB (Quant. Tray - E, Coll - level 4 required - E, Coll - level 4 required)		
Perform MS/MSD (Yes or No)		X		

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, IV, Other (specify)
 Primary Deliverable Rank: 2

Empty Kit Relinquished by: _____ Date: _____ Method of Shipment: _____
 Relinquished by: _____ Date/Time: 01/03/23 1615 Company: EC
 Relinquished by: _____ Date/Time: 1/5/23 AS 1/3 Company: _____
 Relinquished by: _____ Date/Time: 1/5/23 AS 1/3 Company: _____

Custody Seals Intact: _____ Custody Seal No.: _____
 Δ Yes Δ No

Received by: _____ Date/Time: 1/5/23 1619 Company: FA
 Received by: _____ Date/Time: _____ Company: _____
 Received by: _____ Date/Time: _____ Company: _____

Cooler Temperature(s) °C and Other Remarks:



Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Patel, Virendra	Carrier Tracking No(s):	COC No: 570-203155-1																		
Shipping/Receiving		E-Mail: Virendra.Patel@eurofins.com	State of Origin: California	Page: Page 1 of 1																		
Company: Enthalpy Analytical LLC		Accreditations Required (See note): State Program - California		Job #: 570-122379-2																		
Address: 931 W. Barkley Ave., Orange, CA, 92668		<table border="1"> <tr> <th colspan="2">Analysis Requested</th> <th rowspan="2">Total Number of Containers</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>			Analysis Requested		Total Number of Containers															
Analysis Requested		Total Number of Containers																				
Due Date Requested: 1/17/2023		<table border="1"> <tr> <th>Sample Date</th> <th>Sample Time</th> <th>Sample Type (C=comp, G=grab)</th> <th>Matrix (Water, Seawater, Urine, Blood, etc.)</th> <th>Preservation Code:</th> <th>Field Filtered Sample (Yes/No)</th> <th>Perform MS/MSD (Yes/No)</th> <th>Sub (Quant-tray - E, Coll - level 4 required - E, Coll - level 4 required)</th> <th>Special Instructions/Note:</th> </tr> <tr> <td>1/1/23</td> <td>10:05 Pacific</td> <td></td> <td>Water</td> <td></td> <td>X</td> <td>X</td> <td>X</td> <td>See Attached Instructions</td> </tr> </table>			Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Seawater, Urine, Blood, etc.)	Preservation Code:	Field Filtered Sample (Yes/No)	Perform MS/MSD (Yes/No)	Sub (Quant-tray - E, Coll - level 4 required - E, Coll - level 4 required)	Special Instructions/Note:	1/1/23	10:05 Pacific		Water		X	X	X	See Attached Instructions
Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Seawater, Urine, Blood, etc.)	Preservation Code:	Field Filtered Sample (Yes/No)	Perform MS/MSD (Yes/No)	Sub (Quant-tray - E, Coll - level 4 required - E, Coll - level 4 required)	Special Instructions/Note:														
1/1/23	10:05 Pacific		Water		X	X	X	See Attached Instructions														
TAT Requested (days):		<table border="1"> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>																				
PO #:																						
WO #:																						
Project #: 44024446																						
SSOW#:																						
Project Name: Boeing SSFL NPDES - Outfall 009 GRAB																						
Site:																						
Sample Identification - Client ID (Lab ID)																						
Outfall009_20230101_Grab (570-122379-1)																						
<p>Notes: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>																						
<p>Possible Hazard Identification</p> <p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</p> <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months																						
<p>Unconfirmed Deliverable Requested 1, II, III, IV, Other (specify) Primary Deliverable Rank: 2</p>																						
<p>Empty Kit Relinquished by: _____ Date: _____ Method of Shipment: _____</p>																						
<p>Relinquished by: _____ Date/Time: 01/03/23 16:15 Company: EC</p>																						
<p>Relinquished by: _____ Date/Time: 1/3/23 16:15 Company: PA</p>																						
<p>Relinquished by: _____ Date/Time: 1/3/23 16:15 Company: PA</p>																						
<p>Custody Seals Intact: _____ Custody Seal No. _____ Cooler Temperature(s) °C and Other Remarks: _____</p>																						



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122379-1

Login Number: 122379

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004
Generated 1/19/2023 2:49:57 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 009 GRAB

JOB NUMBER

570-122379-2

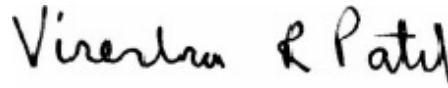
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



Generated
1/19/2023 2:49:57 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



Table of Contents

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Sample Summary	7
Subcontract Data	8
Chain of Custody	19
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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-2

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-2

Job ID: 570-122379-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-122379-2

Comments

No additional comments.

Receipt

The samples were received on 1/3/2023 5:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.4° C and 1.9° C.

Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work

Method Quant-Tray - E. Coli - level 4 required - E. Coli - level 4 required: This method was subcontracted to Enthalpy Analytical - Barkley. The subcontract laboratory certification is different from that of the facility issuing the final report.



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-2

Method	Method Description	Protocol	Laboratory
1103.1	E. Coli	EPA	Enthalpy

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

Enthalpy = Enthalpy Analytical - Barkley, 931 W. Barkley Ave, Orange, CA 92868



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122379-1	Outfall009_20230101_Grab	Water	01/01/23 10:05	01/03/23 17:05

1

2

3

4

5

6

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8

9



Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

Lab Job Number: 476421
Report Level: IV
Report Date: 01/18/2023

Microbiology Tests

Analytical Report *prepared for:*

Virendra Patel
Eurofins Calscience Tustin
2841 Dow Avenue, Suite 100
Tustin, CA 92780

Project: BOEING NPDES SSFL - Boeing SSFL NPDES - Outfall 009 Grab

Authorized for release by:

Quynhgiao Le, Project Manager
714-7716900
quynhgiao.le@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 1338, NELAP# 4038, SCAQMD LAP# 18LA0518, LACSD ID# 10105



Sample Summary

Virendra Patel	Lab Job #:	476421
Eurofins Calscience Tustin	Project No:	BOEING NPDES SSFL
2841 Dow Avenue, Suite	Location:	Boeing SSFL NPDES - Outfall 009 Grab
100	Date Received:	01/03/23
Tustin, CA 92780		

Sample ID	Lab ID	Collected	Matrix
OUTFALL009_20230101_GRAB (570-122379-1)	476421-001	01/01/23 10:05	Water

- 1
- 2
- 3
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- 9

Case Narrative

MICROBIOLOGY TESTS (SM 9223BB)

Eurofins Calscience Tustin
2841 Dow Avenue, Suite 100
Tustin, CA 92780
Virendra Patel

Lab Job Number: 476421
Project No: BOEING NPDES SSFL
Location: Boeing SSFL NPDES - Outfall 009 Grab
Date Received: 01/03/23

This data package contains sample and QC results for one water sample, requested for the above referenced project on 01/03/23. See attached cooler receipt form for any sample receipt problems or discrepancies.

Chain of Custody

Eurofins Calscience
 2841 Dow Avenue, Suite 100
 Tustin, CA 92780
 Phone: 714-895-5494

Chain of Custody Record



eurofins

Environment Testing

Client Information (Sub Contract Lab)		Lab Pk: Patel, Virendra	Center Tracking No(s):
Client Contact: 2841 Dow Avenue, Suite 100, Tustin, CA 92780, Phone: 714-895-5494		E-Mail: Virendra.Patel@eurofins.com	State of Origin: California
Shipping/Receiving: Enthalpy Analytical LLC		Accreditations Required (See note): State Program - California	Page: Page 1 of 1
Address: 931 W. Barkley Ave., Orange, CA, 92868		Due Date Requested: 1/17/2023	Job #: 570-122379-2
City: Orange		TAT Requested (days):	Preservation Codes: M - Hexane N - None O - AshtO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - Triema Y - Triema Z - other (specify) Other:
PO #: _____		Project #: 44024446	
W/O #: _____		SSOW#: _____	
Project Name: Boeing SSFL NPDES - Outfall 009 GRAB		Sample Date: 1/1/23	Sample Time: 10:05 Pacific
S/N: _____		Sample Type (C=Comp, G=grab): _____	Preservation Code: Water
Matrix (W=Water, S=Soil, O=Oil, B=Brine, A=Air): _____		Field Filtered Sample (Yes or No): <input checked="" type="checkbox"/>	Sub (Quant, Tray - E, Coll - level & required - m, Coll - level & required): <input checked="" type="checkbox"/>
Sample Identification - Client ID (Lab ID)		Outfall009_20230101_Grab (570-122379-1)	Total Number of Containers: 3
Special Instructions/Note:		See Attached Instructions	

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) _____
 Primary Deliverable Rank: 2
 Empty Kit Relinquished by: _____
 Relinquished by: _____
 Relinquished by: _____
 Relinquished by: _____
 Custody Seals Intact: _____
 Custody Seal No.: _____

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Special Instructions/QC Requirements:

Received by: <i>CEG</i>	Date/Time: 1/3/23 16:19	Company: EA
Received by:	Date/Time:	Company:
Received by:	Date/Time:	Company:

Cooler Temperature(s) °C and Other Remarks:



ICOC No:
570-203155

Containers

Count 3 **Container Type** Plastic 120 mL - Sterile/Na2S2O3 **Preservative** Sodium Thiosulfate

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Quant-Tray - E. Coli - level 4 required - E. Coli - level 4 required)	E Coli (1x, 10x, 100x Dilutions) - 8 hour hold time - level 4





SAMPLE ACCEPTANCE CHECKLIST

Section 1
 Client: Eurofins Calscience Project: Boeing SSFL MADES
 Date Received: 1/3/23 Sampler's Name Present: Yes No

Section 2
 Sample(s) received in a cooler? Yes, How many? 1 No (skip section 2) Sample Temp (°C) (No Cooler) : _____
 Sample Temp (°C), One from each cooler: #1: 28 #2: _____ #3: _____ #4: _____
(Acceptance range is < 6°C but not frozen for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)
 Shipping Information: _____

Section 3
 Was the cooler packed with: Ice Ice Packs Bubble Wrap Styrofoam
 Paper None Other _____
 Cooler Temp (°C): #1: 1.8 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	X		
Are sample IDs present?	X		
Are sampling dates & times present?	X		
Is a relinquished signature present?	X		
Are the tests required clearly indicated on the COC?	X		
Are custody seals present?		X	
If custody seals are present, were they intact?			X
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	X		
Did all samples arrive intact? If no, indicate in Section 4 below.	X		
Did all bottle labels agree with COC? (ID, dates and times)	X		
Were the samples collected in the correct containers for the required tests?	X		
Are the containers labeled with the correct preservatives?	X		X
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			X
Was a sufficient amount of sample submitted for the requested tests?	X		

AS113

Section 5 Explanations/Comments

Section 6
 For discrepancies, how was the Project Manager notified? Verbal PM Initials: _____ Date/Time _____
 Email (email sent to/on): _____ / _____
 Project Manager's response:

Completed By: [Signature] Date: 1/3/23



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- 2
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Results & QC Summary

Total Coliform / E. coli by Quanti-Tray

Lab #: 476421	Project#: BOEING NPDES SSFL	
Client: Eurofins Calscience Tustin	Location: Boeing SSFL NPDES - Outfall 009 Grab	
Field ID: OUTFALL009_20230101_GRAB (570-122379-1)	Batch#: 304527	Analyzed: 01/04/23 13:30
Lab ID: 476421-001	Sampled: 01/01/23 10:05	Prep:
Matrix: Water	Received: 01/03/23	Analysis: SM 9223Bb
Diln Fac: 1.000	Prepared: 01/03/23 16:51	Analyst: JAA

476421-001 Analyte	Result	RL	Units	Qual
Coliform, E. Coli	250	1.0	MPN/100ml	H

Legend

H: Holding time was exceeded
 RL: Reporting Limit



SM 9223 B-b, Quanti-Tray

Prep Analyst: ST Prep Date/Time: 01/03/23 1051 QC Batch ID: 3045077 Batch Page 1 of 2
 Read Analyst: ST Read Date/Time: 01/04/23 1330 Media Lot #: EU896 Pipette Lot #: A103842 & A10394 1 A104116
 Monthly Quantitative Sealer Check: Collisure Colliert 24 Colliert 18 Colliert 24 * Quanti-Tray Sealer Check must be performed monthly
 Total and E. coli: Incubator ID: M4 Incubator In, Temp/Time: 17-24 35-3 Incubator Out, Temp/Time: 1330 35-2
 Fecal Coliform: Water Bath ID: NA Water Bath In, Temp/Time: NA Water Bath Out, Temp/Time: NA

Client	Client Sample ID	Enthalpy Sample ID	Dilution Factor	Total Coliform Counts		MPN Table Value	Final Result, MPN	E. coli Counts		MPN Table Value	Final Result, MPN	Fecal Coliform Counts (Colliert 18 only)		MPN Table Value	Final Result, MPN	Comments
				Large Wells	Small Wells			Large Wells	Small Wells			Large Wells	Small Wells			
		476421-001	1X	49	48	>249.6	72400	49	26	488.4	490					EM
		↓	10X	49	48	>249.6	72400	31	2	49.5	500					
		↓	100X	49	21	365.4	36,000	9	0	9.8	980					
		476421-001	1X	49	48	>249.6	72400	48	18	248.9	250					EA
		↓	10X	49	31	648.8	6500	21	1	27.9	280					
		↓	100X	35	1	58.6	5900	2	0	2.0	200					
		476419-001	1X	49	48	>249.6	72400	49	47	249.6	2400					EC
		↓	10X	49	48	>249.6	72400	49	16	235.5	2800					
		↓	100X	49	28	547.5	55,000	18	2	24.3	2400					
		476417-001	1X	49	48	>249.6	72400	48	7	159.7	160					CA
		↓	10X	49	48	>249.6	72400	11	1	13.4	130					
		↓	100X	49	10	204.6	20,000	4	0	4.1	410					
		476426-001	1X	49	48	>249.6	72400	49	48	249.6	22400		JA 01/4/23			AR
		↓														
		12/21/22		49	48	>249.6	72400	49	48	>249.6	>2400					
		↓		49	48	>249.6	72400	0	0	<1	<1					
				0	0	<1	<1	0	0	<1	<1					

Data Entered By: JA 1/4/23 Data Reviewed By: _____
 63 of 100 SM 9223B-b, Quanti-Tray, Rev 3, 1/15/2019

CHAIN OF CUSTODY FORM

VLJDUVAT

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSEI NPDES Permit 2023 Annual Outfall [003-007, 008, 010] Outfall 009 Grab		Field Readings (Include units) Time of Readings: 10:10 pH 8.35 pH unit Temp 50.4 °C		Meter serial # _____	
Test America Contact: Christian Bondoc 17461 Darian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project Manager: Katherine Malar 520 289 8006, 520 904 6044 (cell)		Field readings CC Checked by: <i>[Signature]</i> Date/Time: 10:10		Comments Deliver to Lab ASAP 8 hr hold time Deliver to Lab ASAP 8 hr hold time. Need 1x, 10x, 100x dilutions	
Test America's services under this COC shall be performed in accordance with the TGA when Blanket Service Agreement# 2019-2021 performed by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Test America Laboratories Inc.							
Sampler: Adnan Mobeka		Field Manager: Mark Dominick 978 224 5033, 818 599 0702 (cell)		ANALYSIS REQUIRED * MST-Bacteroides, Human (SAM348-357) X E. coli (SM9221) X Oil & Grease (E164A-HEM) X VOCs P + xylenes, Freon 11 (E824) X VOCs - only A+A2CVE (E824) X			
Sample Description	Sample Matrix	Sampling Date/Time	Container Type	# of Cont.	Preservative	Bottle #	MS/MSO
Outfall 009	WM	1/12/2023 11:00	125 mL Sterile Poly	1	None	5	No
	WM		125 mL Sterile Poly	3	Nu25203	10	No
	WM		1 L Glass Amber	2	HCl	15	No
	WM		40 mL VOA	3	HCl	40	No
	WM		40 mL VOA	3	None	55	No
	WM		1 L Glass Amber	2	HCl	15	No
	WM		40 mL VOA	3	HCl	40	No
	WM		40 mL VOA	3	None	55	No
	WQ		40 mL VOA	2	HCl	40	No
	WQ		40 mL VOA	2	None	55	No
Trip Blank	TD-20220101	1/12/2023 10:15					
Requisitioned By: <i>[Signature]</i> Date/Time: 1-3-2023 11:14 Company:		Legend: R = Routine, A = Annual Received By: <i>[Signature]</i> Date/Time: 1-3-2023 15:00 Company:					
Requisitioned By: <i>[Signature]</i> Date/Time: 1-3-2023 15:00 Company:		Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: _____ X 48 Hour: _____ 5 Day: _____ Normal: _____ Sample Integrity: (Check) Intact: _____ On Ice: _____ Data Requirements: (Check) No Level IV: _____ All Level IV: _____ X					

* This COC is only for a strikethrough sample, and is a copy of original COC

This COC received from Mark Dominick (H&A) on 01/03/2023 at 09:10am.
- Virendra (ECI)



122379

VLDUVKT

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall 003-007, 009, 010 Outfall 009 Grab		Field Readings (Include units) Time of Readings: 10:00 pH 8.35 pH unit Temp 50.4 °C		Meter serial # VLDUVKT								
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Field readings QC Checked by: <i>[Signature]</i>										
Test America's services under this CoC shall be performed in accordance with the TCOs within Binding Service Agreement # 2019-22. Test America, its subsidiaries and affiliates, and Test America Laboratories Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Date/Time: 10:10										
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	MST-Bacteroidales, Human (SAM348-357)	Oil & Grease (E1664-HEM)	VOCs PP + xylenes, Freon 11 (E824)	VOCs - only A+A+2CVE (E824)	Field Readings	Comments
Outfall 009	Outfall009_20230101_Grab	11/2023 11005	WM	125 mL Sterile Poly	1	None	5	No	X	X	X	X		Deliver to lab ASAP 8 hr hold time
			WM	125 mL Sterile Poly	3	Na2S2O3	10	No						Deliver to lab ASAP 8 hr hold time. Need 1x, 10x, 100x dilutions
			WM	1 L Glass Amber	2	HCl	15	No						
			WM	40 mL VOA	3	HCl	40	No			X			
			WM	40 mL VOA	3	None	55	No				X		
			WM	1 L Glass Amber	2	HCl	15	No		H				Hold
			WM	40 mL VOA	3	HCl	40	No		H				Hold
			WM	40 mL VOA	3	None	55	No			X			Hold
			WQ	40 mL VOA	2	HCl	40	No						Hold
			WQ	40 mL VOA	2	None	55	No			X			Hold

Legend: R = Routine, A = Annual

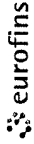
Relinquished By: <i>[Signature]</i>	Date/Time: 1-3-23/1045	Company: HA	Received By: <i>[Signature]</i>	Date/Time: 1/3/23/1245	Company: EC
Relinquished By: <i>[Signature]</i>	Date/Time: 01/03/23 1705	Company: EC	Received By: <i>[Signature]</i>	Date/Time: EC 1-3-23 17:05	Company: EC
Relinquished By: <i>[Signature]</i>	Date/Time: 14/19 5611	Company: 1.9/1.9 5611	Received By: <i>[Signature]</i>	Date/Time: 1.9/1.9 5611	Company: 1.9/1.9 5611



570-122379 Chain of Custody



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel, Virendra	Lab PM: Patel, Virendra	Carrier Tracking No(s):	COC No: 570-203155.1
Shipping/Receiving		Phone:	E-Mail: Virendra.Patel@et.eurofins.com	State of Origin: California	Page: Page 1 of 1
Company: Enthalpy Analytical LLC		Accreditations Required (See note): State Program - California		Job #: 570-122379-2	
Address: 931 W. Barkley Ave.		Due Date Requested: 1/17/2023		Preservation Codes:	
City: Orange		TAT Requested (days):		A - HCL M - Hexane N - None O - AsNaOH P - Na2O4S Q - Nitric Acid R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
State, Zip: CA, 92868		PO #:		Other	
Phone:		WO #:			
Email:		Project #: 44024446			
Project Name: Boeing SSFL NPDES - Outfall 009 GRAB		SSOW#:			
Site:					
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time	
Outfall009_20230101_Grab (570-122379-1)		1/1/23		10:05 Pacific	
Sample Type (C=Comp, G=grab)		Sample Preservation Code:		Matrix	
		Water		(W=Water, S=Soil, C=Cement, B=Brine, A=Air)	
Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Sub (Quant. Tray - E, Coll - level 4 required - E, Coll - level 4 required)	
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Analysis Requested		Total Number of Containers		Special Instructions/Note:	
		3		See Attached Instructions	
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>					
Possible Hazard Identification					
<input type="checkbox"/> Unconfirmed <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months					
Deliverable Requested: I, II, IV, Other (specify) Primary Deliverable Rank: 2					
Empty Kit Relinquished by _____ Date: _____ Method of Shipment: _____					
Relinquished by: _____ Date/Time: 01/03/23 1615 Company: EC					
Relinquished by: _____ Date/Time: 1/5/23 AS 1/3 Company: AS 1/3					
Relinquished by: _____ Date/Time: 1/5/23 1619 Company: FA					
Custody Seals Intact: _____ Custody Seal No.: _____ Cooler Temperature(s) °C and Other Remarks: _____					



Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Patel, Virendra	Carrier Tracking No(s):	COC No: 570-203155-1
Shipping/Receiving		E-Mail: Virendra.Patel@et.eurofins.com	State of Origin: California	Page: Page 1 of 1
Company: Enthalpy Analytical LLC		Accreditations Required (See note): State Program - California		
Address: 931 W. Barkley Ave, Orange, CA, 92668		Job #: 570-122379-2		
City: Orange		Preservation Codes: A - HCL M - Hexane N - None O - AsNaO2 P - Na2OHS Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecalhydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma L - EDA Z - other (specify) Other		
State: CA, Zip: CA, 92668		Analysis Requested		
Phone: [Blank]		Total Number of Containers: 3		
Email: [Blank]		Special Instructions/Note: See Attached Instructions		
Project Name: Boeing SSFL NPDES - Outfall 009 GRAB		Special Instructions/Note: See Attached Instructions		
Site: [Blank]		Special Instructions/Note: See Attached Instructions		
Due Date Requested: 1/17/2023		Special Instructions/Note: See Attached Instructions		
TAT Requested (days): [Blank]		Special Instructions/Note: See Attached Instructions		
PO #: [Blank]		Special Instructions/Note: See Attached Instructions		
WO #: [Blank]		Special Instructions/Note: See Attached Instructions		
Project #: 44024446		Special Instructions/Note: See Attached Instructions		
SSOW#: [Blank]		Special Instructions/Note: See Attached Instructions		
Sample Identification - Client ID (Lab ID)		Special Instructions/Note: See Attached Instructions		
Outfall009_20230101_Grab (570-122379-1)		Special Instructions/Note: See Attached Instructions		
Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Seawater, Urine, Blood, etc.)	Field Filtered Sample (Yes/No)
1/1/23	10:05 Pacific	Water	Water	X
SUB (Quant-tray - E-Coll - level 4 required - E-Coll - level 4 required)		X		
Perform MS/MSD (Yes/No)		X		
Field Filtered Sample (Yes/No)		X		

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For Months

Possible Hazard Identification
 Unconfirmed Deliverable Requested 1, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Empty Kit Relinquished by: [Blank] Date: [Blank] Method of Shipment: [Blank]

Relinquished by: [Signature] Date/Time: 01/03/23 16:15 Company: EC
 Relinquished by: [Signature] Date/Time: 1/3/23 16:15 Company: FA
 Relinquished by: [Signature] Date/Time: 1/3/23 16:15 Company: [Blank]

Custody Seals Intact: Yes No Custody Seal No. [Blank]
 Cooler Temperature(s) °C and Other Remarks: [Blank]



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122379-2

Login Number: 122379

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/24/2023 1:49:02 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 009 GRAB

JOB NUMBER

570-122379-3

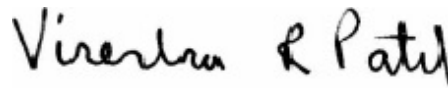
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

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Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-3

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-3

Job ID: 570-122379-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-122379-3

Comments

No additional comments.

Receipt

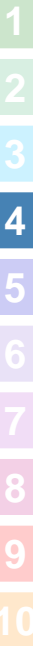
The samples were received on 1/3/2023 5:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.4° C and 1.9° C.

Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work

Method Weck 624.1 - 2-CEVE only (ug/L units) with MDLs (J): This method was subcontracted to Weck Laboratories, Inc.. The subcontract laboratory certification is different from that of the facility issuing the final report.



Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-3

Client Sample ID: Outfall009_20230101_Grab_Extra

Lab Sample ID: 570-122379-2

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-3

Method	Method Description	Protocol	Laboratory
624	EPA 624 Purgeable Organic Compounds	EPA	Weck Lab

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

Weck Lab = Weck Laboratories, Inc., 14859 East Clark Avenue, City of Industry, CA 917451396



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 GRAB

Job ID: 570-122379-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122379-2	Outfall009_20230101_Grab_Extra	Water	01/01/23 10:05	01/03/23 17:05

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Work Orders: 3B02086

Report Date: 2/21/2023

Project: 570-122379-3

Received Date: 2/2/2023

Turnaround Time: Normal

Phones: (949) 261-1022

Fax: (949) 260-3297

Attn: AP

P.O. #:

Client: Eurofins Calscience - Tustin
2841 Dow Avenue, Suite 100
Tustin, CA 92780

Billing Code:

Dear AP,

Enclosed are the results of analyses for samples received 2/02/23 with the Chain-of-Custody document. The samples were received in good condition, at 1.9 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: Outfall009_20230101_Grab_Extra (570-122379-2)
3B02086-01 (Water)

Sampled: 01/01/23 10:05 by Client

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 624.1			Instr: GCMS21				
Batch ID: W3B0481		Preparation: EPA 5030B			Prepared: 02/07/23 06:54		Analyst: ADM
2-Chloroethyl vinyl ether	ND	0.19	1.0	ug/l	1	02/07/23	O-09
<i>Surrogate(s)</i>							
1,2-Dichloroethane-d4	112%		82-125	Conc: 55.9		02/07/23	
4-Bromofluorobenzene	96%		88-108	Conc: 48.1		02/07/23	
Toluene-d8	97%		92-112	Conc: 48.5		02/07/23	

Quality Control Results

Volatile Organic Compounds by P&T and GC/MS

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limit	RPD	Limit	Qualifier
Blank (W3B0481-BLK1)											
Prepared & Analyzed: 02/07/23											
2-Chloroethyl vinyl ether	ND	0.19	1.0	ug/l							
<i>Surrogate(s)</i>											
1,2-Dichloroethane-d4	51.1			ug/l	50.0		102	82-125			
4-Bromofluorobenzene	49.0			ug/l	50.0		98	88-108			
Toluene-d8	48.5			ug/l	50.0		97	92-112			
LCS (W3B0481-BS1)											
Prepared & Analyzed: 02/07/23											
2-Chloroethyl vinyl ether	55.4	0.19	1.0	ug/l	50.0		111	0.1-305			
<i>Surrogate(s)</i>											
1,2-Dichloroethane-d4	50.1			ug/l	50.0		100	82-125			
4-Bromofluorobenzene	48.2			ug/l	50.0		96	88-108			
Toluene-d8	52.1			ug/l	50.0		104	92-112			
LCS Dup (W3B0481-BSD1)											
Prepared & Analyzed: 02/07/23											
2-Chloroethyl vinyl ether	54.8	0.19	1.0	ug/l	50.0		110	0.1-305	1	25	
<i>Surrogate(s)</i>											
1,2-Dichloroethane-d4	50.3			ug/l	50.0		101	82-125			
4-Bromofluorobenzene	52.4			ug/l	50.0		105	88-108			
Toluene-d8	49.2			ug/l	50.0		98	92-112			

Notes and Definitions


Item	Definition
O-09	This sample was received with the EPA recommended holding time expired.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Reviewed by:



Tiffany T. Felix For Rahul R. Nair
Project Manager



DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

ICOC No:
570-206007

Containers

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
3	Voa Vial 40ml - unpreserved	None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
2	SUBCONTRACT	SUB (Weck 624.1 - 2-CEVE only (ug/L units) with MDLs (J))	Level IV, EQUIS 5C, MDL reporting w/J flag. Pe



COC	COC matches sample labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Project Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Receipt Information	Sample Temperature		1.9°C	
	Samples received on ice?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Ice Type (Blue/Wet)		WET	
	All samples intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Samples in proper containers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Sufficient sample volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Samples intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Project Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample Preservation Verification?	Sample labels checked for correct preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	VOC Headspace: (No) none, If Yes (See comment) 524.2, 524.3, 624.1, 8260, 1666 P/T, LUFT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	pH verified upon receipt?			
	Metals <2; H2SO4 pres tests <2; 522<4; TOC <2; 525.2<2; 6710B<2; 608.3 5-9	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Free Chlorine Tested <0.1	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	O&G pH <2 verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	pH adjusted for O&G	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Project Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

08

PM Comments

Sample Receipt Checklist Prepared by:

Signature: Lester Abad

Date: 02/02/23

QAF-006 V1.0 12/16/2021

F:\SC\ Resources\Forme\220509 Sample Receipt Checklist.docx(Type here)

CHAIN OF CUSTODY FORM

VLJDUVAT

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSEI NPDES Permit 2023 Annual Outfall [003-007, 008, 010] Outfall 009 Grab		Field Readings (Include units) Time of Readings: 10:10 pH 8.35 pH unit Temp 50.4 °C		Meter serial # VLJDUVAT	
Test America Contact: Christian Bondoc 17461 Darian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project Manager: Katherine Malar 520 289 8006, 520 904 6044 (cell)		Field readings OC Checked by: <i>[Signature]</i> Date/Time: 10:10		Comments Deliver to Lab ASAP 8 hr hold time Deliver to Lab ASAP 8 hr hold time. Need 1x, 10x, 100x dilutions	
Test America's services under this COC shall be performed in accordance with the TGA when Blanket Service Agreement# 2019-2021 performed by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and Test America Laboratories Inc.		Field Manager: Mark Dominick 818 224 5033, 818 599 0702 (cell)		Analysis Required: VOCs + only A+A+2C+E (E024) VOCs P + xylenes, Frenon 11 (E024) Oil & Grease (E164A,HEM) E. coli (SM9221) MST-Bacteroides, Human (SAM348-357)		Comments	
Sample Description	Sample Matrix	Sampling Date/Time	Container Type	# of Cont.	Preservative	Bottle #	MS/MSO
Outfall 009	WM	1/12/2023 11:00	125 mL Sterile Poly	1	None	5	No
	WM		125 mL Sterile Poly	3	Nu25203	10	No
	WM		1 L Glass Amber	2	HCl	15	No
	WM		40 mL VOA	3	HCl	40	No
	WM		40 mL VOA	3	None	55	No
	WM		1 L Glass Amber	2	HCl	15	No
	WM		40 mL VOA	3	HCl	40	No
	WM		40 mL VOA	3	None	55	No
	WQ		40 mL VOA	2	HCl	40	No
	WQ		40 mL VOA	2	None	55	No
Trip Blank	TD-20220101	1/12/2023 10:15					
Requisitioned By: <i>[Signature]</i> Date/Time: 1-3-2023 11:14 Company:		Legend: R = Routine, A = Annual Received By: <i>[Signature]</i> Date/Time: 1-3-2023 15:00 Company:		Turn-around time: (Check) 24 Hour: <input type="checkbox"/> 72 Hour: <input type="checkbox"/> 10 Day: <input checked="" type="checkbox"/> 48 Hour: <input type="checkbox"/> 5 Day: <input type="checkbox"/> Normal: <input type="checkbox"/>		Sample Integrity: (Check) Intact: <input type="checkbox"/> On Ice: <input type="checkbox"/> Data Requirements: (Check) No Level IV: <input type="checkbox"/> All Level IV: <input checked="" type="checkbox"/>	

*This COC is only for a strikethrough sample, and is a copy of original COC

This COC received from Mark Dominick (H&A) on 01/03/2023 at 09:10am.
- Virendra (ECI)



122379

VLDUVKT

CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall 003-007, 009, 010 Outfall 009 Grab		Field Readings (Include units) Time of Readings: 10:00 pH 8.35 pH unit Temp 50.4 °C		Meter serial #											
Test America Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Field readings QC Checked by: <i>[Signature]</i>													
Test America's services under this CoC shall be performed in accordance with the TCOs within Binding Service Agreement # 2019-22. Test America, its subsidiaries and affiliates, and Test America Laboratories Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Date/Time: 10:10													
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	MST-Bacteroidales, Human (SAM348-357)	Oil & Grease (E164A-HEM)	VOCs PP + xylenes, Freon 11 (E824)	VOCs - only A+A+2CVE (E824)					
Outfall 009	Outfall009_20230101_Grab	11/2023 11005	WM	125 mL Sterile Poly	1	None	5	No	X	X	X						
	Outfall009_20230101_Grab_Extra	11/2023 11005	WM	1 L Glass Amber	2	HCl	15	No									
			WM	40 mL VOA	3	HCl	40	No									
			WM	40 mL VOA	3	None	55	No									
			WM	1 L Glass Amber	2	HCl	15	No		H							
			WM	40 mL VOA	3	HCl	40	No		H							
			WM	40 mL VOA	3	None	55	No									
			WQ	40 mL VOA	2	HCl	40	No									
			WQ	40 mL VOA	2	None	55	No									
Frip Blanks	TB-20230101	11/2023 11005	WQ	40 mL VOA	2	None	55	No									

Legend: R = Routine, A = Annual

Relinquished By: <i>[Signature]</i>	Date/Time: 1-3-23/1045	Company: HA	Received By: <i>[Signature]</i>	Date/Time: 1/3/23/1245	Company: EC
Relinquished By: <i>[Signature]</i>	Date/Time: 01/03/23 1705	Company: EC	Received By: <i>[Signature]</i>	Date/Time: EC 1-3-23 17:05	Company: EC
Relinquished By: <i>[Signature]</i>	Date/Time: 14/14 2021	Company: 1.9/1.9 sell	Received By: <i>[Signature]</i>	Date/Time: 1.9/1.9 sell	Company: 1.9/1.9 sell



570-122379 Chain of Custody



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122379-3

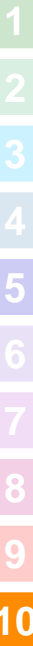
Login Number: 122379

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 3/3/2023 3:42:07 PM Revision 4

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 009 COMP

JOB NUMBER

570-122381-1

Job Notes

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Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

GC Semi VOA

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LQ	LCS/LCSD recovery above method control limits
PI	Primary and confirm results varied by > than 40% RPD

HPLC/IC

Qualifier	Qualifier Description
BU	Analyzed out of holding time
BV	Sample received after holding time expired
EY	Result exceeds normal dynamic range; reported as a min. est.
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Metals

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration
BU	Sample was prepped beyond the specified holding time
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control

Eurofins Calscience

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

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Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Job ID: 570-122381-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-122381-1

Comments

No additional comments.

Revision

The report being provided is a revision of the original report sent on 1/17/2023. The report (revision 2) is being revised due to: The metals reporting was adjusted to report all elements by EPA 200.8..

Report revision history

Revision 1 - 1/24/2023 - Reason - The metals reporting was adjusted to report all elements by EPA 200.8..

Receipt

The samples were received on 1/3/2023 5:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.5° C, 1.8° C, 2.1° C and 2.9° C.

Receipt Exceptions

The reference method requires samples to be preserved to a pH of <2 SU. The following samples were received with insufficient preservation at a pH of >2 SU: Outfall009_20230102_Comp (570-122381-1), Outfall009_20230102_Comp_F (570-122381-2) and Outfall009_20230102_Comp_Extra (570-122381-3). 570-122381-P-1. The sample was preserved to the appropriate pH in the laboratory.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

HPLC/IC

Method 218.6: The following sample was received and analyzed outside of holding time: Outfall009_20230102_Comp (570-122381-1).

Method 300.0: Dilutions were performed for the following samples due to sample matrix properties: Outfall009_20230102_Comp (570-122381-1).

Method 300.0: The native sample, matrix spike, and matrix spike duplicate (MS/MSD) associated with analytical batch 570-293190 were performed at the same dilution. Due to the additional level of analyte present in the spiked samples, the concentration of Sulfate in the MS/MSD was above the instrument calibration range. The data have been reported and qualified.

Method 300.0: Dilutions were performed for the following samples due to sample matrix properties: Outfall009_20230102_Comp (570-122381-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method 608.3: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 570-294075 and analytical batch 570-295061 recovered outside control limits for the following analytes: Aroclor-1016 and Aroclor-1260. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 608.3: The continuing calibration verification (CCV) associated with batch 570-294290 recovered above the upper control limit for Endrin. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (MB 570-294075/1-A).

Method 608.3: The continuing calibration verification (CCV) associated with 570-294290 recovered high and outside the control limits for Endrin on one column. Results are confirmed on both columns and reported from the passing column. The associated samples are: (LCS 570-294075/2-A) and (LCSD 570-294075/3-A).

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Job ID: 570-122381-1 (Continued)

Laboratory: Eurofins Calscience (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

Method 200.8: The method blank for preparation batch 570-293628 and analytical batch 570-294380 contained Selenium above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall009_20230102_Comp_F (570-122381-2). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall009_20230102_Comp_F (570-122381-2). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall009_20230102_Comp_F (570-122381-2), (570-122381-C-2 MS) and (570-122381-C-2 MSD). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-294075. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. 608LL

Method 625: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-294449. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. 625 Sim

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Client Sample ID: Outfall009_20230102_Comp

Lab Sample ID: 570-122381-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[b]fluoranthene	0.16	J,DX	0.20	0.12	ug/L	1		625.1 SIM	Total/NA
Dimethyl phthalate	0.16	J,DX	2.0	0.10	ug/L	1		625.1 SIM	Total/NA
Chromium, hexavalent	0.073	J,DX BU	0.20	0.019	ug/L	1		218.6	Total/NA
Chloride	3.5	J,DX	5.0	1.8	mg/L	5		300.0	Total/NA
Sulfate	3.1	J,DX	5.0	1.2	mg/L	5		300.0	Total/NA
Nitrate Nitrite as N	1.2		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Boron	42	J,DX	500	3.5	ug/L	1		200.7 Rev 4.4	Total
Antimony	0.65	J,DX	2.0	0.36	ug/L	1		200.8	Recoverable Total
Copper	4.1		2.0	0.32	ug/L	1		200.8	Recoverable Total
Lead	2.2		1.0	0.12	ug/L	1		200.8	Recoverable Total
Silver	0.34	J,DX	1.0	0.23	ug/L	1		200.8	Recoverable Total
Arsenic	1.1		1.0	0.16	ug/L	1		200.8	Recoverable Total
Iron	910		20	3.7	ug/L	1		200.8	Recoverable Total
Nickel	2.5		2.0	0.17	ug/L	1		200.8	Recoverable Total
Vanadium	2.3		2.0	0.17	ug/L	1		200.8	Recoverable Total
Aluminum	500		15	8.6	ug/L	1		200.8	Recoverable Total
Zinc	14	J,DX	20	2.8	ug/L	1		200.8	Recoverable Total
Chromium	1.7	J,DX	2.0	0.14	ug/L	1		200.8	Recoverable Total
Hardness as calcium carbonate	23		7.1	0.50	mg/L	1		SM 2340B	Recoverable Total
Total Dissolved Solids	86		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	18		1.4	1.2	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Outfall009_20230102_Comp_F

Lab Sample ID: 570-122381-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	39	J,DX BU	500	3.5	ug/L	1		200.7 Rev 4.4	Dissolved
Antimony	1.0	J,DX BU	2.0	0.36	ug/L	1		200.8	Dissolved
Copper	3.2	BU	2.0	0.32	ug/L	1		200.8	Dissolved
Lead	0.37	J,DX BU	1.0	0.12	ug/L	1		200.8	Dissolved
Selenium	0.88	J,DX BU	2.0	0.52	ug/L	1		200.8	Dissolved
Arsenic	0.92	J,DX BU	1.0	0.16	ug/L	1		200.8	Dissolved
Iron	99	BU	20	3.7	ug/L	1		200.8	Dissolved
Nickel	1.5	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Vanadium	1.2	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Aluminum	110	BU	15	8.6	ug/L	1		200.8	Dissolved
Zinc	6.5	J,DX BU	20	2.8	ug/L	1		200.8	Dissolved
Chromium	0.54	J,DX BU	2.0	0.14	ug/L	1		200.8	Dissolved
Hardness as calcium carbonate	20		7.1	0.50	mg/L	1		SM 2340B	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: EPA 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Client Sample ID: Outfall009_20230102_Comp

Lab Sample ID: 570-122381-1

Date Collected: 01/02/23 08:00

Matrix: Water

Date Received: 01/03/23 17:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		0.20	0.13	ug/L		01/09/23 10:25	01/10/23 19:32	1
1,2-Dichlorobenzene	ND		0.20	0.12	ug/L		01/09/23 10:25	01/10/23 19:32	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		0.20	0.093	ug/L		01/09/23 10:25	01/10/23 19:32	1
1,3-Dichlorobenzene	ND		0.20	0.12	ug/L		01/09/23 10:25	01/10/23 19:32	1
1,4-Dichlorobenzene	ND		0.20	0.14	ug/L		01/09/23 10:25	01/10/23 19:32	1
2,4,6-Trichlorophenol	ND		1.0	0.14	ug/L		01/09/23 10:25	01/10/23 19:32	1
2,4-Dichlorophenol	ND		1.0	0.14	ug/L		01/09/23 10:25	01/10/23 19:32	1
2,4-Dimethylphenol	ND		0.20	0.13	ug/L		01/09/23 10:25	01/10/23 19:32	1
2,4-Dinitrophenol	ND		5.1	4.4	ug/L		01/09/23 10:25	01/10/23 19:32	1
2,4-Dinitrotoluene	ND		0.20	0.12	ug/L		01/09/23 10:25	01/10/23 19:32	1
2,6-Dinitrotoluene	ND		0.20	0.18	ug/L		01/09/23 10:25	01/10/23 19:32	1
2-Chloronaphthalene	ND		0.20	0.15	ug/L		01/09/23 10:25	01/10/23 19:32	1
2-Chlorophenol	ND		0.20	0.098	ug/L		01/09/23 10:25	01/10/23 19:32	1
2-Nitrophenol	ND		5.1	3.6	ug/L		01/09/23 10:25	01/10/23 19:32	1
3,3'-Dichlorobenzidine	ND		5.1	3.1	ug/L		01/09/23 10:25	01/10/23 19:32	1
4,6-Dinitro-2-methylphenol	ND		5.1	4.6	ug/L		01/09/23 10:25	01/10/23 19:32	1
4-Bromophenyl phenyl ether	ND		0.20	0.10	ug/L		01/09/23 10:25	01/10/23 19:32	1
4-Chloro-3-methylphenol	ND		1.0	0.13	ug/L		01/09/23 10:25	01/10/23 19:32	1
4-Chlorophenyl phenyl ether	ND		0.20	0.17	ug/L		01/09/23 10:25	01/10/23 19:32	1
4-Nitrophenol	ND		5.1	3.4	ug/L		01/09/23 10:25	01/10/23 19:32	1
Acenaphthene	ND		0.20	0.10	ug/L		01/09/23 10:25	01/10/23 19:32	1
Acenaphthylene	ND		0.20	0.13	ug/L		01/09/23 10:25	01/10/23 19:32	1
Anthracene	ND		0.20	0.086	ug/L		01/09/23 10:25	01/10/23 19:32	1
Benzidine	ND		5.1	2.8	ug/L		01/09/23 10:25	01/10/23 19:32	1
Benzo[a]anthracene	ND		0.20	0.13	ug/L		01/09/23 10:25	01/10/23 19:32	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		01/09/23 10:25	01/10/23 19:32	1
Benzo[b]fluoranthene	0.16	J,DX	0.20	0.12	ug/L		01/09/23 10:25	01/10/23 19:32	1
Benzo[g,h,i]perylene	ND		0.20	0.11	ug/L		01/09/23 10:25	01/10/23 19:32	1
Benzo[k]fluoranthene	ND		0.20	0.12	ug/L		01/09/23 10:25	01/10/23 19:32	1
bis (2-chloroisopropyl) ether	ND		0.20	0.13	ug/L		01/09/23 10:25	01/10/23 19:32	1
Bis(2-chloroethoxy)methane	ND		0.20	0.11	ug/L		01/09/23 10:25	01/10/23 19:32	1
Bis(2-chloroethyl)ether	ND		0.20	0.11	ug/L		01/09/23 10:25	01/10/23 19:32	1
Bis(2-ethylhexyl) phthalate	ND		5.1	3.7	ug/L		01/09/23 10:25	01/10/23 19:32	1
Butyl benzyl phthalate	ND		1.0	0.69	ug/L		01/09/23 10:25	01/10/23 19:32	1
Chrysene	ND		0.20	0.11	ug/L		01/09/23 10:25	01/10/23 19:32	1
Dibenz(a,h)anthracene	ND		0.20	0.16	ug/L		01/09/23 10:25	01/10/23 19:32	1
Diethyl phthalate	ND		2.0	0.18	ug/L		01/09/23 10:25	01/10/23 19:32	1
Dimethyl phthalate	0.16	J,DX	2.0	0.10	ug/L		01/09/23 10:25	01/10/23 19:32	1
Di-n-butyl phthalate	ND		2.0	1.9	ug/L		01/09/23 10:25	01/10/23 19:32	1
Di-n-octyl phthalate	ND		3.1	0.55	ug/L		01/09/23 10:25	01/10/23 19:32	1
Fluoranthene	ND		0.20	0.10	ug/L		01/09/23 10:25	01/10/23 19:32	1
Fluorene	ND		0.20	0.097	ug/L		01/09/23 10:25	01/10/23 19:32	1
Hexachlorobenzene	ND		0.20	0.14	ug/L		01/09/23 10:25	01/10/23 19:32	1
Hexachlorobutadiene	ND		0.20	0.16	ug/L		01/09/23 10:25	01/10/23 19:32	1
Hexachlorocyclopentadiene	ND		0.20	0.16	ug/L		01/09/23 10:25	01/10/23 19:32	1
Hexachloroethane	ND		0.20	0.13	ug/L		01/09/23 10:25	01/10/23 19:32	1
Indeno[1,2,3-cd]pyrene	ND		0.20	0.13	ug/L		01/09/23 10:25	01/10/23 19:32	1
Isophorone	ND		0.20	0.10	ug/L		01/09/23 10:25	01/10/23 19:32	1
Naphthalene	ND		0.20	0.11	ug/L		01/09/23 10:25	01/10/23 19:32	1

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: EPA 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Client Sample ID: Outfall009_20230102_Comp

Lab Sample ID: 570-122381-1

Date Collected: 01/02/23 08:00

Matrix: Water

Date Received: 01/03/23 17:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrobenzene	ND		0.20	0.15	ug/L		01/09/23 10:25	01/10/23 19:32	1
N-Nitrosodimethylamine	ND		0.20	0.19	ug/L		01/09/23 10:25	01/10/23 19:32	1
N-Nitrosodi-n-propylamine	ND		0.20	0.15	ug/L		01/09/23 10:25	01/10/23 19:32	1
N-Nitrosodiphenylamine	ND		0.20	0.11	ug/L		01/09/23 10:25	01/10/23 19:32	1
Pentachlorophenol	ND		1.0	0.86	ug/L		01/09/23 10:25	01/10/23 19:32	1
Phenanthrene	ND		0.20	0.17	ug/L		01/09/23 10:25	01/10/23 19:32	1
Phenol	ND		1.0	0.54	ug/L		01/09/23 10:25	01/10/23 19:32	1
Pyrene	ND		0.20	0.088	ug/L		01/09/23 10:25	01/10/23 19:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>2,4,6-Tribromophenol</i>	93		28 - 127	01/09/23 10:25	01/10/23 19:32	1
<i>2-Fluorobiphenyl (Surr)</i>	82		31 - 120	01/09/23 10:25	01/10/23 19:32	1
<i>2-Fluorophenol</i>	43		17 - 120	01/09/23 10:25	01/10/23 19:32	1
<i>Nitrobenzene-d5</i>	85		27 - 120	01/09/23 10:25	01/10/23 19:32	1
<i>Phenol-d6 (Surr)</i>	31		10 - 120	01/09/23 10:25	01/10/23 19:32	1
<i>p-Terphenyl-d14 (Surr)</i>	86		45 - 120	01/09/23 10:25	01/10/23 19:32	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: EPA 608.3 - Organochlorine Pesticides in Water

Client Sample ID: Outfall009_20230102_Comp

Lab Sample ID: 570-122381-1

Date Collected: 01/02/23 08:00

Matrix: Water

Date Received: 01/03/23 17:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.0033	0.0031	ug/L		01/06/23 12:10	01/13/23 14:42	1
alpha-BHC	ND		0.0013	0.0012	ug/L		01/06/23 12:10	01/13/23 14:42	1
beta-BHC	ND		0.0050	0.0039	ug/L		01/06/23 12:10	01/13/23 14:42	1
delta-BHC	ND		0.0033	0.0020	ug/L		01/06/23 12:10	01/13/23 14:42	1
gamma-BHC (Lindane)	ND		0.0013	0.00066	ug/L		01/06/23 12:10	01/13/23 14:42	1
Chlordane (technical)	ND		0.033	0.026	ug/L		01/06/23 12:10	01/13/23 14:42	1
4,4'-DDD	ND		0.0067	0.0044	ug/L		01/06/23 12:10	01/13/23 14:42	1
4,4'-DDE	ND		0.0033	0.0019	ug/L		01/06/23 12:10	01/13/23 14:42	1
4,4'-DDT	ND		0.0033	0.0016	ug/L		01/06/23 12:10	01/13/23 14:42	1
Dieldrin	ND		0.0033	0.0013	ug/L		01/06/23 12:10	01/13/23 14:42	1
Endosulfan I	ND		0.0013	0.0013	ug/L		01/06/23 12:10	01/13/23 14:42	1
Endosulfan II	ND		0.0067	0.0041	ug/L		01/06/23 12:10	01/13/23 14:42	1
Endosulfan sulfate	ND		0.0033	0.0014	ug/L		01/06/23 12:10	01/13/23 14:42	1
Endrin	ND		0.0033	0.0023	ug/L		01/06/23 12:10	01/13/23 14:42	1
Endrin aldehyde	ND		0.033	0.024	ug/L		01/06/23 12:10	01/13/23 14:42	1
Heptachlor	ND		0.0013	0.0012	ug/L		01/06/23 12:10	01/13/23 14:42	1
Heptachlor epoxide	ND		0.0067	0.0039	ug/L		01/06/23 12:10	01/13/23 14:42	1
Toxaphene	ND		0.067	0.054	ug/L		01/06/23 12:10	01/13/23 14:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Tetrachloro-m-xylene</i>	66	PI	20 - 139				01/06/23 12:10	01/13/23 14:42	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: EPA 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Client Sample ID: Outfall009_20230102_Comp

Lab Sample ID: 570-122381-1

Date Collected: 01/02/23 08:00

Matrix: Water

Date Received: 01/03/23 17:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND	LQ	0.10	0.044	ug/L	-	01/06/23 12:10	01/10/23 22:31	1
Aroclor 1221	ND		0.10	0.044	ug/L	-	01/06/23 12:10	01/10/23 22:31	1
Aroclor 1232	ND		0.10	0.044	ug/L	-	01/06/23 12:10	01/10/23 22:31	1
Aroclor 1242	ND		0.10	0.044	ug/L	-	01/06/23 12:10	01/10/23 22:31	1
Aroclor 1248	ND		0.10	0.044	ug/L	-	01/06/23 12:10	01/10/23 22:31	1
Aroclor 1254	ND		0.10	0.052	ug/L	-	01/06/23 12:10	01/10/23 22:31	1
Aroclor 1260	ND	LQ	0.10	0.052	ug/L	-	01/06/23 12:10	01/10/23 22:31	1
Surrogate							Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	38			20 - 154			01/06/23 12:10	01/10/23 22:31	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: EPA 218.6 - Chromium, Hexavalent (Ion Chromatography)

Client Sample ID: Outfall009_20230102_Comp

Lab Sample ID: 570-122381-1

Date Collected: 01/02/23 08:00

Matrix: Water

Date Received: 01/03/23 17:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	0.073	J,DX BU BV	0.20	0.019	ug/L			01/04/23 03:34	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall009_20230102_Comp

Date Collected: 01/02/23 08:00

Date Received: 01/03/23 17:05

Lab Sample ID: 570-122381-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.5	J,DX	5.0	1.8	mg/L			01/03/23 23:01	5
Fluoride	ND		0.50	0.23	mg/L			01/03/23 23:01	5
Sulfate	3.1	J,DX	5.0	1.2	mg/L			01/03/23 23:01	5

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: EPA 314.0 - Perchlorate (IC)

Client Sample ID: Outfall009_20230102_Comp

Date Collected: 01/02/23 08:00

Date Received: 01/03/23 17:05

Lab Sample ID: 570-122381-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			01/04/23 15:32	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall009_20230102_Comp

Lab Sample ID: 570-122381-1

Date Collected: 01/02/23 08:00

Matrix: Water

Date Received: 01/03/23 17:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	1.2		0.10	0.020	mg/L			01/12/23 18:24	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Client Sample ID: Outfall009_20230102_Comp

Date Collected: 01/02/23 08:00

Date Received: 01/03/23 17:05

Lab Sample ID: 570-122381-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	42	J,DX	500	3.5	ug/L		02/02/23 07:34	02/02/23 20:54	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Client Sample ID: Outfall009_20230102_Comp_F

Date Collected: 01/02/23 08:00

Date Received: 01/03/23 17:05

Lab Sample ID: 570-122381-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	39	J,DX BU	500	3.5	ug/L			01/04/23 17:50	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall009_20230102_Comp

Date Collected: 01/02/23 08:00

Date Received: 01/03/23 17:05

Lab Sample ID: 570-122381-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.65	J,DX	2.0	0.36	ug/L		01/04/23 06:00	01/04/23 16:59	1
Cadmium	ND		1.0	0.13	ug/L		01/04/23 06:00	01/04/23 16:59	1
Copper	4.1		2.0	0.32	ug/L		01/04/23 06:00	01/04/23 16:59	1
Lead	2.2		1.0	0.12	ug/L		01/04/23 06:00	01/04/23 16:59	1
Selenium	ND		2.0	0.52	ug/L		01/04/23 06:00	01/04/23 16:59	1
Silver	0.34	J,DX	1.0	0.23	ug/L		01/04/23 06:00	01/04/23 16:59	1
Thallium	ND		1.0	0.11	ug/L		01/04/23 06:00	01/04/23 16:59	1
Beryllium	ND		0.50	0.26	ug/L		01/04/23 06:00	01/04/23 16:59	1
Arsenic	1.1		1.0	0.16	ug/L		01/04/23 06:00	01/04/23 16:59	1
Iron	910		20	3.7	ug/L		02/01/23 11:07	02/01/23 14:27	1
Nickel	2.5		2.0	0.17	ug/L		01/04/23 06:00	01/04/23 16:59	1
Vanadium	2.3		2.0	0.17	ug/L		01/04/23 06:00	01/04/23 16:59	1
Aluminum	500		15	8.6	ug/L		01/04/23 06:00	01/04/23 16:59	1
Zinc	14	J,DX	20	2.8	ug/L		01/04/23 06:00	01/04/23 16:59	1
Chromium	1.7	J,DX	2.0	0.14	ug/L		01/04/23 06:00	01/04/23 16:59	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall009_20230102_Comp_F

Lab Sample ID: 570-122381-2

Date Collected: 01/02/23 08:00

Matrix: Water

Date Received: 01/03/23 17:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.0	J,DX BU	2.0	0.36	ug/L			01/06/23 15:14	1
Cadmium	ND	BU	1.0	0.13	ug/L			01/06/23 15:14	1
Copper	3.2	BU	2.0	0.32	ug/L			01/06/23 15:14	1
Lead	0.37	J,DX BU	1.0	0.12	ug/L			01/06/23 15:14	1
Selenium	0.88	J,DX BU	2.0	0.52	ug/L			01/06/23 15:14	1
		MB							
Silver	ND	BU	1.0	0.23	ug/L			01/06/23 15:14	1
Thallium	ND	BU	1.0	0.11	ug/L			01/06/23 15:14	1
Beryllium	ND	BU	0.50	0.26	ug/L			01/06/23 15:14	1
Arsenic	0.92	J,DX BU	1.0	0.16	ug/L			01/06/23 15:14	1
Iron	99	BU	20	3.7	ug/L			01/06/23 15:14	1
Nickel	1.5	J,DX BU	2.0	0.17	ug/L			01/06/23 15:14	1
Vanadium	1.2	J,DX BU	2.0	0.17	ug/L			01/06/23 15:14	1
Aluminum	110	BU	15	8.6	ug/L			01/06/23 15:14	1
Zinc	6.5	J,DX BU	20	2.8	ug/L			01/06/23 15:14	1
Chromium	0.54	J,DX BU	2.0	0.14	ug/L			01/06/23 15:14	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall009_20230102_Comp
Date Collected: 01/02/23 08:00
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122381-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/05/23 11:40	01/05/23 17:12	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall009_20230102_Comp_F
Date Collected: 01/02/23 08:00
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122381-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU	0.20	0.12	ug/L		01/05/23 11:56	01/05/23 19:37	1

- 1
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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Total Recoverable

Client Sample ID: Outfall009_20230102_Comp

Lab Sample ID: 570-122381-1

Date Collected: 01/02/23 08:00

Matrix: Water

Date Received: 01/03/23 17:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	23		7.1	0.50	mg/L			01/08/23 16:31	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation - Dissolved

Client Sample ID: Outfall009_20230102_Comp_F

Lab Sample ID: 570-122381-2

Date Collected: 01/02/23 08:00

Matrix: Water

Date Received: 01/03/23 17:05

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	20		7.1	0.50	mg/L			01/08/23 16:31	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

General Chemistry

Client Sample ID: Outfall009_20230102_Comp

Date Collected: 01/02/23 08:00

Date Received: 01/03/23 17:05

Lab Sample ID: 570-122381-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (III) (EPA 218.6 CR3)	ND		0.050	0.0030	mg/L			01/16/23 20:39	1
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			01/11/23 14:55	1
Total Dissolved Solids (SM 2540C)	86		10	8.7	mg/L			01/04/23 15:33	1
Total Suspended Solids (SM 2540D)	18		1.4	1.2	mg/L			01/06/23 17:51	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TBP (28-127)	FBP (31-120)	2FP (17-120)	NBZ (27-120)	PHL6 (10-120)	TPHd14 (45-120)
570-122381-1	Outfall009_20230102_Comp	93	82	43	85	31	86
LCS 570-294449/2-A	Lab Control Sample	102	97	61	75	43	110
LCSD 570-294449/3-A	Lab Control Sample Dup	105	99	67	79	46	113
MB 570-294449/1-A	Method Blank	51	68	37	60	24	77

Surrogate Legend

TBP = 2,4,6-Tribromophenol
FBP = 2-Fluorobiphenyl (Surr)
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL6 = Phenol-d6 (Surr)
TPHd14 = p-Terphenyl-d14 (Surr)

Method: 608.3 - Organochlorine Pesticides in Water

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		TCX1 (20-139)
570-122381-1	Outfall009_20230102_Comp	66 PI
LCS 570-294075/2-A	Lab Control Sample	69
LCSD 570-294075/3-A	Lab Control Sample Dup	56
MB 570-294075/1-A	Method Blank	60

Surrogate Legend

TCX = Tetrachloro-m-xylene

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCB1 (20-154)
570-122381-1	Outfall009_20230102_Comp	38
LCS 570-294075/4-A	Lab Control Sample	67 PI
LCSD 570-294075/5-A	Lab Control Sample Dup	76
MB 570-294075/1-A	Method Blank	55

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM)

Lab Sample ID: MB 570-294449/1-A
Matrix: Water
Analysis Batch: 296147

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294449

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,2,4-Trichlorobenzene	ND		0.20	0.13	ug/L		01/09/23 10:25	01/16/23 13:36	1
1,2-Dichlorobenzene	ND		0.20	0.11	ug/L		01/09/23 10:25	01/16/23 13:36	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		0.20	0.091	ug/L		01/09/23 10:25	01/16/23 13:36	1
1,3-Dichlorobenzene	ND		0.20	0.12	ug/L		01/09/23 10:25	01/16/23 13:36	1
1,4-Dichlorobenzene	ND		0.20	0.14	ug/L		01/09/23 10:25	01/16/23 13:36	1
2,4,6-Trichlorophenol	ND		1.0	0.14	ug/L		01/09/23 10:25	01/16/23 13:36	1
2,4-Dichlorophenol	ND		1.0	0.14	ug/L		01/09/23 10:25	01/16/23 13:36	1
2,4-Dimethylphenol	ND		0.20	0.13	ug/L		01/09/23 10:25	01/16/23 13:36	1
2,4-Dinitrophenol	ND		5.0	4.3	ug/L		01/09/23 10:25	01/16/23 13:36	1
2,4-Dinitrotoluene	ND		0.20	0.12	ug/L		01/09/23 10:25	01/16/23 13:36	1
2,6-Dinitrotoluene	ND		0.20	0.18	ug/L		01/09/23 10:25	01/16/23 13:36	1
2-Chloronaphthalene	ND		0.20	0.14	ug/L		01/09/23 10:25	01/16/23 13:36	1
2-Chlorophenol	ND		0.20	0.096	ug/L		01/09/23 10:25	01/16/23 13:36	1
2-Nitrophenol	ND		5.0	3.5	ug/L		01/09/23 10:25	01/16/23 13:36	1
3,3'-Dichlorobenzidine	ND		5.0	3.0	ug/L		01/09/23 10:25	01/16/23 13:36	1
4,6-Dinitro-2-methylphenol	ND		5.0	4.5	ug/L		01/09/23 10:25	01/16/23 13:36	1
4-Bromophenyl phenyl ether	ND		0.20	0.10	ug/L		01/09/23 10:25	01/16/23 13:36	1
4-Chloro-3-methylphenol	ND		1.0	0.13	ug/L		01/09/23 10:25	01/16/23 13:36	1
4-Chlorophenyl phenyl ether	ND		0.20	0.17	ug/L		01/09/23 10:25	01/16/23 13:36	1
4-Nitrophenol	ND		5.0	3.4	ug/L		01/09/23 10:25	01/16/23 13:36	1
Acenaphthene	ND		0.20	0.098	ug/L		01/09/23 10:25	01/16/23 13:36	1
Acenaphthylene	ND		0.20	0.13	ug/L		01/09/23 10:25	01/16/23 13:36	1
Anthracene	ND		0.20	0.084	ug/L		01/09/23 10:25	01/16/23 13:36	1
Benzidine	ND		5.0	2.7	ug/L		01/09/23 10:25	01/16/23 13:36	1
Benzo[a]anthracene	ND		0.20	0.12	ug/L		01/09/23 10:25	01/16/23 13:36	1
Benzo[a]pyrene	ND		0.20	0.15	ug/L		01/09/23 10:25	01/16/23 13:36	1
Benzo[b]fluoranthene	ND		0.20	0.11	ug/L		01/09/23 10:25	01/16/23 13:36	1
Benzo[g,h,i]perylene	ND		0.20	0.11	ug/L		01/09/23 10:25	01/16/23 13:36	1
Benzo[k]fluoranthene	ND		0.20	0.11	ug/L		01/09/23 10:25	01/16/23 13:36	1
bis (2-chloroisopropyl) ether	ND		0.20	0.13	ug/L		01/09/23 10:25	01/16/23 13:36	1
Bis(2-chloroethoxy)methane	ND		0.20	0.11	ug/L		01/09/23 10:25	01/16/23 13:36	1
Bis(2-chloroethyl)ether	ND		0.20	0.10	ug/L		01/09/23 10:25	01/16/23 13:36	1
Bis(2-ethylhexyl) phthalate	ND		5.0	3.6	ug/L		01/09/23 10:25	01/16/23 13:36	1
Butyl benzyl phthalate	ND		1.0	0.67	ug/L		01/09/23 10:25	01/16/23 13:36	1
Chrysene	ND		0.20	0.11	ug/L		01/09/23 10:25	01/16/23 13:36	1
Dibenz(a,h)anthracene	ND		0.20	0.16	ug/L		01/09/23 10:25	01/16/23 13:36	1
Diethyl phthalate	ND		2.0	0.18	ug/L		01/09/23 10:25	01/16/23 13:36	1
Dimethyl phthalate	ND		2.0	0.098	ug/L		01/09/23 10:25	01/16/23 13:36	1
Di-n-butyl phthalate	ND		2.0	1.8	ug/L		01/09/23 10:25	01/16/23 13:36	1
Di-n-octyl phthalate	ND		3.0	0.54	ug/L		01/09/23 10:25	01/16/23 13:36	1
Fluoranthene	ND		0.20	0.10	ug/L		01/09/23 10:25	01/16/23 13:36	1
Fluorene	ND		0.20	0.095	ug/L		01/09/23 10:25	01/16/23 13:36	1
Hexachlorobenzene	ND		0.20	0.13	ug/L		01/09/23 10:25	01/16/23 13:36	1
Hexachlorobutadiene	ND		0.20	0.15	ug/L		01/09/23 10:25	01/16/23 13:36	1
Hexachlorocyclopentadiene	ND		0.20	0.15	ug/L		01/09/23 10:25	01/16/23 13:36	1
Hexachloroethane	ND		0.20	0.13	ug/L		01/09/23 10:25	01/16/23 13:36	1
Indeno[1,2,3-cd]pyrene	ND		0.20	0.13	ug/L		01/09/23 10:25	01/16/23 13:36	1
Isophorone	ND		0.20	0.099	ug/L		01/09/23 10:25	01/16/23 13:36	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Lab Sample ID: MB 570-294449/1-A
Matrix: Water
Analysis Batch: 296147

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294449

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Naphthalene	ND		0.20	0.11	ug/L		01/09/23 10:25	01/16/23 13:36	1
Nitrobenzene	ND		0.20	0.14	ug/L		01/09/23 10:25	01/16/23 13:36	1
N-Nitrosodimethylamine	ND		0.20	0.19	ug/L		01/09/23 10:25	01/16/23 13:36	1
N-Nitrosodi-n-propylamine	ND		0.20	0.14	ug/L		01/09/23 10:25	01/16/23 13:36	1
N-Nitrosodiphenylamine	ND		0.20	0.11	ug/L		01/09/23 10:25	01/16/23 13:36	1
Pentachlorophenol	ND		1.0	0.84	ug/L		01/09/23 10:25	01/16/23 13:36	1
Phenanthrene	ND		0.20	0.16	ug/L		01/09/23 10:25	01/16/23 13:36	1
Phenol	ND		1.0	0.52	ug/L		01/09/23 10:25	01/16/23 13:36	1
Pyrene	ND		0.20	0.086	ug/L		01/09/23 10:25	01/16/23 13:36	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2,4,6-Tribromophenol	51		28 - 127	01/09/23 10:25	01/16/23 13:36	1
2-Fluorobiphenyl (Surr)	68		31 - 120	01/09/23 10:25	01/16/23 13:36	1
2-Fluorophenol	37		17 - 120	01/09/23 10:25	01/16/23 13:36	1
Nitrobenzene-d5	60		27 - 120	01/09/23 10:25	01/16/23 13:36	1
Phenol-d6 (Surr)	24		10 - 120	01/09/23 10:25	01/16/23 13:36	1
p-Terphenyl-d14 (Surr)	77		45 - 120	01/09/23 10:25	01/16/23 13:36	1

Lab Sample ID: LCS 570-294449/2-A
Matrix: Water
Analysis Batch: 294913

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294449

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,2,4-Trichlorobenzene	20.0	16.5		ug/L		82	57 - 130
1,2-Dichlorobenzene	20.0	18.9		ug/L		95	40 - 120
1,2-Diphenylhydrazine(as Azobenzene)	20.0	20.3		ug/L		102	60 - 115
1,3-Dichlorobenzene	20.0	18.0		ug/L		90	37 - 120
1,4-Dichlorobenzene	20.0	18.9		ug/L		94	39 - 120
2,4,6-Trichlorophenol	20.0	22.0		ug/L		110	52 - 129
2,4-Dichlorophenol	20.0	17.2		ug/L		86	53 - 122
2,4-Dimethylphenol	20.0	17.3		ug/L		87	42 - 120
2,4-Dinitrophenol	20.0	26.7		ug/L		133	1 - 173
2,4-Dinitrotoluene	20.0	21.3		ug/L		106	48 - 127
2,6-Dinitrotoluene	20.0	22.9		ug/L		114	68 - 137
2-Chloronaphthalene	20.0	21.4		ug/L		107	65 - 120
2-Chlorophenol	20.0	20.2		ug/L		101	36 - 120
2-Nitrophenol	20.0	15.8		ug/L		79	45 - 167
3,3'-Dichlorobenzidine	20.0	20.0		ug/L		100	8 - 213
4,6-Dinitro-2-methylphenol	20.0	21.6		ug/L		108	53 - 130
4-Bromophenyl phenyl ether	20.0	22.4		ug/L		112	65 - 120
4-Chloro-3-methylphenol	20.0	16.4		ug/L		82	41 - 128
4-Chlorophenyl phenyl ether	20.0	22.2		ug/L		111	38 - 145
4-Nitrophenol	20.0	10.8		ug/L		54	13 - 129
Acenaphthene	20.0	21.3		ug/L		107	60 - 132
Acenaphthylene	20.0	24.8		ug/L		124	54 - 126
Anthracene	20.0	24.0		ug/L		120	43 - 120
Benzidine	20.0	26.1		ug/L		131	20 - 164
Benzo[a]anthracene	20.0	24.9		ug/L		125	42 - 133

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Lab Sample ID: LCS 570-294449/2-A
Matrix: Water
Analysis Batch: 294913

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294449

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]pyrene	20.0	22.8		ug/L		114	32 - 148
Benzo[b]fluoranthene	20.0	22.3		ug/L		111	42 - 140
Benzo[g,h,i]perylene	20.0	28.1		ug/L		140	1 - 195
Benzo[k]fluoranthene	20.0	26.7		ug/L		133	25 - 146
bis (2-chloroisopropyl) ether	20.0	23.0		ug/L		115	63 - 139
Bis(2-chloroethoxy)methane	20.0	19.2		ug/L		96	49 - 165
Bis(2-chloroethyl)ether	20.0	22.5		ug/L		112	43 - 126
Bis(2-ethylhexyl) phthalate	20.0	20.4		ug/L		102	29 - 137
Butyl benzyl phthalate	20.0	21.1		ug/L		106	1 - 140
Chrysene	20.0	24.9		ug/L		124	44 - 140
Dibenz(a,h)anthracene	20.0	24.9		ug/L		124	1 - 200
Diethyl phthalate	20.0	22.2		ug/L		111	1 - 120
Dimethyl phthalate	20.0	22.1		ug/L		110	1 - 120
Di-n-butyl phthalate	20.0	21.5		ug/L		107	8 - 120
Di-n-octyl phthalate	20.0	18.9		ug/L		95	19 - 132
Fluoranthene	20.0	23.1		ug/L		116	43 - 121
Fluorene	20.0	21.3		ug/L		107	70 - 120
Hexachlorobenzene	20.0	23.3		ug/L		116	8 - 142
Hexachlorobutadiene	20.0	15.5		ug/L		77	38 - 120
Hexachlorocyclopentadiene	20.0	21.8		ug/L		109	43 - 145
Hexachloroethane	20.0	17.1		ug/L		86	55 - 120
Indeno[1,2,3-cd]pyrene	20.0	22.1		ug/L		111	1 - 151
Isophorone	20.0	18.2		ug/L		91	47 - 180
Naphthalene	20.0	15.8		ug/L		79	36 - 120
Nitrobenzene	20.0	15.1		ug/L		76	54 - 158
N-Nitrosodimethylamine	20.0	16.2		ug/L		81	20 - 120
N-Nitrosodi-n-propylamine	20.0	19.7		ug/L		98	14 - 198
N-Nitrosodiphenylamine	20.0	24.7		ug/L		123	65 - 133
Pentachlorophenol	20.0	19.1		ug/L		96	38 - 152
Phenanthrene	20.0	22.5		ug/L		112	65 - 120
Phenol	20.0	9.60		ug/L		48	17 - 120
Pyrene	20.0	22.8		ug/L		114	70 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	102		28 - 127
2-Fluorobiphenyl (Surr)	97		31 - 120
2-Fluorophenol	61		17 - 120
Nitrobenzene-d5	75		27 - 120
Phenol-d6 (Surr)	43		10 - 120
p-Terphenyl-d14 (Surr)	110		45 - 120

Lab Sample ID: LCSD 570-294449/3-A
Matrix: Water
Analysis Batch: 294913

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 294449

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2,4-Trichlorobenzene	20.0	16.7		ug/L		83	57 - 130	1	30
1,2-Dichlorobenzene	20.0	19.2		ug/L		96	40 - 120	1	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Lab Sample ID: LCSD 570-294449/3-A
Matrix: Water
Analysis Batch: 294913

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 294449

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2-Diphenylhydrazine(as Azobenzene)	20.0	21.1		ug/L		106	60 - 115	4	30
1,3-Dichlorobenzene	20.0	18.7		ug/L		94	37 - 120	4	20
1,4-Dichlorobenzene	20.0	18.8		ug/L		94	39 - 120	1	20
2,4,6-Trichlorophenol	20.0	22.3		ug/L		112	52 - 129	1	35
2,4-Dichlorophenol	20.0	17.4		ug/L		87	53 - 122	1	30
2,4-Dimethylphenol	20.0	17.1		ug/L		85	42 - 120	1	35
2,4-Dinitrophenol	20.0	26.2		ug/L		131	1 - 173	2	79
2,4-Dinitrotoluene	20.0	20.2		ug/L		101	48 - 127	5	25
2,6-Dinitrotoluene	20.0	24.3		ug/L		122	68 - 137	6	29
2-Chloronaphthalene	20.0	21.4		ug/L		107	65 - 120	0	15
2-Chlorophenol	20.0	20.1		ug/L		101	36 - 120	0	37
2-Nitrophenol	20.0	16.1		ug/L		80	45 - 167	2	33
3,3'-Dichlorobenzidine	20.0	19.2		ug/L		96	8 - 213	4	65
4,6-Dinitro-2-methylphenol	20.0	21.7		ug/L		108	53 - 130	0	122
4-Bromophenyl phenyl ether	20.0	22.6		ug/L		113	65 - 120	1	26
4-Chloro-3-methylphenol	20.0	16.2		ug/L		81	41 - 128	2	44
4-Chlorophenyl phenyl ether	20.0	21.5		ug/L		108	38 - 145	3	36
4-Nitrophenol	20.0	10.0		ug/L		50	13 - 129	7	79
Acenaphthene	20.0	20.9		ug/L		104	60 - 132	2	29
Acenaphthylene	20.0	24.3		ug/L		121	54 - 126	2	45
Anthracene	20.0	23.4		ug/L		117	43 - 120	2	40
Benzidine	20.0	31.1		ug/L		156	20 - 164	17	30
Benzo[a]anthracene	20.0	24.3		ug/L		121	42 - 133	3	32
Benzo[a]pyrene	20.0	21.4		ug/L		107	32 - 148	6	43
Benzo[b]fluoranthene	20.0	21.1		ug/L		105	42 - 140	6	43
Benzo[g,h,i]perylene	20.0	27.3		ug/L		136	1 - 195	3	61
Benzo[k]fluoranthene	20.0	25.2		ug/L		126	25 - 146	5	38
bis (2-chloroisopropyl) ether	20.0	23.8		ug/L		119	63 - 139	3	46
Bis(2-chloroethoxy)methane	20.0	19.8		ug/L		99	49 - 165	3	32
Bis(2-chloroethyl)ether	20.0	23.1		ug/L		115	43 - 126	3	65
Bis(2-ethylhexyl) phthalate	20.0	20.1		ug/L		101	29 - 137	1	50
Butyl benzyl phthalate	20.0	21.2		ug/L		106	1 - 140	0	36
Chrysene	20.0	24.3		ug/L		122	44 - 140	2	53
Dibenz(a,h)anthracene	20.0	23.9		ug/L		120	1 - 200	4	75
Diethyl phthalate	20.0	21.7		ug/L		109	1 - 120	2	60
Dimethyl phthalate	20.0	22.0		ug/L		110	1 - 120	0	110
Di-n-butyl phthalate	20.0	20.8		ug/L		104	8 - 120	3	28
Di-n-octyl phthalate	20.0	18.7		ug/L		93	19 - 132	1	42
Fluoranthene	20.0	21.5		ug/L		107	43 - 121	7	40
Fluorene	20.0	20.4		ug/L		102	70 - 120	5	23
Hexachlorobenzene	20.0	23.4		ug/L		117	8 - 142	1	33
Hexachlorobutadiene	20.0	15.8		ug/L		79	38 - 120	2	38
Hexachlorocyclopentadiene	20.0	23.0		ug/L		115	43 - 145	5	22
Hexachloroethane	20.0	17.3		ug/L		86	55 - 120	1	32
Indeno[1,2,3-cd]pyrene	20.0	21.7		ug/L		108	1 - 151	2	60
Isophorone	20.0	18.8		ug/L		94	47 - 180	3	56
Naphthalene	20.0	15.5		ug/L		78	36 - 120	2	39
Nitrobenzene	20.0	15.6		ug/L		78	54 - 158	3	37

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: 625.1 SIM - Semivolatile Organic Compounds GC/MS (SIM) (Continued)

Lab Sample ID: LCSD 570-294449/3-A
Matrix: Water
Analysis Batch: 294913

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 294449

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
N-Nitrosodimethylamine	20.0	14.7		ug/L		74	20 - 120	10	21
N-Nitrosodi-n-propylamine	20.0	19.9		ug/L		100	14 - 198	1	52
N-Nitrosodiphenylamine	20.0	25.0		ug/L		125	65 - 133	1	20
Pentachlorophenol	20.0	18.8		ug/L		94	38 - 152	2	52
Phenanthrene	20.0	21.8		ug/L		109	65 - 120	3	24
Phenol	20.0	9.92		ug/L		50	17 - 120	3	39
Pyrene	20.0	23.6		ug/L		118	70 - 120	3	30

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
2,4,6-Tribromophenol	105		28 - 127
2-Fluorobiphenyl (Surr)	99		31 - 120
2-Fluorophenol	67		17 - 120
Nitrobenzene-d5	79		27 - 120
Phenol-d6 (Surr)	46		10 - 120
p-Terphenyl-d14 (Surr)	113		45 - 120

Method: 608.3 - Organochlorine Pesticides in Water

Lab Sample ID: MB 570-294075/1-A
Matrix: Water
Analysis Batch: 294290

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294075

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.0033	0.0031	ug/L		01/06/23 08:13	01/09/23 22:50	1
alpha-BHC	ND		0.0013	0.0012	ug/L		01/06/23 08:13	01/09/23 22:50	1
beta-BHC	ND		0.0050	0.0039	ug/L		01/06/23 08:13	01/09/23 22:50	1
delta-BHC	ND		0.0033	0.0020	ug/L		01/06/23 08:13	01/09/23 22:50	1
gamma-BHC (Lindane)	ND		0.0013	0.00066	ug/L		01/06/23 08:13	01/09/23 22:50	1
Chlordane (technical)	ND		0.033	0.026	ug/L		01/06/23 08:13	01/09/23 22:50	1
4,4'-DDD	ND		0.0067	0.0044	ug/L		01/06/23 08:13	01/09/23 22:50	1
4,4'-DDE	ND		0.0033	0.0019	ug/L		01/06/23 08:13	01/09/23 22:50	1
4,4'-DDT	ND		0.0033	0.0016	ug/L		01/06/23 08:13	01/09/23 22:50	1
Dieldrin	ND		0.0033	0.0013	ug/L		01/06/23 08:13	01/09/23 22:50	1
Endosulfan I	ND		0.0013	0.0013	ug/L		01/06/23 08:13	01/09/23 22:50	1
Endosulfan II	ND		0.0067	0.0041	ug/L		01/06/23 08:13	01/09/23 22:50	1
Endosulfan sulfate	ND		0.0033	0.0014	ug/L		01/06/23 08:13	01/09/23 22:50	1
Endrin	ND		0.0033	0.0023	ug/L		01/06/23 08:13	01/09/23 22:50	1
Endrin aldehyde	ND		0.033	0.024	ug/L		01/06/23 08:13	01/09/23 22:50	1
Heptachlor	ND		0.0013	0.0012	ug/L		01/06/23 08:13	01/09/23 22:50	1
Heptachlor epoxide	ND		0.0067	0.0039	ug/L		01/06/23 08:13	01/09/23 22:50	1
Toxaphene	ND		0.067	0.054	ug/L		01/06/23 08:13	01/09/23 22:50	1

Surrogate	MB %Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	60		20 - 139	01/06/23 08:13	01/09/23 22:50	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: 608.3 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: LCS 570-294075/2-A
 Matrix: Water
 Analysis Batch: 294290

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 294075

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Aldrin	0.0333	0.0288		ug/L		86	42 - 140
alpha-BHC	0.0333	0.0277		ug/L		83	37 - 140
beta-BHC	0.0333	0.0375		ug/L		113	17 - 147
delta-BHC	0.0333	0.0298	PI	ug/L		89	19 - 140
gamma-BHC (Lindane)	0.0333	0.0305		ug/L		92	32 - 140
4,4'-DDD	0.0333	0.0335		ug/L		100	31 - 141
4,4'-DDE	0.0333	0.0365		ug/L		110	30 - 145
4,4'-DDT	0.0333	0.0261		ug/L		78	25 - 160
Dieldrin	0.0333	0.0307		ug/L		92	36 - 146
Endosulfan I	0.0333	0.0279	PI	ug/L		84	45 - 153
Endosulfan II	0.0333	0.0352		ug/L		106	1 - 202
Endosulfan sulfate	0.0333	0.0323		ug/L		97	26 - 144
Endrin	0.0333	0.0325		ug/L		97	30 - 147
Endrin aldehyde	0.0333	0.0292	J,DX	ug/L		87	50 - 135
Heptachlor	0.0333	0.0348		ug/L		104	34 - 140
Heptachlor epoxide	0.0333	0.0309		ug/L		93	37 - 142

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	69		20 - 139

Lab Sample ID: LCSD 570-294075/3-A
 Matrix: Water
 Analysis Batch: 294290

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 294075

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Aldrin	0.0333	0.0241		ug/L		72	42 - 140	18	35
alpha-BHC	0.0333	0.0225		ug/L		67	37 - 140	21	36
beta-BHC	0.0333	0.0326		ug/L		98	17 - 147	14	44
delta-BHC	0.0333	0.0273	PI	ug/L		82	19 - 140	9	52
gamma-BHC (Lindane)	0.0333	0.0258		ug/L		77	32 - 140	17	39
4,4'-DDD	0.0333	0.0292	PI	ug/L		87	31 - 141	14	39
4,4'-DDE	0.0333	0.0307		ug/L		92	30 - 145	17	35
4,4'-DDT	0.0333	0.0234	PI	ug/L		70	25 - 160	11	42
Dieldrin	0.0333	0.0251		ug/L		75	36 - 146	20	49
Endosulfan I	0.0333	0.0226	PI	ug/L		68	45 - 153	21	28
Endosulfan II	0.0333	0.0292		ug/L		88	1 - 202	19	53
Endosulfan sulfate	0.0333	0.0267	PI	ug/L		80	26 - 144	19	38
Endrin	0.0333	0.0277		ug/L		83	30 - 147	16	48
Endrin aldehyde	0.0333	0.0254	J,DX	ug/L		76	50 - 135	14	30
Heptachlor	0.0333	0.0242		ug/L		73	34 - 140	36	43
Heptachlor epoxide	0.0333	0.0260		ug/L		78	37 - 142	17	26

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	56		20 - 139

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 570-294075/1-A
Matrix: Water
Analysis Batch: 294728

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 294075

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aroclor 1016	ND		0.10	0.044	ug/L		01/06/23 08:13	01/11/23 00:45	1
Aroclor 1221	ND		0.10	0.044	ug/L		01/06/23 08:13	01/11/23 00:45	1
Aroclor 1232	ND		0.10	0.044	ug/L		01/06/23 08:13	01/11/23 00:45	1
Aroclor 1242	ND		0.10	0.044	ug/L		01/06/23 08:13	01/11/23 00:45	1
Aroclor 1248	ND		0.10	0.044	ug/L		01/06/23 08:13	01/11/23 00:45	1
Aroclor 1254	ND		0.10	0.052	ug/L		01/06/23 08:13	01/11/23 00:45	1
Aroclor 1260	ND		0.10	0.052	ug/L		01/06/23 08:13	01/11/23 00:45	1
MB MB									
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
DCB Decachlorobiphenyl (Surr)	55		20 - 154			01/06/23 08:13	01/11/23 00:45	1	

Lab Sample ID: LCS 570-294075/4-A
Matrix: Water
Analysis Batch: 295061

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 294075

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
								RPD	Limit
Aroclor 1016	0.133	0.355	PI LQ	ug/L		267	50 - 140		
Aroclor 1260	0.133	0.169		ug/L		127	8 - 140		
LCS LCS									
Surrogate	%Recovery	Qualifier	Limits						
DCB Decachlorobiphenyl (Surr)	67	PI	20 - 154						

Lab Sample ID: LCSD 570-294075/5-A
Matrix: Water
Analysis Batch: 295061

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 294075

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD	Limit
									RPD	Limit
Aroclor 1016	0.133	0.387	LQ	ug/L		291	50 - 140	9		36
Aroclor 1260	0.133	0.199	LQ PI	ug/L		149	8 - 140	16		38
LCSD LCSD										
Surrogate	%Recovery	Qualifier	Limits							
DCB Decachlorobiphenyl (Surr)	76		20 - 154							

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Lab Sample ID: MB 570-293495/5
Matrix: Water
Analysis Batch: 293495

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chromium, hexavalent	ND		0.20	0.019	ug/L			01/04/23 01:47	1

Lab Sample ID: LCS 570-293495/6
Matrix: Water
Analysis Batch: 293495

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
								RPD	Limit
Chromium, hexavalent	50.1	49.1		ug/L		98	95 - 107		

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography) (Continued)

Lab Sample ID: LCSD 570-293495/7
Matrix: Water
Analysis Batch: 293495

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chromium, hexavalent	50.1	49.4		ug/L		99	95 - 107	1	20

Lab Sample ID: 570-122420-T-1 MS
Matrix: Water
Analysis Batch: 293495

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chromium, hexavalent	0.14	J,DX	50.1	51.5		ug/L		103	85 - 121

Lab Sample ID: 570-122420-T-1 MSD
Matrix: Water
Analysis Batch: 293495

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chromium, hexavalent	0.14	J,DX	50.1	50.7		ug/L		101	85 - 121	2	25

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-293190/42
Matrix: Water
Analysis Batch: 293190

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			01/03/23 22:08	1
Fluoride	ND		0.10	0.046	mg/L			01/03/23 22:08	1
Sulfate	ND		1.0	0.24	mg/L			01/03/23 22:08	1

Lab Sample ID: LCS 570-293190/43
Matrix: Water
Analysis Batch: 293190

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	49.2		mg/L		98	90 - 110
Fluoride	2.50	2.61		mg/L		104	90 - 110
Sulfate	50.0	49.3		mg/L		99	90 - 110

Lab Sample ID: LCSD 570-293190/44
Matrix: Water
Analysis Batch: 293190

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	49.3		mg/L		99	90 - 110	0	15
Fluoride	2.50	2.62		mg/L		105	90 - 110	1	15
Sulfate	50.0	49.4		mg/L		99	90 - 110	0	15

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 570-122420-T-1 MS
Matrix: Water
Analysis Batch: 293190

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	4.9		50.0	50.2		mg/L		91	80 - 120
Fluoride	ND		2.50	2.58		mg/L		103	80 - 120
Sulfate	150		50.0	207	EY	mg/L		114	80 - 120

Lab Sample ID: 570-122420-T-1 MSD
Matrix: Water
Analysis Batch: 293190

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	4.9		50.0	50.5		mg/L		91	80 - 120	1	20
Fluoride	ND		2.50	2.68		mg/L		107	80 - 120	4	20
Sulfate	150		50.0	209	EY	mg/L		117	80 - 120	1	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 570-293573/7
Matrix: Water
Analysis Batch: 293573

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		2.0	0.91	ug/L			01/04/23 12:03	1

Lab Sample ID: LCS 570-293573/8
Matrix: Water
Analysis Batch: 293573

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	25.0	24.8		ug/L		99	85 - 115

Lab Sample ID: LCSD 570-293573/9
Matrix: Water
Analysis Batch: 293573

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	25.0	24.2		ug/L		97	85 - 115	3	15

Lab Sample ID: 570-122390-BK-2 MS
Matrix: Water
Analysis Batch: 293573

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	ND		50.0	51.2		ug/L		102	80 - 120

Lab Sample ID: 570-122390-BK-2 MSD
Matrix: Water
Analysis Batch: 293573

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	ND		50.0	51.3		ug/L		103	80 - 120	0	15

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 570-300534/1-A
Matrix: Water
Analysis Batch: 300834

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 300534

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		500	3.5	ug/L		02/02/23 07:34	02/02/23 20:35	1

Lab Sample ID: LCS 570-300534/2-A
Matrix: Water
Analysis Batch: 300834

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 300534

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	500	516		ug/L		103	85 - 115

Lab Sample ID: LCSD 570-300534/3-A
Matrix: Water
Analysis Batch: 300834

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 300534

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	500	511		ug/L		102	85 - 115	1	20

Lab Sample ID: 570-125839-A-1-C MS
Matrix: Water
Analysis Batch: 300834

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 300534

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	65	J,DX	500	576		ug/L		102	80 - 120

Lab Sample ID: 570-125839-A-1-D MSD
Matrix: Water
Analysis Batch: 300834

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 300534

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	65	J,DX	500	572		ug/L		101	80 - 120	1	20

Lab Sample ID: MB 570-293616/1-A
Matrix: Water
Analysis Batch: 293725

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		500	3.5	ug/L			01/04/23 17:29	1

Lab Sample ID: LCS 570-293616/2-A
Matrix: Water
Analysis Batch: 293725

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	500	463	J,DX	ug/L		93	85 - 115

Lab Sample ID: LCSD 570-293616/3-A
Matrix: Water
Analysis Batch: 293725

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	500	447	J,DX	ug/L		89	85 - 115	4	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: 570-122390-G-1-B MS
Matrix: Water
Analysis Batch: 293725

Client Sample ID: Matrix Spike
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	71	J,DX	500	535		ug/L		93	80 - 120

Lab Sample ID: 570-122390-G-1-C MSD
Matrix: Water
Analysis Batch: 293725

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	71	J,DX	500	534		ug/L		93	80 - 120	0	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-293298/1-A
Matrix: Water
Analysis Batch: 293396

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 293298

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.36	ug/L		01/03/23 10:55	01/03/23 14:01	1
Cadmium	ND		1.0	0.13	ug/L		01/03/23 10:55	01/03/23 14:01	1
Copper	ND		2.0	0.32	ug/L		01/03/23 10:55	01/03/23 14:01	1
Lead	ND		1.0	0.12	ug/L		01/03/23 10:55	01/03/23 14:01	1
Selenium	ND		2.0	0.52	ug/L		01/03/23 10:55	01/03/23 14:01	1
Silver	ND		1.0	0.23	ug/L		01/03/23 10:55	01/03/23 14:01	1
Thallium	ND		1.0	0.11	ug/L		01/03/23 10:55	01/03/23 14:01	1
Beryllium	ND		0.50	0.26	ug/L		01/03/23 10:55	01/03/23 14:01	1
Arsenic	ND		1.0	0.16	ug/L		01/03/23 10:55	01/03/23 14:01	1
Nickel	ND		2.0	0.17	ug/L		01/03/23 10:55	01/03/23 14:01	1
Vanadium	ND		2.0	0.17	ug/L		01/03/23 10:55	01/03/23 14:01	1
Aluminum	ND		15	8.6	ug/L		01/03/23 10:55	01/03/23 14:01	1
Zinc	ND		20	2.8	ug/L		01/03/23 10:55	01/03/23 14:01	1
Chromium	ND		2.0	0.14	ug/L		01/03/23 10:55	01/03/23 14:01	1

Lab Sample ID: LCS 570-293298/2-A
Matrix: Water
Analysis Batch: 293396

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 293298

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	40.0	42.7		ug/L		107	85 - 115
Cadmium	40.0	40.9		ug/L		102	85 - 115
Copper	40.0	41.4		ug/L		103	85 - 115
Lead	40.0	40.7		ug/L		102	85 - 115
Selenium	40.0	42.1		ug/L		105	85 - 115
Silver	40.0	37.8		ug/L		94	85 - 115
Thallium	40.0	40.4		ug/L		101	85 - 115
Beryllium	40.0	42.6		ug/L		106	85 - 115
Arsenic	40.0	40.5		ug/L		101	85 - 115
Nickel	40.0	41.8		ug/L		105	85 - 115
Vanadium	40.0	41.4		ug/L		103	85 - 115
Aluminum	40.0	41.3		ug/L		103	85 - 115
Zinc	40.0	40.9		ug/L		102	85 - 115

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 570-293298/2-A
Matrix: Water
Analysis Batch: 293396

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 293298

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chromium	40.0	41.4		ug/L		103	85 - 115

Lab Sample ID: LCSD 570-293298/3-A
Matrix: Water
Analysis Batch: 293396

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 293298

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	40.0	42.9		ug/L		107	85 - 115	0	20
Cadmium	40.0	40.2		ug/L		101	85 - 115	2	20
Copper	40.0	40.8		ug/L		102	85 - 115	1	20
Lead	40.0	40.5		ug/L		101	85 - 115	0	20
Selenium	40.0	40.9		ug/L		102	85 - 115	3	20
Silver	40.0	37.2		ug/L		93	85 - 115	2	20
Thallium	40.0	40.0		ug/L		100	85 - 115	1	20
Beryllium	40.0	39.2		ug/L		98	85 - 115	8	20
Arsenic	40.0	39.6		ug/L		99	85 - 115	2	20
Nickel	40.0	40.6		ug/L		101	85 - 115	3	20
Vanadium	40.0	40.6		ug/L		102	85 - 115	2	20
Aluminum	40.0	41.6		ug/L		104	85 - 115	1	20
Zinc	40.0	40.7		ug/L		102	85 - 115	1	20
Chromium	40.0	40.2		ug/L		101	85 - 115	3	20

Lab Sample ID: 570-120338-A-50-B MS
Matrix: Water
Analysis Batch: 293396

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 293298

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.69	J,DX	80.0	88.0		ug/L		109	80 - 120
Cadmium	ND		80.0	82.6		ug/L		103	80 - 120
Copper	7.4		80.0	90.8		ug/L		104	80 - 120
Lead	1.5		80.0	83.1		ug/L		102	80 - 120
Selenium	ND		80.0	83.1		ug/L		104	80 - 120
Silver	ND		80.0	76.2		ug/L		95	80 - 120
Thallium	ND		80.0	81.4		ug/L		102	80 - 120
Beryllium	ND		80.0	81.9		ug/L		102	80 - 120
Arsenic	1.3		80.0	82.4		ug/L		101	80 - 120
Nickel	1.5	J,DX	80.0	84.4		ug/L		104	80 - 120
Vanadium	3.9		80.0	87.6		ug/L		105	80 - 120
Aluminum	1000		80.0	1450	BB	ug/L		567	80 - 120
Zinc	36		80.0	119		ug/L		104	80 - 120
Chromium	1.8	J,DX	80.0	84.2		ug/L		103	80 - 120

Lab Sample ID: 570-120338-A-50-C MSD
Matrix: Water
Analysis Batch: 293396

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 293298

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	0.69	J,DX	80.0	86.5		ug/L		107	80 - 120	2	20
Cadmium	ND		80.0	80.8		ug/L		101	80 - 120	2	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-120338-A-50-C MSD
Matrix: Water
Analysis Batch: 293396

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 293298

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Copper	7.4		80.0	88.9		ug/L		102	80 - 120	2	20
Lead	1.5		80.0	82.9		ug/L		102	80 - 120	0	20
Selenium	ND		80.0	77.8		ug/L		97	80 - 120	7	20
Silver	ND		80.0	75.2		ug/L		94	80 - 120	1	20
Thallium	ND		80.0	80.3		ug/L		100	80 - 120	1	20
Beryllium	ND		80.0	80.5		ug/L		101	80 - 120	2	20
Arsenic	1.3		80.0	80.3		ug/L		99	80 - 120	3	20
Nickel	1.5	J,DX	80.0	82.9		ug/L		102	80 - 120	2	20
Vanadium	3.9		80.0	85.2		ug/L		102	80 - 120	3	20
Aluminum	1000		80.0	1580	BB	ug/L		723	80 - 120	8	20
Zinc	36		80.0	115		ug/L		99	80 - 120	3	20
Chromium	1.8	J,DX	80.0	82.4		ug/L		101	80 - 120	2	20

Lab Sample ID: MB 570-300272/1-A
Matrix: Water
Analysis Batch: 300368

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 300272

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		20	3.7	ug/L		02/01/23 11:07	02/01/23 14:05	1

Lab Sample ID: LCS 570-300272/2-A
Matrix: Water
Analysis Batch: 300368

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 300272

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	800	814		ug/L		102	85 - 115

Lab Sample ID: LCSD 570-300272/3-A
Matrix: Water
Analysis Batch: 300368

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 300272

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Iron	800	813		ug/L		102	85 - 115	0	20

Lab Sample ID: 570-124873-F-1-E MS
Matrix: Water
Analysis Batch: 300368

Client Sample ID: Matrix Spike
Prep Type: Total Recoverable
Prep Batch: 300272

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	280		800	1050		ug/L		96	80 - 120

Lab Sample ID: 570-124873-F-1-F MSD
Matrix: Water
Analysis Batch: 300368

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total Recoverable
Prep Batch: 300272

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Iron	280		800	1090		ug/L		101	80 - 120	4	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 570-293628/1-A
Matrix: Water
Analysis Batch: 294380

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.36	ug/L			01/06/23 15:01	1
Cadmium	ND		1.0	0.13	ug/L			01/06/23 15:01	1
Copper	ND		2.0	0.32	ug/L			01/06/23 15:01	1
Lead	ND		1.0	0.12	ug/L			01/06/23 15:01	1
Selenium	0.609	J,DX	2.0	0.52	ug/L			01/06/23 15:01	1
Silver	ND		1.0	0.23	ug/L			01/06/23 15:01	1
Thallium	ND		1.0	0.11	ug/L			01/06/23 15:01	1
Beryllium	ND		0.50	0.26	ug/L			01/06/23 15:01	1
Arsenic	ND		1.0	0.16	ug/L			01/06/23 15:01	1
Iron	ND		20	3.7	ug/L			01/06/23 15:01	1
Nickel	ND		2.0	0.17	ug/L			01/06/23 15:01	1
Vanadium	ND		2.0	0.17	ug/L			01/06/23 15:01	1
Aluminum	ND		15	8.6	ug/L			01/06/23 15:01	1
Zinc	ND		20	2.8	ug/L			01/06/23 15:01	1
Chromium	ND		2.0	0.14	ug/L			01/06/23 15:01	1

Lab Sample ID: LCS 570-293628/2-A
Matrix: Water
Analysis Batch: 294380

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	80.0	71.7		ug/L		90	85 - 115
Cadmium	80.0	76.0		ug/L		95	85 - 115
Copper	80.0	74.9		ug/L		94	85 - 115
Lead	80.0	76.5		ug/L		96	85 - 115
Selenium	80.0	77.1		ug/L		96	85 - 115
Silver	80.0	70.2		ug/L		88	85 - 115
Thallium	80.0	75.4		ug/L		94	85 - 115
Beryllium	80.0	79.9		ug/L		100	85 - 115
Arsenic	80.0	75.5		ug/L		94	85 - 115
Iron	800	802		ug/L		100	85 - 115
Nickel	80.0	75.3		ug/L		94	85 - 115
Vanadium	80.0	77.1		ug/L		96	85 - 115
Aluminum	80.0	77.6		ug/L		97	85 - 115
Zinc	80.0	75.7		ug/L		95	85 - 115
Chromium	80.0	76.4		ug/L		96	85 - 115

Lab Sample ID: LCSD 570-293628/3-A
Matrix: Water
Analysis Batch: 294380

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	80.0	72.5		ug/L		91	85 - 115	1	20
Cadmium	80.0	76.0		ug/L		95	85 - 115	0	20
Copper	80.0	74.6		ug/L		93	85 - 115	0	20
Lead	80.0	76.0		ug/L		95	85 - 115	1	20
Selenium	80.0	77.2		ug/L		96	85 - 115	0	20
Silver	80.0	69.7		ug/L		87	85 - 115	1	20
Thallium	80.0	75.1		ug/L		94	85 - 115	0	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 570-293628/3-A
Matrix: Water
Analysis Batch: 294380

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Beryllium	80.0	78.4		ug/L		98	85 - 115	2	20
Arsenic	80.0	75.6		ug/L		95	85 - 115	0	20
Iron	800	797		ug/L		100	85 - 115	1	20
Nickel	80.0	75.8		ug/L		95	85 - 115	1	20
Vanadium	80.0	76.8		ug/L		96	85 - 115	0	20
Aluminum	80.0	77.1		ug/L		96	85 - 115	1	20
Zinc	80.0	74.0		ug/L		92	85 - 115	2	20
Chromium	80.0	76.9		ug/L		96	85 - 115	1	20

Lab Sample ID: 570-122390-G-1-E MS
Matrix: Water
Analysis Batch: 294380

Client Sample ID: Matrix Spike
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	0.76	J,DX	80.0	78.5		ug/L		97	80 - 120		
Cadmium	ND		80.0	78.1		ug/L		98	80 - 120		
Copper	2.0		80.0	79.4		ug/L		97	80 - 120		
Lead	ND		80.0	78.0		ug/L		98	80 - 120		
Selenium	0.88	J,DX MB	80.0	78.2		ug/L		97	80 - 120		
Silver	ND		80.0	71.5		ug/L		89	80 - 120		
Thallium	ND		80.0	77.4		ug/L		97	80 - 120		
Beryllium	ND		80.0	79.7		ug/L		100	80 - 120		
Arsenic	1.2		80.0	79.7		ug/L		98	80 - 120		
Iron	62		800	883		ug/L		103	80 - 120		
Nickel	0.99	J,DX	80.0	77.7		ug/L		96	80 - 120		
Vanadium	1.4	J,DX	80.0	81.5		ug/L		100	80 - 120		
Aluminum	40		80.0	126		ug/L		108	80 - 120		
Zinc	ND		80.0	77.8		ug/L		97	80 - 120		
Chromium	0.24	J,DX	80.0	79.2		ug/L		99	80 - 120		

Lab Sample ID: 570-122390-G-1-F MSD
Matrix: Water
Analysis Batch: 294380

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	0.76	J,DX	80.0	68.8		ug/L		85	80 - 120	13	20
Cadmium	ND		80.0	76.7		ug/L		96	80 - 120	2	20
Copper	2.0		80.0	78.8		ug/L		96	80 - 120	1	20
Lead	ND		80.0	77.7		ug/L		97	80 - 120	0	20
Selenium	0.88	J,DX MB	80.0	74.5		ug/L		92	80 - 120	5	20
Silver	ND		80.0	69.8		ug/L		87	80 - 120	2	20
Thallium	ND		80.0	76.4		ug/L		96	80 - 120	1	20
Beryllium	ND		80.0	76.9		ug/L		96	80 - 120	4	20
Arsenic	1.2		80.0	78.3		ug/L		96	80 - 120	2	20
Iron	62		800	864		ug/L		100	80 - 120	2	20
Nickel	0.99	J,DX	80.0	77.1		ug/L		95	80 - 120	1	20
Vanadium	1.4	J,DX	80.0	80.2		ug/L		98	80 - 120	2	20
Aluminum	40		80.0	128		ug/L		110	80 - 120	1	20
Zinc	ND		80.0	77.3		ug/L		97	80 - 120	1	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-122390-G-1-F MSD
 Matrix: Water
 Analysis Batch: 294380

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chromium	0.24	J,DX	80.0	77.8		ug/L		97	80 - 120	2	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-293891/1-A
 Matrix: Water
 Analysis Batch: 293994

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 293891

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/05/23 11:40	01/05/23 17:03	1

Lab Sample ID: LCS 570-293891/2-A
 Matrix: Water
 Analysis Batch: 293994

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 293891

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	7.91		ug/L		99	85 - 115

Lab Sample ID: LCSD 570-293891/3-A
 Matrix: Water
 Analysis Batch: 293994

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 293891

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	7.46		ug/L		93	85 - 115	6	10

Lab Sample ID: 570-122381-1 MS
 Matrix: Water
 Analysis Batch: 293994

Client Sample ID: Outfall009_20230102_Comp
 Prep Type: Total/NA
 Prep Batch: 293891

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	7.74		ug/L		97	85 - 115

Lab Sample ID: 570-122381-1 MSD
 Matrix: Water
 Analysis Batch: 293994

Client Sample ID: Outfall009_20230102_Comp
 Prep Type: Total/NA
 Prep Batch: 293891

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	7.41		ug/L		93	85 - 115	4	10

Lab Sample ID: MB 570-293898/1-B
 Matrix: Water
 Analysis Batch: 293994

Client Sample ID: Method Blank
 Prep Type: Dissolved
 Prep Batch: 293902

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/05/23 11:56	01/05/23 19:32	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 570-293898/2-B
Matrix: Water
Analysis Batch: 293994

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 293902

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.59		ug/L		107	85 - 115

Lab Sample ID: LCSD 570-293898/3-B
Matrix: Water
Analysis Batch: 293994

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 293902

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	7.96		ug/L		99	85 - 115	8	10

Lab Sample ID: 570-122381-2 MS
Matrix: Water
Analysis Batch: 293994

Client Sample ID: Outfall009_20230102_Comp_F
Prep Type: Dissolved
Prep Batch: 293902

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND	BU	8.00	8.70		ug/L		109	85 - 115

Lab Sample ID: 570-122381-2 MSD
Matrix: Water
Analysis Batch: 293994

Client Sample ID: Outfall009_20230102_Comp_F
Prep Type: Dissolved
Prep Batch: 293902

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND	BU	8.00	7.92		ug/L		99	85 - 115	9	10

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-295446/11
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			01/11/23 14:55	1

Lab Sample ID: LCS 570-295446/12
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	255		ug/L		102	90 - 110

Lab Sample ID: LCSD 570-295446/18
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	250	233		ug/L		93	90 - 110	9	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate (Continued)

Lab Sample ID: MRL 570-295446/10
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	5.00	4.11	J,DX	ug/L		82	50 - 150

Lab Sample ID: 570-122475-D-1 MS
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	8.7		250	226		ug/L		87	70 - 130

Lab Sample ID: 570-122475-D-1 MSD
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	8.7		250	266		ug/L		103	70 - 130	16	30

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-293692/3
Matrix: Water
Analysis Batch: 293692

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			01/04/23 15:33	1

Lab Sample ID: LCS 570-293692/4
Matrix: Water
Analysis Batch: 293692

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	960		mg/L		96	84 - 108

Lab Sample ID: LCSD 570-293692/5
Matrix: Water
Analysis Batch: 293692

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1010		mg/L		101	84 - 108	5	10

Lab Sample ID: 570-122453-I-1 DU
Matrix: Water
Analysis Batch: 293692

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	6400		6510		mg/L		2	10

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-294266/1
Matrix: Water
Analysis Batch: 294266

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			01/06/23 17:51	1

Lab Sample ID: LCS 570-294266/2
Matrix: Water
Analysis Batch: 294266

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	84.0		mg/L		84	77 - 116

Lab Sample ID: LCSD 570-294266/3
Matrix: Water
Analysis Batch: 294266

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	84.0		mg/L		84	77 - 116	0	10

Lab Sample ID: 570-122377-F-1 DU
Matrix: Water
Analysis Batch: 294266

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	400		405		mg/L		3	10

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

GC/MS Semi VOA

Prep Batch: 294449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	625	
MB 570-294449/1-A	Method Blank	Total/NA	Water	625	
LCS 570-294449/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 570-294449/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 294913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	625.1 SIM	294449
LCS 570-294449/2-A	Lab Control Sample	Total/NA	Water	625.1 SIM	294449
LCSD 570-294449/3-A	Lab Control Sample Dup	Total/NA	Water	625.1 SIM	294449

Analysis Batch: 296147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-294449/1-A	Method Blank	Total/NA	Water	625.1 SIM	294449

GC Semi VOA

Prep Batch: 294075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	608	
MB 570-294075/1-A	Method Blank	Total/NA	Water	608	
LCS 570-294075/2-A	Lab Control Sample	Total/NA	Water	608	
LCS 570-294075/4-A	Lab Control Sample	Total/NA	Water	608	
LCSD 570-294075/3-A	Lab Control Sample Dup	Total/NA	Water	608	
LCSD 570-294075/5-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 294290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-294075/1-A	Method Blank	Total/NA	Water	608.3	294075
LCS 570-294075/2-A	Lab Control Sample	Total/NA	Water	608.3	294075
LCSD 570-294075/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	294075

Analysis Batch: 294728

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	608.3	294075
MB 570-294075/1-A	Method Blank	Total/NA	Water	608.3	294075

Analysis Batch: 295061

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-294075/4-A	Lab Control Sample	Total/NA	Water	608.3	294075
LCSD 570-294075/5-A	Lab Control Sample Dup	Total/NA	Water	608.3	294075

Analysis Batch: 295559

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	608.3	294075

HPLC/IC

Analysis Batch: 293190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	300.0	
MB 570-293190/42	Method Blank	Total/NA	Water	300.0	

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

HPLC/IC (Continued)

Analysis Batch: 293190 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-293190/43	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-293190/44	Lab Control Sample Dup	Total/NA	Water	300.0	
570-122420-T-1 MS	Matrix Spike	Total/NA	Water	300.0	
570-122420-T-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 293495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	218.6	
MB 570-293495/5	Method Blank	Total/NA	Water	218.6	
LCS 570-293495/6	Lab Control Sample	Total/NA	Water	218.6	
LCSD 570-293495/7	Lab Control Sample Dup	Total/NA	Water	218.6	
570-122420-T-1 MS	Matrix Spike	Total/NA	Water	218.6	
570-122420-T-1 MSD	Matrix Spike Duplicate	Total/NA	Water	218.6	

Analysis Batch: 293573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	314.0	
MB 570-293573/7	Method Blank	Total/NA	Water	314.0	
LCS 570-293573/8	Lab Control Sample	Total/NA	Water	314.0	
LCSD 570-293573/9	Lab Control Sample Dup	Total/NA	Water	314.0	
570-122390-BK-2 MS	Matrix Spike	Total/NA	Water	314.0	
570-122390-BK-2 MSD	Matrix Spike Duplicate	Total/NA	Water	314.0	

Analysis Batch: 295542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Prep Batch: 293298

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total Recoverable	Water	200.8	
MB 570-293298/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-293298/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-293298/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-120338-A-50-B MS	Matrix Spike	Total Recoverable	Water	200.8	
570-120338-A-50-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	

Analysis Batch: 293396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-293298/1-A	Method Blank	Total Recoverable	Water	200.8	293298
LCS 570-293298/2-A	Lab Control Sample	Total Recoverable	Water	200.8	293298
LCSD 570-293298/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	293298
570-120338-A-50-B MS	Matrix Spike	Total Recoverable	Water	200.8	293298
570-120338-A-50-C MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	293298

Filtration Batch: 293616

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-2	Outfall009_20230102_Comp_F	Dissolved	Water	Filtration	
MB 570-293616/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-293616/2-A	Lab Control Sample	Dissolved	Water	Filtration	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Metals (Continued)

Filtration Batch: 293616 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 570-293616/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-122390-G-1-B MS	Matrix Spike	Dissolved	Water	Filtration	
570-122390-G-1-C MSD	Matrix Spike Duplicate	Dissolved	Water	Filtration	

Filtration Batch: 293628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-2	Outfall009_20230102_Comp_F	Dissolved	Water	Filtration	
MB 570-293628/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-293628/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-293628/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-122390-G-1-E MS	Matrix Spike	Dissolved	Water	Filtration	
570-122390-G-1-F MSD	Matrix Spike Duplicate	Dissolved	Water	Filtration	

Analysis Batch: 293725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-2	Outfall009_20230102_Comp_F	Dissolved	Water	200.7 Rev 4.4	293616
MB 570-293616/1-A	Method Blank	Dissolved	Water	200.7 Rev 4.4	293616
LCS 570-293616/2-A	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	293616
LCSD 570-293616/3-A	Lab Control Sample Dup	Dissolved	Water	200.7 Rev 4.4	293616
570-122390-G-1-B MS	Matrix Spike	Dissolved	Water	200.7 Rev 4.4	293616
570-122390-G-1-C MSD	Matrix Spike Duplicate	Dissolved	Water	200.7 Rev 4.4	293616

Analysis Batch: 293796

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total Recoverable	Water	200.8	293298

Prep Batch: 293891

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	245.1	
MB 570-293891/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-293891/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-293891/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-122381-1 MS	Outfall009_20230102_Comp	Total/NA	Water	245.1	
570-122381-1 MSD	Outfall009_20230102_Comp	Total/NA	Water	245.1	

Filtration Batch: 293898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-2	Outfall009_20230102_Comp_F	Dissolved	Water	Filtration	
MB 570-293898/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-293898/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-293898/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-122381-2 MS	Outfall009_20230102_Comp_F	Dissolved	Water	Filtration	
570-122381-2 MSD	Outfall009_20230102_Comp_F	Dissolved	Water	Filtration	

Prep Batch: 293902

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-2	Outfall009_20230102_Comp_F	Dissolved	Water	245.1	293898
MB 570-293898/1-B	Method Blank	Dissolved	Water	245.1	293898
LCS 570-293898/2-B	Lab Control Sample	Dissolved	Water	245.1	293898
LCSD 570-293898/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	293898
570-122381-2 MS	Outfall009_20230102_Comp_F	Dissolved	Water	245.1	293898

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Metals (Continued)

Prep Batch: 293902 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-2 MSD	Outfall009_20230102_Comp_F	Dissolved	Water	245.1	293898

Analysis Batch: 293994

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	245.1	293891
570-122381-2	Outfall009_20230102_Comp_F	Dissolved	Water	245.1	293902
MB 570-293891/1-A	Method Blank	Total/NA	Water	245.1	293891
MB 570-293898/1-B	Method Blank	Dissolved	Water	245.1	293902
LCS 570-293891/2-A	Lab Control Sample	Total/NA	Water	245.1	293891
LCS 570-293898/2-B	Lab Control Sample	Dissolved	Water	245.1	293902
LCSD 570-293891/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	293891
LCSD 570-293898/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	293902
570-122381-1 MS	Outfall009_20230102_Comp	Total/NA	Water	245.1	293891
570-122381-1 MSD	Outfall009_20230102_Comp	Total/NA	Water	245.1	293891
570-122381-2 MS	Outfall009_20230102_Comp_F	Dissolved	Water	245.1	293902
570-122381-2 MSD	Outfall009_20230102_Comp_F	Dissolved	Water	245.1	293902

Analysis Batch: 294360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total Recoverable	Water	SM 2340B	
570-122381-2	Outfall009_20230102_Comp_F	Dissolved	Water	SM 2340B	

Analysis Batch: 294380

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-2	Outfall009_20230102_Comp_F	Dissolved	Water	200.8	293628
MB 570-293628/1-A	Method Blank	Dissolved	Water	200.8	293628
LCS 570-293628/2-A	Lab Control Sample	Dissolved	Water	200.8	293628
LCSD 570-293628/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	293628
570-122390-G-1-E MS	Matrix Spike	Dissolved	Water	200.8	293628
570-122390-G-1-F MSD	Matrix Spike Duplicate	Dissolved	Water	200.8	293628

Prep Batch: 300272

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total Recoverable	Water	200.8	
MB 570-300272/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-300272/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-300272/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-124873-F-1-E MS	Matrix Spike	Total Recoverable	Water	200.8	
570-124873-F-1-F MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	

Analysis Batch: 300368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total Recoverable	Water	200.8	300272
MB 570-300272/1-A	Method Blank	Total Recoverable	Water	200.8	300272
LCS 570-300272/2-A	Lab Control Sample	Total Recoverable	Water	200.8	300272
LCSD 570-300272/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	300272
570-124873-F-1-E MS	Matrix Spike	Total Recoverable	Water	200.8	300272
570-124873-F-1-F MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.8	300272

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Metals

Prep Batch: 300534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total Recoverable	Water	200.7	
MB 570-300534/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 570-300534/2-A	Lab Control Sample	Total Recoverable	Water	200.7	
LCSD 570-300534/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.7	
570-125839-A-1-C MS	Matrix Spike	Total Recoverable	Water	200.7	
570-125839-A-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.7	

Analysis Batch: 300834

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total Recoverable	Water	200.7 Rev 4.4	300534
MB 570-300534/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	300534
LCS 570-300534/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	300534
LCSD 570-300534/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.7 Rev 4.4	300534
570-125839-A-1-C MS	Matrix Spike	Total Recoverable	Water	200.7 Rev 4.4	300534
570-125839-A-1-D MSD	Matrix Spike Duplicate	Total Recoverable	Water	200.7 Rev 4.4	300534

General Chemistry

Analysis Batch: 293692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	SM 2540C	
MB 570-293692/3	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-293692/4	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-293692/5	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
570-122453-I-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 294266

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	SM 2540D	
MB 570-294266/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-294266/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-294266/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
570-122377-F-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 295446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	Kelada 01	
MB 570-295446/11	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-295446/12	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-295446/18	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-295446/10	Lab Control Sample	Total/NA	Water	Kelada 01	
570-122475-D-1 MS	Matrix Spike	Total/NA	Water	Kelada 01	
570-122475-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	Kelada 01	

Analysis Batch: 296277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	218.6 CR3	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Client Sample ID: Outfall009_20230102_Comp

Lab Sample ID: 570-122381-1

Date Collected: 01/02/23 08:00

Matrix: Water

Date Received: 01/03/23 17:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			979.2 mL	2 mL	294449	01/09/23 10:25	OAJ3	EET CAL 4
Total/NA	Analysis	625.1 SIM		1	1 mL	1 mL	294913	01/10/23 19:32	ULLI	EET CAL 4
		Instrument ID: GCMSEEE								
Total/NA	Prep	608			1500 mL	1 mL	294075	01/06/23 12:10	OAJ3	EET CAL 4
Total/NA	Analysis	608.3		1	1 mL	1 mL	295559	01/13/23 14:42	N5Y3	EET CAL 4
		Instrument ID: GC52A								
Total/NA	Prep	608			1500 mL	1 mL	294075	01/06/23 12:10	OAJ3	EET CAL 4
Total/NA	Analysis	608.3		1	1 mL	1 mL	294728	01/10/23 22:31	UJ3K	EET CAL 4
		Instrument ID: GC66								
Total/NA	Analysis	218.6		1	4 mL	4 mL	293495	01/04/23 03:34	YO8L	EET CAL 4
		Instrument ID: IC33								
Total/NA	Analysis	300.0		5	4 mL	4 mL	293190	01/03/23 23:01	PS	EET CAL 4
		Instrument ID: IC15								
Total/NA	Analysis	314.0		1	4 mL	4 mL	293573	01/04/23 15:32	PS	EET CAL 4
		Instrument ID: IC13								
Total/NA	Analysis	NO2NO3 Calc		1			295542	01/12/23 18:24	WH6J	EET CAL 4
		Instrument ID: NOEQUIP								
Total Recoverable	Prep	200.7			50 mL	50 mL	300534	02/02/23 07:34	JP8N	EET CAL 4
Total Recoverable	Analysis	200.7 Rev 4.4		1			300834	02/02/23 20:54	P1R	EET CAL 4
		Instrument ID: ICP11								
Total Recoverable	Prep	200.8			50 mL	50 mL	300272	02/01/23 11:07	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			300368	02/01/23 14:27	Y2WS	EET CAL 4
		Instrument ID: ICPMS09								
Total Recoverable	Prep	200.8			50 mL	50 mL	293298	01/04/23 06:00	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			293796	01/04/23 16:59	Y2WS	EET CAL 4
		Instrument ID: ICPMS10								
Total/NA	Prep	245.1			25 mL	50 mL	293891	01/05/23 11:40	C0YH	EET CAL 4
Total/NA	Analysis	245.1		1			293994	01/05/23 17:12	C0YH	EET CAL 4
		Instrument ID: HG8								
Total Recoverable	Analysis	SM 2340B		1			294360	01/08/23 16:31	P1R	EET CAL 4
		Instrument ID: NOEQUIP								
Total/NA	Analysis	218.6 CR3		1			296277	01/16/23 20:39	UWCT	EET CAL 4
		Instrument ID: IC33								
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	295446	01/11/23 14:55	GG0B	EET CAL 4
		Instrument ID: NOEQUIP								
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	293692	01/04/23 15:33	ZL7L	EET CAL 4
		Instrument ID: NOEQUIP								
Total/NA	Analysis	SM 2540D		1	700 mL	1000 mL	294266	01/06/23 17:51	U7UR	EET CAL 4
		Instrument ID: NOEQUIP								

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Client Sample ID: Outfall009_20230102_Comp_F

Lab Sample ID: 570-122381-2

Date Collected: 01/02/23 08:00

Matrix: Water

Date Received: 01/03/23 17:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	293616	01/04/23 12:14	JP8N	EET CAL 4
Dissolved	Analysis	200.7 Rev 4.4		1			293725	01/04/23 17:50	A1W	EET CAL 4
		Instrument ID: ICP11								
Dissolved	Filtration	Filtration			50 mL	50 mL	293628	01/04/23 12:36	JP8N	EET CAL 4
Dissolved	Analysis	200.8		1			294380	01/06/23 15:14	Y2WS	EET CAL 4
		Instrument ID: ICPMS10								
Dissolved	Filtration	Filtration			25 mL	25 mL	293898	01/05/23 11:45	C0YH	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	293902	01/05/23 11:56	C0YH	EET CAL 4
Dissolved	Analysis	245.1		1			293994	01/05/23 19:37	C0YH	EET CAL 4
		Instrument ID: HG8								
Dissolved	Analysis	SM 2340B		1			294360	01/08/23 16:31	P1R	EET CAL 4
		Instrument ID: NOEQUIP								

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-23
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Method	Method Description	Protocol	Laboratory
625.1 SIM	Semivolatile Organic Compounds GC/MS (SIM)	EPA	EET CAL 4
608.3	Organochlorine Pesticides in Water	EPA	EET CAL 4
608.3	Polychlorinated Biphenyls (PCBs) (GC)	EPA	EET CAL 4
218.6	Chromium, Hexavalent (Ion Chromatography)	EPA	EET CAL 4
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
314.0	Perchlorate (IC)	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.7 Rev 4.4	Metals (ICP)	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	EET CAL 4
218.6 CR3	Chromium, Trivalent (Calculation)	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
200.7	Preparation, Total Recoverable Metals	EPA	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
608	Liquid-Liquid Extraction (Separatory Funnel)	EPA	EET CAL 4
625	Liquid-Liquid Extraction	EPA	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4

Protocol References:

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122381-1	Outfall009_20230102_Comp	Water	01/02/23 08:00	01/03/23 17:05
570-122381-2	Outfall009_20230102_Comp_F	Water	01/02/23 08:00	01/03/23 17:05

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Virendra Patel

From: Rapp, Kerry <KRapp@haleyaldrich.com>
Sent: Thursday, February 23, 2023 8:50 AM
To: Virendra Patel
Cc: Miller, Katherine
Subject: RE: Eurofins Calscience report and EDD files from 570-122381-1 Boeing SSFL NPDES - Outfall 009 COMP

EXTERNAL EMAIL*

Hi Virendra,

For SDG 570-122381-1, this is for Outfall 009 which only needs combined NO₂NO₃ reported, not the individual Nitrate-N and Nitrite-N.

Can you revise this report?

Thanks,
Kerry

Kerry L. Rapp
Technical Specialist

Haley & Aldrich, Inc.
299 Cherry Hill Road | Suite 303
Parsippany, New Jersey 07054

T: (973) 658.3930
C: (973) 294-0580
www.haleyaldrich.com

From: Virendra Patel <Virendra.Patel@et.eurofinsus.com>
Sent: Friday, February 17, 2023 6:11 PM
To: Equis <equis@haleyaldrich.com>; Miller, Katherine <KMiller@haleyaldrich.com>; Rapp, Kerry <KRapp@haleyaldrich.com>; Dallalah, Michelle <MDallalah@haleyaldrich.com>
Subject: Eurofins Calscience report and EDD files from 570-122381-1 Boeing SSFL NPDES - Outfall 009 COMP

CAUTION: External Email

Hello,

Attached please find the report and EDD files for job 570-122381-1; Boeing SSFL NPDES - Outfall 009 COMP

Please feel free to contact me if you have any questions.

Thank you.

Virendra Patel
Project Manager

Eurofins Calscience
Phone: 714-895-5494
Mobile: 714-887-9901

E-mail: Virendra.Patel@et.eurofinsus.com
www.eurofinsus.com/env



Reference: [570-427569]
Attachments: 2

> > Bank information has changed, please refer to remittance information on invoice. < <

* WARNING - EXTERNAL: This email originated from outside of Eurofins Environment Testing America. Do not click any links or open any attachments unless you trust the sender and know that the content is safe!

122381

Error on COC, please add Arsenic and Beryllium for total and dissolved metals K. Rapp 1/24/23

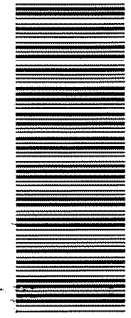
CHAIN OF CUSTODY FORM

Test America

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc 17461 Deitan Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project: Boeing-SSEL NPDES Permit 2023 Annual Outfall (003-007 009, 010) Outfall 009 Comp		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)	
Sample ID: Outfall009_20230102_Comp		Sample Matrix: WMI		Sampling Date/Time: 1/2/2023 / 10:00	
Container Type: 500 mL Poly		Preservative: HNO ₃		MS/MSD: No	
# of Cont.: 1		Boths #: 85		MS/MSD: No	
Container Type: 1 L Glass Amber		Preservative: None		MS/MSD: No	
# of Cont.: 2		Boths #: 110		MS/MSD: No	
Container Type: 500 mL Poly		Preservative: None		MS/MSD: No	
# of Cont.: 2		Boths #: 105		MS/MSD: No	
Container Type: 500 mL Poly		Preservative: None		MS/MSD: No	
# of Cont.: 1		Boths #: 155		MS/MSD: No	
Container Type: 1 L Poly		Preservative: None		MS/MSD: No	
# of Cont.: 1		Boths #: 185		MS/MSD: No	
Container Type: 500 mL Poly		Preservative: NaOH		MS/MSD: No	
# of Cont.: 1		Boths #: 220		MS/MSD: No	
Container Type: 25 Gas Cube		Preservative: None		MS/MSD: No	
# of Cont.: 1		Boths #: 225		MS/MSD: No	
Container Type: 1 L Glass Amber		Preservative: None		MS/MSD: No	
# of Cont.: 2		Boths #: 250		MS/MSD: No	
Container Type: 1 L Poly		Preservative: None		MS/MSD: No	
# of Cont.: 1		Boths #: 185		MS/MSD: No	
Container Type: borosilicate vials		Preservative: None		MS/MSD: No	
# of Cont.: 2		Boths #: 320		MS/MSD: No	
Container Type: 1 L Glass Amber		Preservative: None		MS/MSD: No	
# of Cont.: 2		Boths #: 110		MS/MSD: No	
Container Type: 500 mL Poly		Preservative: None		MS/MSD: No	
# of Cont.: 2		Boths #: 105		MS/MSD: No	
Container Type: 1 L Glass Amber		Preservative: None		MS/MSD: No	
# of Cont.: 2		Boths #: 250		MS/MSD: No	

Retinquished By: [Signature]		Date/Time: 1-3-23 / 10:05		Company: HA	
Retinquished By: [Signature]		Date/Time: 01/03/23 17:05		Company: EC	

Legend: R = Routine, A = Annual
 Received By: [Signature] Date/Time: 1/3/23 / 12:45 EC
 Received By: [Signature] Date/Time: 1-3-23 17:05 EC
 Received By: [Signature] Date/Time: 2-1 / 2-1 1-8 / 1-8 1-5 / 1-5 2-9 / 2-9 5:11



570-122381 Chain of Custody



CHAIN OF CUSTODY FORM

<p>Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p>		<p>Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall 009 (003-007 009, 010) Outfall 009 Comp</p>		<p>Priority Pollutants-SVOCs (E25)</p>		<p>Asbestos (EPA 002) OF09 only</p>		<p>Chlorides, Diazine (E25.2)</p>		<p>Cr (VI) Total (E21.6)</p>		<p>ANALYSIS REQUIRED</p>												<p>Comments</p>	
<p>TestAmerica's services under this CoC shall be performed in accordance with the T&Ca within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.</p>		<p>Project Manager: Katherine Miller 520.289.8906, 520.904.6944 (cell)</p>		<p>Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)</p>		<p>Preservative</p>		<p>Bottle #</p>		<p>MSMSD</p>															
<p>Sampler: Adrien Mobeka</p>		<p>Sample I.D. Outfall009_20230102_Comp</p>		<p>Sampling Date/Time 1/22/2023 / 10:04</p>		<p>Container Type 1 L Glass Amber</p>		<p># of Cont. 2</p>		<p>None</p>		<p>175</p>		<p>No</p>		<p>X</p>		<p>Only at Outfall 009</p>							
<p>Sample Description Outfall009</p>		<p>Sample Matrix WM</p>		<p>1 L Poly</p>		<p>1</p>		<p>None</p>		<p>270</p>		<p>No</p>		<p>X</p>		<p>Extract within 24-Hours of sampling.</p>									
<p>Outfall009_20230102_Comp_Extra</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>HCl</p>		<p>275</p>		<p>No</p>		<p>X</p>		<p>Hold</p>									
		<p>WM</p>		<p>500 mL Poly</p>		<p>1</p>		<p>None</p>		<p>260</p>		<p>No</p>				<p>Hold</p>									
		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>None</p>		<p>175</p>		<p>No</p>				<p>Hold</p>									
		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>HCl</p>		<p>275</p>		<p>No</p>				<p>Hold</p>									

Relinquished By: *[Signature]* Date/Time: 1-3-23/1245 Company: HA

Relinquished By: *[Signature]* Date/Time: 01/03/23 17:05 Company: EC

Relinquished By: *[Signature]* Date/Time: 1/3/23/1245 Company: EC

Relinquished By: *[Signature]* Date/Time: EC 1-3-23 17:05 Company: EC

Legend: R = Routine, A = Annual

Received By: *[Signature]* Date/Time: 1/3/23/1245 Company: EC

Received By: *[Signature]* Date/Time: EC 1-3-23 17:05 Company: EC

Turn-around time: (Check)
 24 Hour ___ 72 Hour ___ 10 Day ___ X ___
 48 Hour ___ 5 Day ___ Normal: ___

Sample Integrity: (Check)
 Intact: ___ On Ice: ___
 Store samples for 6 months. Data Requirements: (Check)
 No Level IV ___ All Level IV ___ X ___



ICOC No:
570-203251

Containers

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
1	Plastic 1 liter - unpreserved	None

Subcontract Method Instructions

<u>Sample IDs</u>	<u>Method</u>	<u>Method Description</u>	<u>Method Comments</u>
1	SUBCONTRACT	SUB (Asbestos 100 2)/ Asbestos 100 2	Wastewater



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122381-1

Login Number: 122381

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004
Generated 1/25/2023 1:35:44 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 009 COMP

JOB NUMBER

570-122381-2

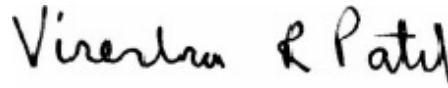
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

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Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
♠	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-2

Job ID: 570-122381-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-122381-2

Comments

No additional comments.

Receipt

The samples were received on 1/3/2023 5:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.5° C, 1.8° C, 2.1° C and 2.9° C.

Dioxin

Method 1613B: The continuing calibration verification (CCV) associated with batch 320-648570 recovered above the upper control limit for isotope dilution analyte (IDA) 13C-1,2,3,4,7,8,9-HpCDF. The samples associated with this CCV were non-detect above the reporting limit (RL) for the native analyte 1,2,3,4,7,8,9-HpCDF and the IDA is in control for all associated samples; therefore, the data have been reported. No further corrective action was taken.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-2

Client Sample ID: Outfall009_20230102_Comp

Lab Sample ID: 570-122381-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,7,8-PeCDF	0.0000014	J,DX MB q	0.000051	0.0000001	ug/L	1		1613B	Total/NA
				6					
1,2,3,4,7,8-HxCDD	0.0000019	J,DX q	0.000051	0.0000000	ug/L	1		1613B	Total/NA
				97					
1,2,3,6,7,8-HxCDD	0.0000020	J,DX	0.000051	0.0000001	ug/L	1		1613B	Total/NA
				0					
1,2,3,7,8,9-HxCDD	0.0000014	J,DX MB	0.000051	0.0000000	ug/L	1		1613B	Total/NA
				91					
1,2,3,4,7,8-HxCDF	0.0000011	J,DX	0.000051	0.0000000	ug/L	1		1613B	Total/NA
				69					
1,2,3,6,7,8-HxCDF	0.00000070	J,DX q	0.000051	0.0000000	ug/L	1		1613B	Total/NA
				66					
1,2,3,7,8,9-HxCDF	0.0000041	J,DX MB	0.000051	0.0000000	ug/L	1		1613B	Total/NA
				72					
2,3,4,6,7,8-HxCDF	0.00000037	J,DX q	0.000051	0.0000000	ug/L	1		1613B	Total/NA
				65					
1,2,3,4,6,7,8-HpCDD	0.0000037	J,DX MB	0.000051	0.0000003	ug/L	1		1613B	Total/NA
				3					
1,2,3,4,6,7,8-HpCDF	0.0000077	J,DX MB	0.000051	0.0000002	ug/L	1		1613B	Total/NA
				2					
1,2,3,4,7,8,9-HpCDF	0.00000045	J,DX MB q	0.000051	0.0000002	ug/L	1		1613B	Total/NA
				3					
OCDD	0.00040	MB	0.00010	0.0000008	ug/L	1		1613B	Total/NA
				6					
OCDF	0.000020	J,DX MB	0.00010	0.0000002	ug/L	1		1613B	Total/NA
				9					
Total PeCDF	0.0000014	J,DX MB q	0.000051	0.0000001	ug/L	1		1613B	Total/NA
				6					
Total HxCDD	0.0000073	J,DX MB q	0.000051	0.0000000	ug/L	1		1613B	Total/NA
				91					
Total HxCDF	0.0000087	J,DX MB q	0.000051	0.0000000	ug/L	1		1613B	Total/NA
				65					
Total HpCDD	0.0000071	J,DX MB	0.000051	0.0000003	ug/L	1		1613B	Total/NA
				3					
Total HpCDF	0.000017	J,DX MB q	0.000051	0.0000002	ug/L	1		1613B	Total/NA
				2					

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall009_20230102_Comp

Date Collected: 01/02/23 08:00

Date Received: 01/03/23 17:05

Lab Sample ID: 570-122381-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000011	ug/L		01/06/23 04:42	01/23/23 05:17	1
2,3,7,8-TCDF	ND		0.000010	0.00000000	ug/L		01/06/23 04:42	01/23/23 05:17	1
1,2,3,7,8-PeCDD	ND		0.000051	0.00000000	ug/L		01/06/23 04:42	01/23/23 05:17	1
1,2,3,7,8-PeCDF	0.0000014	J,DX MB q	0.000051	0.00000001	ug/L		01/06/23 04:42	01/23/23 05:17	1
2,3,4,7,8-PeCDF	ND		0.000051	0.00000001	ug/L		01/06/23 04:42	01/23/23 05:17	1
1,2,3,4,7,8-HxCDD	0.0000019	J,DX q	0.000051	0.00000000	ug/L		01/06/23 04:42	01/23/23 05:17	1
1,2,3,6,7,8-HxCDD	0.0000020	J,DX	0.000051	0.00000001	ug/L		01/06/23 04:42	01/23/23 05:17	1
1,2,3,7,8,9-HxCDD	0.0000014	J,DX MB	0.000051	0.00000000	ug/L		01/06/23 04:42	01/23/23 05:17	1
1,2,3,4,7,8-HxCDF	0.0000011	J,DX	0.000051	0.00000000	ug/L		01/06/23 04:42	01/23/23 05:17	1
1,2,3,6,7,8-HxCDF	0.00000070	J,DX q	0.000051	0.00000000	ug/L		01/06/23 04:42	01/23/23 05:17	1
1,2,3,7,8,9-HxCDF	0.0000041	J,DX MB	0.000051	0.00000000	ug/L		01/06/23 04:42	01/23/23 05:17	1
2,3,4,6,7,8-HxCDF	0.00000037	J,DX q	0.000051	0.00000000	ug/L		01/06/23 04:42	01/23/23 05:17	1
1,2,3,4,6,7,8-HpCDD	0.000037	J,DX MB	0.000051	0.00000003	ug/L		01/06/23 04:42	01/23/23 05:17	1
1,2,3,4,6,7,8-HpCDF	0.0000077	J,DX MB	0.000051	0.00000002	ug/L		01/06/23 04:42	01/23/23 05:17	1
1,2,3,4,7,8,9-HpCDF	0.00000045	J,DX MB q	0.000051	0.00000002	ug/L		01/06/23 04:42	01/23/23 05:17	1
OCDD	0.00040	MB	0.00010	0.00000008	ug/L		01/06/23 04:42	01/23/23 05:17	1
OCDF	0.000020	J,DX MB	0.00010	0.00000002	ug/L		01/06/23 04:42	01/23/23 05:17	1
Total TCDD	ND		0.000010	0.00000011	ug/L		01/06/23 04:42	01/23/23 05:17	1
Total TCDF	ND		0.000010	0.00000000	ug/L		01/06/23 04:42	01/23/23 05:17	1
Total PeCDD	ND		0.000051	0.00000000	ug/L		01/06/23 04:42	01/23/23 05:17	1
Total PeCDF	0.0000014	J,DX MB q	0.000051	0.00000001	ug/L		01/06/23 04:42	01/23/23 05:17	1
Total HxCDD	0.0000073	J,DX MB q	0.000051	0.00000000	ug/L		01/06/23 04:42	01/23/23 05:17	1
Total HxCDF	0.0000087	J,DX MB q	0.000051	0.00000000	ug/L		01/06/23 04:42	01/23/23 05:17	1
Total HpCDD	0.000071	J,DX MB	0.000051	0.00000003	ug/L		01/06/23 04:42	01/23/23 05:17	1
Total HpCDF	0.000017	J,DX MB q	0.000051	0.00000002	ug/L		01/06/23 04:42	01/23/23 05:17	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	74		25 - 164				01/06/23 04:42	01/23/23 05:17	1
13C-2,3,7,8-TCDF	71		24 - 169				01/06/23 04:42	01/23/23 05:17	1
13C-1,2,3,7,8-PeCDD	86		25 - 181				01/06/23 04:42	01/23/23 05:17	1
13C-1,2,3,7,8-PeCDF	79		24 - 185				01/06/23 04:42	01/23/23 05:17	1
13C-2,3,4,7,8-PeCDF	81		21 - 178				01/06/23 04:42	01/23/23 05:17	1
13C-1,2,3,4,7,8-HxCDD	89		32 - 141				01/06/23 04:42	01/23/23 05:17	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall009_20230102_Comp

Date Collected: 01/02/23 08:00

Date Received: 01/03/23 17:05

Lab Sample ID: 570-122381-1

Matrix: Water

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-1,2,3,6,7,8-HxCDD	79		28 - 130	01/06/23 04:42	01/23/23 05:17	1
13C-1,2,3,4,7,8-HxCDF	95		26 - 152	01/06/23 04:42	01/23/23 05:17	1
13C-1,2,3,6,7,8-HxCDF	94		26 - 123	01/06/23 04:42	01/23/23 05:17	1
13C-1,2,3,7,8,9-HxCDF	91		29 - 147	01/06/23 04:42	01/23/23 05:17	1
13C-2,3,4,6,7,8-HxCDF	98		28 - 136	01/06/23 04:42	01/23/23 05:17	1
13C-1,2,3,4,6,7,8-HpCDD	99		23 - 140	01/06/23 04:42	01/23/23 05:17	1
13C-1,2,3,4,6,7,8-HpCDF	97		28 - 143	01/06/23 04:42	01/23/23 05:17	1
13C-1,2,3,4,7,8,9-HpCDF	107		26 - 138	01/06/23 04:42	01/23/23 05:17	1
13C-OCDD	98		17 - 157	01/06/23 04:42	01/23/23 05:17	1
13C-OCDF	111		17 - 157	01/06/23 04:42	01/23/23 05:17	1
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
37Cl4-2,3,7,8-TCDD	88		35 - 197	01/06/23 04:42	01/23/23 05:17	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-122381-1	Outfall009_20230102_Comp	88
MB 320-644871/1-A	Method Blank	91

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-644871/2-A	Lab Control Sample	88
LCSD 320-644871/3-A	Lab Control Sample Dup	90

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-122381-1	Outfall009_20230102_Comp	74	71	86	79	81	89	79	95
MB 320-644871/1-A	Method Blank	68	66	79	74	75	74	67	79

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-122381-1	Outfall009_20230102_Comp	94	91	98	99	97	107	98	111
MB 320-644871/1-A	Method Blank	76	80	85	87	83	93	87	99

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- OCDD = 13C-OCDD
- OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-644871/2-A	Lab Control Sample	61	60	74	70	69	72	64	75
LCSD 320-644871/3-A	Lab Control Sample Dup	67	65	80	73	76	82	71	83

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-644871/2-A	Lab Control Sample	74	79	83	85	79	89	82	93
LCSD 320-644871/3-A	Lab Control Sample Dup	83	86	90	95	91	101	91	104

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-2

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-644871/1-A
Matrix: Water
Analysis Batch: 648570

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 644871

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8-PeCDF	74		24 - 185	01/06/23 04:42	01/23/23 00:28	1
13C-2,3,4,7,8-PeCDF	75		21 - 178	01/06/23 04:42	01/23/23 00:28	1
13C-1,2,3,4,7,8-HxCDD	74		32 - 141	01/06/23 04:42	01/23/23 00:28	1
13C-1,2,3,6,7,8-HxCDD	67		28 - 130	01/06/23 04:42	01/23/23 00:28	1
13C-1,2,3,4,7,8-HxCDF	79		26 - 152	01/06/23 04:42	01/23/23 00:28	1
13C-1,2,3,6,7,8-HxCDF	76		26 - 123	01/06/23 04:42	01/23/23 00:28	1
13C-1,2,3,7,8,9-HxCDF	80		29 - 147	01/06/23 04:42	01/23/23 00:28	1
13C-2,3,4,6,7,8-HxCDF	85		28 - 136	01/06/23 04:42	01/23/23 00:28	1
13C-1,2,3,4,6,7,8-HpCDD	87		23 - 140	01/06/23 04:42	01/23/23 00:28	1
13C-1,2,3,4,6,7,8-HpCDF	83		28 - 143	01/06/23 04:42	01/23/23 00:28	1
13C-1,2,3,4,7,8,9-HpCDF	93		26 - 138	01/06/23 04:42	01/23/23 00:28	1
13C-OCDD	87		17 - 157	01/06/23 04:42	01/23/23 00:28	1
13C-OCDF	99		17 - 157	01/06/23 04:42	01/23/23 00:28	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	91		35 - 197	01/06/23 04:42	01/23/23 00:28	1

Lab Sample ID: LCS 320-644871/2-A
Matrix: Water
Analysis Batch: 648570

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 644871

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,3,7,8-TCDF	0.000200	0.000237		ug/L		119	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000957		ug/L		96	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000966	MB	ug/L		97	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000942		ug/L		94	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000967		ug/L		97	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00110		ug/L		110	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00103	MB	ug/L		103	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000993		ug/L		99	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000999		ug/L		100	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000995	MB	ug/L		99	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00102		ug/L		102	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000983	MB	ug/L		98	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00111	MB	ug/L		111	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000995	MB	ug/L		100	78 - 138
OCDD	0.00200	0.00222	MB	ug/L		111	78 - 144
OCDF	0.00200	0.00218	MB	ug/L		109	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	61		20 - 175
13C-2,3,7,8-TCDF	60		22 - 152
13C-1,2,3,7,8-PeCDD	74		21 - 227
13C-1,2,3,7,8-PeCDF	70		21 - 192
13C-2,3,4,7,8-PeCDF	69		13 - 328
13C-1,2,3,4,7,8-HxCDD	72		21 - 193
13C-1,2,3,6,7,8-HxCDD	64		25 - 163

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-644871/2-A
Matrix: Water
Analysis Batch: 648570

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 644871

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,4,7,8-HxCDF	75		19 - 202
13C-1,2,3,6,7,8-HxCDF	74		21 - 159
13C-1,2,3,7,8,9-HxCDF	79		17 - 205
13C-2,3,4,6,7,8-HxCDF	83		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	85		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	79		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	89		20 - 186
13C-OCDD	82		13 - 199
13C-OCDF	93		13 - 199

Surrogate	LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	88		31 - 191

Lab Sample ID: LCSD 320-644871/3-A
Matrix: Water
Analysis Batch: 648570

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 644871

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
2,3,7,8-TCDD	0.000200	0.000217		ug/L		109	67 - 158	3	50	
2,3,7,8-TCDF	0.000200	0.000231		ug/L		116	75 - 158	3	50	
1,2,3,7,8-PeCDD	0.00100	0.000984		ug/L		98	70 - 142	3	50	
1,2,3,7,8-PeCDF	0.00100	0.00101	MB	ug/L		101	80 - 134	4	50	
2,3,4,7,8-PeCDF	0.00100	0.000953		ug/L		95	68 - 160	1	50	
1,2,3,4,7,8-HxCDD	0.00100	0.000959		ug/L		96	70 - 164	1	50	
1,2,3,6,7,8-HxCDD	0.00100	0.00113		ug/L		113	76 - 134	3	50	
1,2,3,7,8,9-HxCDD	0.00100	0.00104	MB	ug/L		104	64 - 162	1	50	
1,2,3,4,7,8-HxCDF	0.00100	0.00102		ug/L		102	72 - 134	2	50	
1,2,3,6,7,8-HxCDF	0.00100	0.00102		ug/L		102	84 - 130	3	50	
1,2,3,7,8,9-HxCDF	0.00100	0.00105	MB	ug/L		105	78 - 130	5	50	
2,3,4,6,7,8-HxCDF	0.00100	0.00104		ug/L		104	70 - 156	2	50	
1,2,3,4,6,7,8-HpCDD	0.00100	0.00101	MB	ug/L		101	70 - 140	3	50	
1,2,3,4,6,7,8-HpCDF	0.00100	0.00110	MB	ug/L		110	82 - 122	1	50	
1,2,3,4,7,8,9-HpCDF	0.00100	0.00100	MB	ug/L		100	78 - 138	1	50	
OCDD	0.00200	0.00230	MB	ug/L		115	78 - 144	3	50	
OCDF	0.00200	0.00223	MB	ug/L		112	63 - 170	2	50	

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	67		20 - 175
13C-2,3,7,8-TCDF	65		22 - 152
13C-1,2,3,7,8-PeCDD	80		21 - 227
13C-1,2,3,7,8-PeCDF	73		21 - 192
13C-2,3,4,7,8-PeCDF	76		13 - 328
13C-1,2,3,4,7,8-HxCDD	82		21 - 193
13C-1,2,3,6,7,8-HxCDD	71		25 - 163
13C-1,2,3,4,7,8-HxCDF	83		19 - 202
13C-1,2,3,6,7,8-HxCDF	83		21 - 159
13C-1,2,3,7,8,9-HxCDF	86		17 - 205
13C-2,3,4,6,7,8-HxCDF	90		22 - 176

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-644871/3-A

Matrix: Water

Analysis Batch: 648570

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 644871

<u>Isotope Dilution</u>	<u>LCSD LCSD</u>		<u>Limits</u>
	<u>%Recovery</u>	<u>Qualifier</u>	
13C-1,2,3,4,6,7,8-HpCDD	95		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	91		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	101		20 - 186
13C-OCDD	91		13 - 199
13C-OCDF	104		13 - 199

<u>Surrogate</u>	<u>LCSD LCSD</u>		<u>Limits</u>
	<u>%Recovery</u>	<u>Qualifier</u>	
37Cl4-2,3,7,8-TCDD	90		31 - 191

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-2

Specialty Organics

Prep Batch: 644871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	1613B	
MB 320-644871/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-644871/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-644871/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 648570

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	1613B	644871
MB 320-644871/1-A	Method Blank	Total/NA	Water	1613B	644871
LCS 320-644871/2-A	Lab Control Sample	Total/NA	Water	1613B	644871
LCSD 320-644871/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	644871



Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-2

Client Sample ID: Outfall009_20230102_Comp

Lab Sample ID: 570-122381-1

Date Collected: 01/02/23 08:00

Matrix: Water

Date Received: 01/03/23 17:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			988 mL	20.0 uL	644871	01/06/23 04:42	FC	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	648570	01/23/23 05:17	KSS	EET SAC

Instrument ID: DFS 1

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-31-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-30-23
Hawaii	State	<cert No.>	01-29-23
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-23
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-23
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-23
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
USDA	US Federal Programs	P330-18-00239	01-23-23
Utah	NELAP	CA000442021-12	02-28-23
Virginia	NELAP	460278	03-14-23
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-13-22 *
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122381-1	Outfall009_20230102_Comp	Water	01/02/23 08:00	01/03/23 17:05

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122387

CHAIN OF CUSTODY FORM

Client Name/Address: Halley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Test America Contact: Christian Bondoc 17461 Delian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218		Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall 009 (003-007 009, 010) Outfall 009 Comp		Project Manager: Katherine Miller 520.289.8906, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Priority Pollutants-SVOCs (E25) Asbestos (EPA 002) OF09 only Chlorophylls, Diazinon (E25, 2) Cr (VI) Total (E218, 6)		ANALYSIS REQUIRED		Comments					
Test America's services under this COC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-25-TestAmerica by and between Halley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.	Sampler: Adrien Mobeka	Sample I.D. Outfall009_20230102_Comp	Sampling Date/Time 1/22/2023 / 10:04	Sample Matrix WM	Container Type 1 L Glass Amber	# of Cont. 2	Preservative None	Bottle # 175	MSM/SD No	Priority Pollutants-SVOCs (E25) X	Asbestos (EPA 002) OF09 only X	Chlorophylls, Diazinon (E25, 2) X	Cr (VI) Total (E218, 6) X	Only at Outfall 009 Extract within 24-Hours of sampling.	Turn-around time: (Check) 24 Hour _____ 72 Hour _____ 10 Day _____ X 48 Hour _____ 5 Day _____ Normal: _____
Outfall 009 Outfall009_20230102_Comp_Extra	Sampling Date/Time 1/22/2023 / 10:10	Sample Matrix WM	Container Type 500 mL Poly	# of Cont. 1	Preservative None	Bottle # 260	MSM/SD No	Priority Pollutants-SVOCs (E25) H	Asbestos (EPA 002) OF09 only H	Chlorophylls, Diazinon (E25, 2) H	Cr (VI) Total (E218, 6) H	Hold Hold	Turn-around time: (Check) 24 Hour _____ 72 Hour _____ 10 Day _____ X 48 Hour _____ 5 Day _____ Normal: _____		
Relinquished By <i>[Signature]</i>	Date/Time 1-3-23 / 12:45	Company HA	Relinquished By <i>[Signature]</i>	Date/Time 01/03/23 17:05	Company EC	Legend: R = Routine, A = Annual Received By <i>[Signature]</i> 1/3/23 / 12:45 EC Received By <i>[Signature]</i> EC 1-3-23 17:05 Received By	Turn-around time: (Check) 24 Hour _____ 72 Hour _____ 10 Day _____ X 48 Hour _____ 5 Day _____ Normal: _____	Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: _____ X							



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab PM	Carrier Tracking No(s)	COC No.
Client Contact: 520 Mission Street, South Pasadena, CA, 91030		Patel Virendra	Patel Virendra	570-2032511	570-2032511
Shipping/Receiving Company: EMSL Analytical, Inc.		E-Mail: Virendra.Patel@et.eurofins.com	State of Origin: California	Page: Page 1 of 1	
Address: 520 Mission Street, South Pasadena, CA, 91030		Accreditations Required (See note): State Program - California		Job #: 570-122381-3	Preservation Codes
City: South Pasadena		Due Date Requested: 1/16/2023		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SSO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Y - Trizma Z - other (specify)	
State: CA, 91030		TAT Requested (days)		A - HCl B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Phone:		PO #:		Total Number of containers: 1 Special Instructions/Note: See Attached Instructions	
Email:		WO #:			
Project Name: Boeing SSFL NPDES - Outfall 009 COMP		Project #: 44024446			
Site:		SSOW#:			
Sample Identification - Client ID (Lab ID)		Sample Date		Field Filtered Sample (Yes or No)	
Outfall009_20230102_Comp (570-122381-1)		1/2/23		X	
Sample Time		Sample Time		Perform MS/MSD (Yes or No)	
08 00 Pacific		08 00 Pacific		X	
Sample Type (C=Comp, G=grab)		Sample Type		SUB (Asbestos 100 2) / Asbestos 100.2	
Water		Water			
Preservation Code:		Matrix			
		(W=water, S=solid, O=waste/oil, BT=tissue, A=air)			

Note: Since laboratory accreditations are subject to change Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested I, II, III, IV, Other (specify) Primary Deliverable Rank. 2

Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: _____ Date/Time: 1/4/23 1450 Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: Yes No Custody Seal No. _____
 Cooler Temperature(s) °C and Other Remarks: _____



ICOC No:
570-203251

Containers

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
1	Plastic 1 liter - unpreserved	None

Subcontract Method Instructions

<u>Sample IDs</u>	<u>Method</u>	<u>Method Description</u>	<u>Method Comments</u>
1	SUBCONTRACT	SUB (Asbestos 100 2)/ Asbestos 100 2	Wastewater



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122381-2

Login Number: 122381

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122381-2

Login Number: 122381

List Number: 3

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 01/05/23 02:33 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.1c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 1/20/2023 10:44:20 AM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 009 COMP

JOB NUMBER

570-122381-3

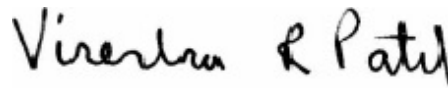
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-3

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-3

Job ID: 570-122381-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-122381-3

Comments

No additional comments.

Receipt

The samples were received on 1/3/2023 5:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.5° C, 1.8° C, 2.1° C and 2.9° C.

Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work

Method Asbestos 100.2: This method was subcontracted to EMSL Analytical Inc - LA Testing - Pasadena. The subcontract laboratory certification is different from that of the facility issuing the final report.



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-3

Method	Method Description	Protocol	Laboratory
100.2	EPA 100.2 Asbestos in Drinking Water	EPA	EMSL-LA

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EMSL-LA = EMSL Analytical Inc - LA Testing - Pasadena, 520 Mission Street, South Pasadena, CA 91030



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122381-1	Outfall009_20230102_Comp	Water	01/02/23 08:00	01/03/23 17:05

1

2

3

4

5

6

7

8

9



LA Testing

520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
<http://www.LATesting.com> / pasadenalab@latesting.com

LA Testing Order ID: 322300211
Customer ID: 32CAL551
Customer PO:
Project ID:

Attn: Virendra Patel
Eurofins Calscience, Inc.
2841 Dow Ave, Suite 100
Tustin, CA 92780

Phone: (714) 895-5494
Fax: (714) 894-7501
Received: 01/05/2023
Analyzed: 01/13/2023

Proj: 570-203251.1 | 570-122381-3 | Boeing SSFL NPDES - Outfall 009 COMP | 44024446

Test Report: Determination of Asbestos Structures $\geq 0.5 \mu\text{m}$ & $> 10\mu\text{m}$ in Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm ²)	Area Analyzed (mm ²)	ASBESTOS					
					Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits	
Outfall009_2023010 2_Comp (570-122381-1) 322300211-0001	1/6/2023 12:15 PM	5	1288	0.2580	$\geq 0.5 \mu\text{m}$	None Detected	ND	1.00	<1.00	0.00 - 3.70
					> 10 μm only	None Detected	ND	1.00	<1.00	0.00 - 3.70

Collection Date/Time: 01/02/2023 08:00 AM

Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.

Analyst(s)
Kyeong Corbin (1)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 01/17/2023 06:04:07

LA Testing maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by LA Testing. LA Testing bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. Estimation of uncertainty is available on request. Sample collection and containers provided by the client, acceptable bottle blank level is defined as $\leq 0.01\text{MFL} > 10\mu\text{m}$. ND=None Detected. No Fibers Detected: the value will be reported as less than 369% of the concentration equivalent to one fiber. 1 to 4 fibers: The result will be reported as less than the corresponding upper 95% confidence limit (Poisson). 5 to 30 fibers: Mean and 95% confidence intervals will be reported on the basis of the Poisson assumption. When more than 30 fibers are counted, both the Gaussian 95% confidence interval and the Poisson 95% confidence interval will be calculated. The large of these two intervals will be selected for data reporting. When the Gaussian 95% confidence interval is selected for data reporting, the Poisson will also be noted.

Samples analyzed by LA Testing South Pasadena, CA CA ELAP 2283

#322300211



eurofins

Environment Testing

Chain of Custody Record

Eurofins Calscience
2841 Dow Avenue, Suite 100
Tustin, CA 92780
Phone: 714-895-5494

Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:		
Client Contact:		Patel, Virendra	Patel, Virendra	570-203251.1	570-203251.1		
Shipping/Receiving		Phone:	E-Mail:	State of Origin:	Page:		
Company:		Virendra.Patel@et.eurofins.com	Virendra.Patel@et.eurofins.com	California	Page 1 of 1		
Address:		Accreditations Required (See note):		Job #:	570-122381-3		
520 Mission Street,		State Program - California		Analysis Requested			
City:	South Pasadena	Due Date Requested:	1/16/2023	<p>Preservation Codes:</p> <p>M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)</p> <p>Other:</p>			
State, Zip:	CA, 91030	TAT Requested (days):					
Phone:		PO #:					
Email:		WO #:					
Project Name:	Boeing SSFL NPDES - Outfall 009 COMP	Project #:	44024446				
Site:		SSOW#:					
Sample Identification - Client ID (Lab ID)	Outfall009_20230102_Comp (570-122381-1)	Sample Date	1/2/23			Field Filtered Sample (Yes or No)	X
Sample Type (C=Comp, G=grab)		Sample Time	08:00 Pacific			Perform MS/MSD (Yes or No)	X
Matrix (W=water, S=solid, O=waste/oil, B1=Tissue, A=Air)	Water	Preservation Code:				Sub (Asbestos 100.2)/Asbestos 100.2	
Sample Date	1/2/23	Sample Time	08:00 Pacific			Total Number of Containers	1
Special Instructions/Note:	See Attached Instructions						

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification

Unconfirmed
 Return To Client
 Disposal By Lab
 Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Special Instructions/QC Requirements:

Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: _____ Date/Time: 1/4/23 1450 Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: _____ Custody Seal No.: _____
 Δ Yes Δ No Cooler Temperature(s) °C and Other Remarks: 0.8°C



#322300211

ICOC No:
570-203251

Containers

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
1	Plastic 1 liter - unpreserved	None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Asbestos 100.2)/ Asbestos 100.2	Wastewater



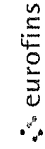
122387

CHAIN OF CUSTODY FORM

<p>Client Name/Address: Halley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p>		<p>Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall 009 (003-007 009, 010) Outfall 009 Comp</p>		<p>Priority Pollutants-SVOCs (E25)</p>		<p>Asbestos (EPA 002) OF09 only</p>		<p>Chlorides, Diazine (E25.2)</p>		<p>Cr (VI) Total (E21.6)</p>		<p>ANALYSIS REQUIRED</p>		<p>Comments</p>	
<p>TestAmerica's services under this COC shall be performed in accordance with the T&Ca within Blanket Service Agreement# 2019-22-TestAmerica by and between Halley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.</p>		<p>Project Manager: Katherine Miller 520.289.8906, 520.904.6944 (cell)</p>		<p>Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)</p>		<p>Preservative</p>		<p>Bottle #</p>		<p>MSMSD</p>		<p>Cr (VI) Total (E21.6)</p>		<p>Chlorides, Diazine (E25.2)</p>	
<p>Sampler: Adrien Mobeka</p>		<p>Sample I.D. Outfall009_20230102_Comp</p>		<p>Sampling Date/Time 1/22/2023 / 10:04</p>		<p>Container Type 1 L Glass Amber</p>		<p># of Cont. 2</p>		<p>MSMSD No</p>		<p>Priority Pollutants-SVOCs (E25)</p>		<p>Asbestos (EPA 002) OF09 only</p>	
<p>Sample Description Outfall 009</p>		<p>Sample Matrix WM</p>		<p>Sampling Date/Time 1/22/2023 / 10:04</p>		<p>Container Type 1 L Glass Amber</p>		<p># of Cont. 1</p>		<p>MSMSD No</p>		<p>Priority Pollutants-SVOCs (E25)</p>		<p>Asbestos (EPA 002) OF09 only</p>	
<p>Sample Description Outfall009_20230102_Comp_Extra</p>		<p>Sample Matrix WM</p>		<p>Sampling Date/Time 1/22/2023 / 10:10</p>		<p>Container Type 1 L Glass Amber</p>		<p># of Cont. 2</p>		<p>MSMSD No</p>		<p>Priority Pollutants-SVOCs (E25)</p>		<p>Asbestos (EPA 002) OF09 only</p>	
<p>Sample Description</p>		<p>Sample Matrix</p>		<p>Sampling Date/Time</p>		<p>Container Type</p>		<p># of Cont.</p>		<p>MSMSD</p>		<p>Priority Pollutants-SVOCs (E25)</p>		<p>Asbestos (EPA 002) OF09 only</p>	
<p>Relinquished By <i>[Signature]</i></p>		<p>Date/Time 1-3-23 / 12:45</p>		<p>Company HA</p>		<p>Relinquished By <i>[Signature]</i></p>		<p>Date/Time 1/3/23 / 12:45</p>		<p>Company EC</p>		<p>Legend: R = Routine, A = Annual</p>		<p>Turn-around time: (Check) 24 Hour _____ 72 Hour _____ 10 Day _____ X 48 Hour _____ 5 Day _____ Normal: _____</p>	
<p>Relinquished By <i>[Signature]</i></p>		<p>Date/Time 01/03/23 17:05</p>		<p>Company EC</p>		<p>Relinquished By <i>[Signature]</i></p>		<p>Date/Time EC 1-3-23 17:05</p>		<p>Company EC</p>		<p>Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: _____ X</p>			



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel Virendra		Lab PM: Patel Virendra		Carrier Tracking No(s): 570-2032511		COC No.: 570-2032511	
Client Contact: Shipping/Receiving		Phone:		E-Mail: Virendra.Patel@eurofins.com		State of Origin: California		Page: Page 1 of 1	
Company: EMSL Analytical, Inc.		Due Date Requested: 1/16/2023		TAT Requested (days):		Job #: 570-122381-3		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SSO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Y - Trizma Z - other (specify) A - HCl B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Address: 520 Mission Street, South Pasadena, CA, 91030		Project #: 44024446		Matrix (W=water, S=solid, O=waste/oil, BT=tissue, A=air)		Field Filtered Sample (Yes or No)		Total Number of Containers	
Phone:		SSOW#:		Sample Type (C=Comp, G=grab)		Perform MS/MSD (Yes or No)		Special Instructions/Note:	
Email:		Project Name: Boeing SSFL NPDES - Outfall 009 COMP		Sample Time: 08 00 Pacific		SUB (Asbestos 100 2) / Asbestos 100.2		See Attached Instructions	
Sample Identification - Client ID (Lab ID): Outfall009_20230102_Comp (570-122381-1)		Sample Date: 1/2/23		Sample Time: 08 00 Pacific		X		1	
Site:		Preservation Code: Water		Matrix					

Note: Since laboratory accreditations are subject to change Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested I, II, III, IV, Other (specify) Primary Deliverable Rank. 2

Special Instructions/QC Requirements

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by:	Date/Time: 1/4/23 1450	Company:	Received by:
Relinquished by:	Date/Time:	Company:	Received by:
Relinquished by:	Date/Time:	Company:	Received by:
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.		Cooler Temperature(s) °C and Other Remarks:



ICOC No:
570-203251

Containers

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
1	Plastic 1 liter - unpreserved	None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Asbestos 100 2)/ Asbestos 100 2	Wastewater



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122381-3

Login Number: 122381

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/6/2023 2:48:01 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 009 COMP

JOB NUMBER

570-122381-4

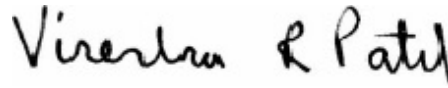
Job Notes

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender and destroy this report immediately. This report shall not be reproduced except in full, without prior express written approval by the laboratory.

The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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2/6/2023 2:48:01 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Job ID: 570-122381-4

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-122381-4

Comments

No additional comments.

Receipt

The samples were received on 1/3/2023 5:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.5° C, 1.8° C, 2.1° C and 2.9° C.

Receipt Exceptions

The reference method requires samples to be preserved to a pH of <2 SU. The following samples were received with insufficient preservation at a pH of >2 SU: Outfall009_20230102_Comp (570-122381-1), Outfall009_20230102_Comp_F (570-122381-2) and Outfall009_20230102_Comp_Extra (570-122381-3). 570-122381-P-1. The sample was preserved to the appropriate pH in the laboratory.

RAD

Methods 900.0, 9310: Gross Alpha Beta prep batch 160-597138:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230102_Comp (570-122381-1), (LCS 160-597138/2-A), (LCSB 160-597138/3-A), (MB 160-597138/1-A), (570-122390-BC-2-B), (570-122390-BC-2-E DU), (570-122390-BC-2-C MS) and (570-122390-BC-2-D MSBT)

Method 901.1: Gamma prep batch 160-595846:

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230102_Comp

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Job ID: 570-122381-4 (Continued)

Laboratory: Eurofins Calscience (Continued)

(570-122381-1), (LCS 160-595846/2-A), (MB 160-595846/1-A), (570-122390-BD-2-A) and (570-122390-BD-2-B DU)

Method 903.0: Radium-226 batch 596127

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230102_Comp (570-122381-1), (LCS 160-596127/2-A), (MB 160-596127/1-A), (160-48493-E-2-A) and (160-48493-D-2-A DU)

Method 904.0: Radium-228 prep batch 160-596130:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230102_Comp (570-122381-1), (LCS 160-596130/2-A), (MB 160-596130/1-A), (160-48493-E-2-B) and (160-48493-D-2-B DU)

Method 905: Strontium-90 batch 596504

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230102_Comp (570-122381-1), (LCS 160-596504/2-A), (MB 160-596504/1-A), (380-33412-AJ-1-A) and (380-33412-A-1-B DU)

Method 906.0: Tritium 597258

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230102_Comp (570-122381-1), (LCS 160-597258/2-A), (MB 160-597258/1-A), (160-48493-A-2-A), (160-48493-A-2-B MS), (160-48582-A-1-A) and (160-48582-A-1-C DU)

Method A-01-R: Isotopic Uranium batch 596512

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230102_Comp (570-122381-1), (LCS 160-596512/2-A), (MB 160-596512/1-A), (160-48520-A-1-A) and (160-48520-A-1-B DU)

Method ExtChrom: Uranium Prep Batch 160-596512:

The following sample was prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall009_20230102_Comp (570-122381-1).

Method PrecSep_0:

Method PrecSep-21:

Method PrecSep-7:

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Client Sample ID: Outfall009_20230102_Comp

Lab Sample ID: 570-122381-1

No Detections.

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This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall009_20230102_Comp
Date Collected: 01/02/23 08:00
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122381-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	1.65		1.11	1.12	3.00	1.65	pCi/L	01/17/23 09:22	01/19/23 20:56	1
Gross Beta	2.97		0.771	0.826	4.00	0.906	pCi/L	01/17/23 09:22	01/19/23 20:56	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall009_20230102_Comp
Date Collected: 01/02/23 08:00
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122381-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-7.57	U	14.6	14.7	20.0	18.3	pCi/L	01/06/23 10:05	01/27/23 01:40	1
Potassium-40	-249	U	152	154		328	pCi/L	01/06/23 10:05	01/27/23 01:40	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall009_20230102_Comp
Date Collected: 01/02/23 08:00
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122381-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0535	U	0.0887	0.0888	1.00	0.155	pCi/L	01/09/23 11:46	02/01/23 10:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.2		40 - 110					01/09/23 11:46	02/01/23 10:24	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall009_20230102_Comp
 Date Collected: 01/02/23 08:00
 Date Received: 01/03/23 17:05

Lab Sample ID: 570-122381-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.777	U	0.579	0.584	1.00	0.887	pCi/L	01/09/23 12:10	01/19/23 12:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.2		40 - 110					01/09/23 12:10	01/19/23 12:20	1
Y Carrier	80.4		40 - 110					01/09/23 12:10	01/19/23 12:20	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall009_20230102_Comp
Date Collected: 01/02/23 08:00
Date Received: 01/03/23 17:05

Lab Sample ID: 570-122381-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.471		0.298	0.300	3.00	0.457	pCi/L	01/11/23 10:43	01/24/23 19:35	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	78.8		40 - 110					01/11/23 10:43	01/24/23 19:35	1
Y Carrier	91.2		40 - 110					01/11/23 10:43	01/24/23 19:35	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall009_20230102_Comp
 Date Collected: 01/02/23 08:00
 Date Received: 01/03/23 17:05

Lab Sample ID: 570-122381-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-3.15	U	158	158	500	292	pCi/L	01/17/23 15:44	01/20/23 14:55	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall009_20230102_Comp
 Date Collected: 01/02/23 08:00
 Date Received: 01/03/23 17:05

Lab Sample ID: 570-122381-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.182	U	0.254	0.255	1.00	0.395	pCi/L	01/11/23 12:14	01/16/23 22:24	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	68.8		30 - 110					01/11/23 12:14	01/16/23 22:24	1

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
160-48493-D-2-A DU	Duplicate	83.5	
570-122381-1	Outfall009_20230102_Comp	80.2	
LCS 160-596127/2-A	Lab Control Sample	90.5	
MB 160-596127/1-A	Method Blank	97.2	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
160-48493-D-2-B DU	Duplicate	83.5	84.1
570-122381-1	Outfall009_20230102_Comp	80.2	80.4
LCS 160-596130/2-A	Lab Control Sample	90.5	84.1
MB 160-596130/1-A	Method Blank	97.2	84.1
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr (40-110)	Y (40-110)
380-33412-A-1-B DU	Duplicate	71.6	82.6
570-122381-1	Outfall009_20230102_Comp	78.8	91.2
LCS 160-596504/2-A	Lab Control Sample	86.3	86.0
MB 160-596504/1-A	Method Blank	80.2	86.4
Tracer/Carrier Legend			
Sr = Sr Carrier			
Y = Y Carrier			

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	U-232 (30-110)	
160-48520-A-1-B DU	Duplicate	80.9	
570-122381-1	Outfall009_20230102_Comp	68.8	
LCS 160-596512/2-A	Lab Control Sample	87.6	
MB 160-596512/1-A	Method Blank	90.8	
Tracer/Carrier Legend			
U-232 = Uranium-232			

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-597138/1-A
Matrix: Water
Analysis Batch: 597550

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597138

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	0.08553	U	0.604	0.604	3.00	1.11	pCi/L	01/17/23 09:22	01/19/23 20:42	1
Gross Beta	-0.06305	U	0.538	0.538	4.00	0.966	pCi/L	01/17/23 09:22	01/19/23 20:42	1

Lab Sample ID: LCS 160-597138/2-A
Matrix: Water
Analysis Batch: 597550

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597138

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Alpha	50.5	57.54		8.18	3.00	2.19	pCi/L	114	75 - 125

Lab Sample ID: LCSB 160-597138/3-A
Matrix: Water
Analysis Batch: 597550

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597138

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Beta	73.8	72.30		7.76	4.00	0.990	pCi/L	98	75 - 125

Lab Sample ID: 570-122390-BC-2-C MS
Matrix: Water
Analysis Batch: 597549

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 597138

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
						Uncert. (2σ+/-)					
Gross Alpha	1.45	U	50.5	40.54		6.39	3.00	2.57	pCi/L	77	60 - 140

Lab Sample ID: 570-122390-BC-2-D MSBT
Matrix: Water
Analysis Batch: 597549

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 597138

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
						Uncert. (2σ+/-)					
Gross Beta	3.81		73.8	77.63		8.31	4.00	0.941	pCi/L	100	60 - 140

Lab Sample ID: 570-122390-BC-2-E DU
Matrix: Water
Analysis Batch: 597549

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 597138

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total	RL	MDC	Unit	RER	RER Limit
					Uncert. (2σ+/-)					
Gross Alpha	1.45	U	3.137		1.53	3.00	1.89	pCi/L	0.56	1
Gross Beta	3.81		3.216		0.863	4.00	0.925	pCi/L	0.33	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-595846/1-A
Matrix: Water
Analysis Batch: 598374

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 595846

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Cesium-137	0.6309	U	13.1	13.1	20.0	17.3	pCi/L	01/06/23 10:05	01/26/23 02:55	1
Potassium-40	-72.62	U	163	163		237	pCi/L	01/06/23 10:05	01/26/23 02:55	1

Lab Sample ID: LCS 160-595846/2-A
Matrix: Water
Analysis Batch: 598374

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 595846

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Americium-241	137000	120800		14400		249	pCi/L	88	75 - 125
Cesium-137	42600	38680		4610	20.0	124	pCi/L	91	75 - 125
Cobalt-60	18900	17410		2080		64.3	pCi/L	92	75 - 125

Lab Sample ID: 570-122390-BD-2-B DU
Matrix: Water
Analysis Batch: 598375

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 595846

Analyte	Sample Sample		DU	DU	Total	RL	MDC	Unit	RER	RER
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					Limit
Cesium-137	4.92	U	4.599	U	10.1	20.0	12.2	pCi/L		0.02
Potassium-40	-29.6	U	-26.43	U	119		162	pCi/L		0.01

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-596127/1-A
Matrix: Water
Analysis Batch: 598871

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 596127

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.0006334	U	0.0440	0.0440	1.00	0.0568	pCi/L	01/09/23 11:46	02/01/23 10:20	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	97.2		40 - 110	01/09/23 11:46	02/01/23 10:20	1

Lab Sample ID: LCS 160-596127/2-A
Matrix: Water
Analysis Batch: 598871

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 596127

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Radium-226	11.3	11.68		1.19	1.00	0.0520	pCi/L	103	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	90.5		40 - 110

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: 160-48493-D-2-A DU
Matrix: Water
Analysis Batch: 598876

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 596127

Analyte	Sample	Sample	DU		Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual						
Radium-226	0.0121	U	0.04925	U	0.0844	1.00	0.146	pCi/L	0.25	1
DU DU										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	83.5		40 - 110							

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-596130/1-A
Matrix: Water
Analysis Batch: 597548

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 596130

Analyte	MB	MB	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Radium-228	0.4466		0.336	0.339	1.00	0.313	pCi/L	01/09/23 12:10	01/19/23 12:19	1
MB MB										
Carrier	%Yield	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
Ba Carrier	97.2		40 - 110				01/09/23 12:10	01/19/23 12:19	1	
Y Carrier	84.1		40 - 110				01/09/23 12:10	01/19/23 12:19	1	

Lab Sample ID: LCS 160-596130/2-A
Matrix: Water
Analysis Batch: 597548

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 596130

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
LCS LCS									
Carrier	%Yield	Qualifier	Limits						
Ba Carrier	90.5		40 - 110						
Y Carrier	84.1		40 - 110						

Lab Sample ID: 160-48493-D-2-B DU
Matrix: Water
Analysis Batch: 597550

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 596130

Analyte	Sample	Sample	DU		Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual						
Radium-228	0.409	U	0.08084	U	0.355	1.00	0.639	pCi/L	0.37	1
DU DU										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	83.5		40 - 110							
Y Carrier	84.1		40 - 110							

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-596504/1-A
Matrix: Water
Analysis Batch: 598066

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 596504

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium-90	0.08468	U	0.192	0.193	3.00	0.332	pCi/L	01/11/23 10:43	01/24/23 19:32	1
Carrier	MB MB		Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier		Prepared	Analyzed					
Sr Carrier	80.2		40 - 110			01/11/23 10:43	01/24/23 19:32	1		
Y Carrier	86.4		40 - 110			01/11/23 10:43	01/24/23 19:32	1		

Lab Sample ID: LCS 160-596504/2-A
Matrix: Water
Analysis Batch: 598066

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 596504

Analyte	LCS LCS		Spike	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qual	Uncert. (2σ+/-)						
Strontium-90			7.38	7.567		0.837	3.00	0.349	pCi/L	103	75 - 125	
Carrier	LCS LCS		Limits			Prepared	Analyzed	Dil Fac				
	%Yield	Qualifier		Prepared	Analyzed							
Sr Carrier	86.3		40 - 110									
Y Carrier	86.0		40 - 110									

Lab Sample ID: 380-33412-A-1-B DU
Matrix: Water
Analysis Batch: 598066

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 596504

Analyte	Sample Sample		DU	DU	Total	RL	MDC	Unit	RER	Limit
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					
Strontium-90	0.336		-0.08960	U	0.224	3.00	0.418	pCi/L	1.02	1
Carrier	DU DU		Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier		Prepared	Analyzed					
Sr Carrier	71.6		40 - 110							
Y Carrier	82.6		40 - 110							

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-597258/1-A
Matrix: Water
Analysis Batch: 597783

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597258

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	-17.12	U	159	159	500	299	pCi/L	01/17/23 15:44	01/20/23 13:46	1

Lab Sample ID: LCS 160-597258/2-A
Matrix: Water
Analysis Batch: 597783

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597258

Analyte	LCS LCS		Spike	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qual	Uncert. (2σ+/-)						
Tritium			2120	1984		385	500	299	pCi/L	94	75 - 125	

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Method: 906.0 - Tritium, Total (LSC) (Continued)

Lab Sample ID: 160-48493-A-2-B MS
 Matrix: Water
 Analysis Batch: 597783

Client Sample ID: Matrix Spike
 Prep Type: Total/NA
 Prep Batch: 597258

Analyte	Sample	Sample	Spike Added	MS	MS	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
	Result	Qual		Result	Qual						
Tritium	1.80	U	2110	1844		381	500	316	pCi/L	87	60 - 140

Lab Sample ID: 160-48582-A-1-C DU
 Matrix: Water
 Analysis Batch: 597783

Client Sample ID: Duplicate
 Prep Type: Total/NA
 Prep Batch: 597258

Analyte	Sample	Sample	DU	DU	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual						
Tritium	-57.2	U	35.14	U	162	500	289	pCi/L	0.30	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-596512/1-A
 Matrix: Water
 Analysis Batch: 596962

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 596512

Analyte	MB	MB	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Total Uranium	0.1953		0.152	0.152	1.00	0.171	pCi/L	01/11/23 12:14	01/13/23 14:11	1
Tracer	MB	MB	Limits			Prepared	Analyzed	Dil Fac		
Uranium-232	%Yield	Qualifier		30 - 110						01/11/23 12:14

Lab Sample ID: LCS 160-596512/2-A
 Matrix: Water
 Analysis Batch: 596969

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 596512

Analyte	Spike Added	LCS	LCS	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
		Result	Qual						
Uranium-234	12.7	12.40		1.47	1.00	0.154	pCi/L	97	75 - 125
Uranium-238	13.0	13.08		1.53	1.00	0.132	pCi/L	100	75 - 125
Tracer	LCS	LCS	Limits			Prepared	Analyzed	Dil Fac	
Uranium-232	%Yield	Qualifier		30 - 110					

Lab Sample ID: 160-48520-A-1-B DU
 Matrix: Water
 Analysis Batch: 597029

Client Sample ID: Duplicate
 Prep Type: Total/NA
 Prep Batch: 596512

Analyte	Sample	Sample	DU	DU	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual						
Total Uranium	0.159		0.07438	U	0.1125	1.00	0.163	pCi/L	0.35	1
Tracer	DU	DU	Limits			Prepared	Analyzed	Dil Fac		
Uranium-232	%Yield	Qualifier		30 - 110						

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Rad

Prep Batch: 595846

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-595846/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-595846/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
570-122390-BD-2-B DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Prep Batch: 596127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	PrecSep-21	
MB 160-596127/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-596127/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
160-48493-D-2-A DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 596130

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	PrecSep_0	
MB 160-596130/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-596130/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
160-48493-D-2-B DU	Duplicate	Total/NA	Water	PrecSep_0	

Prep Batch: 596504

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	PrecSep-7	
MB 160-596504/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-596504/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
380-33412-A-1-B DU	Duplicate	Total/NA	Water	PrecSep-7	

Prep Batch: 596512

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	ExtChrom	
MB 160-596512/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-596512/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
160-48520-A-1-B DU	Duplicate	Total/NA	Water	ExtChrom	

Prep Batch: 597138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	Evaporation	
MB 160-597138/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-597138/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-597138/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
570-122390-BC-2-C MS	Matrix Spike	Total/NA	Water	Evaporation	
570-122390-BC-2-D MSBT	Matrix Spike	Total/NA	Water	Evaporation	
570-122390-BC-2-E DU	Duplicate	Total/NA	Water	Evaporation	

Prep Batch: 597258

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-122381-1	Outfall009_20230102_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-597258/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-597258/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
160-48493-A-2-B MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
160-48582-A-1-C DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Client Sample ID: Outfall009_20230102_Comp

Lab Sample ID: 570-122381-1

Date Collected: 01/02/23 08:00

Matrix: Water

Date Received: 01/03/23 17:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.00 mL	1.0 g	597138	01/17/23 09:22	MST	EET SL
Total/NA	Analysis	900.0		1			597548	01/19/23 20:56	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	Fill_Geo-0			500 mL	1.0 g	595846	01/06/23 10:05	JML	EET SL
Total/NA	Analysis	901.1		1			598463	01/27/23 01:40	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			748.38 mL	1.0 g	596127	01/09/23 11:46	DJP	EET SL
Total/NA	Analysis	903.0		1			598871	02/01/23 10:24	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			748.38 mL	1.0 g	596130	01/09/23 12:10	DJP	EET SL
Total/NA	Analysis	904.0		1			597548	01/19/23 12:20	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep-7			744.88 mL	1.0 g	596504	01/11/23 10:43	DJP	EET SL
Total/NA	Analysis	905		1			598066	01/24/23 19:35	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	LSC_Dist_Susp			100.49 mL	1.0 g	597258	01/17/23 15:44	SEH	EET SL
Total/NA	Analysis	906.0		1			597783	01/20/23 14:55	REV	EET SL
Instrument ID: LSCAQUA										
Total/NA	Prep	ExtChrom			301.85 mL	1.0 mL	596512	01/11/23 12:14	MAL	EET SL
Total/NA	Analysis	A-01-R		1			597032	01/16/23 22:24	FLC	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-4

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122381-1	Outfall009_20230102_Comp	Water	01/02/23 08:00	01/03/23 17:05

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Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab P.M.	Carrier Tracking No(s)	COC No
Client Contact: 13715 Rider Trail North, Shipping/Receiving TestAmerica Laboratories, Inc. Address: City: Earth City State: MO Zip: 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email: Project Name: Boeing SSFL NPDES - Outfall 009 COMP Site:		Patel Virendra	Patel Virendra	State of Origin: California	570-203243 1
Due Date Requested: 2/3/2023 TAT Requested (days): PO #: WO #: Project #: 44024446 SSOW#:		Phone: Virendra.Patel@et.eurofins.com	E-Mail: Virendra.Patel@et.eurofins.com	Page: Page 1 of 1	Job #: 570-122381-4
Sample Identification - Client ID (Lab ID) Outfall009_20230102_Comp (570-122381-1)		Sample Date: 1/2/23 Sample Time: 08 00 Pacific	Sample Type (C=Comp, G=grab) Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=air)	Preservation Code: Water	Analysis Requested 901 Cs/Fill_Geo_K-40 and Cesium-137 A01R_U/ExtChrom_Actin Total Uranium 900.0/Evaporation Gross Alpha/Beta 903.0/PreSep_21 Radium-226 904.0/PreSep_0 Radium-226 905.5/90/PreSep_7 Strontium-90 906.0/LSC_Dist_Susp Tritium
Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/>		Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/>		Total Number of containers: 2	
Special Instructions/Note: Boiling SSFL, DO NOT FILTER, use prep date from preservation					
Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.					
Possible Hazard Identification Unconfirmed Deliverable Requested I, II, III, IV Other (specify) Primary Deliverable Rank 2					
Empty Kit Relinquished by:		Date:		Method of Shipment:	
Relinquished by: <i>[Signature]</i>		Date/Time: 1/4/23 1422		Received by: Company	
Relinquished by:		Date/Time:		Received by: Company	
Relinquished by:		Date/Time:		Received by: Company	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No		Cooler Temperature(s) °C and Other Remarks:	



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab PM	Carrier Tracking No(s)	COC No.
Client Contact: 520 Mission Street, South Pasadena, CA, 91030		Patel Virendra	Patel Virendra	570-2032511	570-2032511
Shipping/Receiving Company: EMSL Analytical, Inc.		E-Mail: Virendra.Patel@et.eurofins.com	State of Origin: California	Page: Page 1 of 1	
Address: 520 Mission Street, South Pasadena, CA, 91030		Accreditations Required (See note): State Program - California		Job #: 570-122381-3	Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SSO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Y - Trizma Z - other (specify) A - HCl B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:
Due Date Requested: 1/16/2023		Analysis Requested			
TAT Requested (days):					
PO #:					
WO #:					
Project #: 44024446					
SSOW#:					
Matrix (W=water, S=solid, O=waste/oil, BT=tissue, A=air)					
Sample Type (C=Comp, G=grab)					
Sample Time					
Sample Date					
Sample Date Requested: 1/2/23					
Sample Time: 08 00 Pacific					
Preservation Code: Water					
Field Filtered Sample (Yes or No)					
Perform MS/MSD (Yes or No)					
SUB (Asbestos 100 2) / Asbestos 100.2					
Total Number of Containers				1	
Special Instructions/Note:				See Attached Instructions	
Sample Identification - Client ID (Lab ID)					
Outfall009_20230102_Comp (570-122381-1)					
<p>Note: Since laboratory accreditations are subject to change Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>					
<p>Possible Hazard Identification Unconfirmed Deliverable Requested I, II, III, IV, Other (specify) Primary Deliverable Rank. 2</p>					
<p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p>					
<p>Special Instructions/QC Requirements</p>					
Empty Kit Relinquished by:		Date:		Time:	
Relinquished by:		Received by:		Company	
Relinquished by:		Received by:		Company	
Relinquished by:		Received by:		Company	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:			



ICOC No:
570-203251

Containers

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
1	Plastic 1 liter - unpreserved	None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Asbestos 100 2)/ Asbestos 100 2	Wastewater



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122381-4

Login Number: 122381

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122381-4

Login Number: 122381

List Number: 2

Creator: Bohlmann, Jessica M

List Source: Eurofins St. Louis

List Creation: 01/05/23 11:43 AM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	False	570-122381-P-1 was received with a pH >2 SU
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004
Generated 2/16/2023 1:25:36 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 009 COMP

JOB NUMBER

570-122381-5

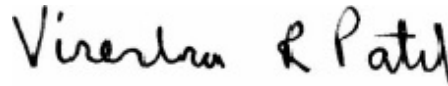
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



Generated
2/16/2023 1:25:36 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-5

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-5

Job ID: 570-122381-5

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-122381-5

Comments

No additional comments.

Receipt

The samples were received on 1/3/2023 5:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.5° C, 1.8° C, 2.1° C and 2.9° C.

Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work

Method Weck- 525.2 - Diazinon and Chlorpyrifos (ug/L units): This method was subcontracted to Weck Laboratories, Inc.. The subcontract laboratory certification is different from that of the facility issuing the final report.



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-5

Method	Method Description	Protocol	Laboratory
Subcontract	Weck- 525.2 - Diazinon and Chlorpyrifos (ug/L units)	None	Weck Lab

Protocol References:

None = None

Laboratory References:

Weck Lab = Weck Laboratories, Inc., 14859 E. Clark Avenue, City of Industry, CA 91745



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-5

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122381-1	Outfall009_20230102_Comp	Water	01/02/23 08:00	01/03/23 17:05

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Work Orders: 3A04001

Project: 570-122381-5

Attn: Virendra Patel

Client: Eurofins Calscience - Tustin
2841 Dow Avenue, Suite 100
Tustin, CA 92780

Report Date: 2/14/2023

Received Date: 1/3/2023

Turnaround Time: Normal

Phones: (949) 261-1022

Fax: (949) 260-3297

P.O. #:

Billing Code:

Dear Virendra Patel,

Enclosed are the results of analyses for samples received 1/03/23 with the Chain-of-Custody document. The samples were received in good condition, at 2.6 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: Outfall 009_20230102_Comp (570-122381-1) Sampled: 01/02/23 8:00 by Client
3A04001-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 525.2M				Instr: GCMS13			
Batch ID: W3A0545		Preparation: EPA 525.2/SPE		Prepared: 01/09/23 08:06		Analyst: EFC	
Chlorpyrifos	ND	0.0013	0.010	ug/l	1	01/11/23	
Diazinon	ND	0.0010	0.010	ug/l	1	01/11/23	
<i>Surrogate(s)</i>							
1,3-Dimethyl-2-nitrobenzene	76%		50-141	Conc: 0.382		01/11/23	
Triphenyl phosphate	110%		63-200	Conc: 0.552		01/11/23	

Quality Control Results

Semivolatle Organics - Low Level by Tandem GC/MS/MS

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limit	RPD	Limit	Qualifier
Blank (W3A0545-BLK1)					Prepared: 01/09/23 Analyzed: 01/11/23						
Chlorpyrifos	ND	0.0013	0.010	ug/l							
Diazinon	ND	0.0010	0.010	ug/l							
<i>Surrogate(s)</i>											
1,3-Dimethyl-2-nitrobenzene	0.425			ug/l	0.500		85	50-141			
Triphenyl phosphate	0.529			ug/l	0.500		106	63-200			
LCS (W3A0545-BS1)					Prepared: 01/09/23 Analyzed: 01/11/23						
Chlorpyrifos	0.0453	0.0013	0.010	ug/l	0.0500		91	63-145			
Diazinon	0.0225	0.0010	0.010	ug/l	0.0500		45	25-180			
<i>Surrogate(s)</i>											
1,3-Dimethyl-2-nitrobenzene	0.412			ug/l	0.500		82	50-141			
Triphenyl phosphate	0.495			ug/l	0.500		99	63-200			
Matrix Spike (W3A0545-MS1)					Source: 3A05099-01		Prepared: 01/09/23 Analyzed: 01/11/23				
Chlorpyrifos	0.0416	0.0013	0.010	ug/l	0.0500	ND	83	37-168			
Diazinon	0.0285	0.0010	0.010	ug/l	0.0500	ND	57	36-153			
<i>Surrogate(s)</i>											
1,3-Dimethyl-2-nitrobenzene	0.390			ug/l	0.500		78	50-141			
Triphenyl phosphate	0.554			ug/l	0.500		111	63-200			
Matrix Spike Dup (W3A0545-MSD1)					Source: 3A05099-01		Prepared: 01/09/23 Analyzed: 01/11/23				
Chlorpyrifos	0.0489	0.0013	0.010	ug/l	0.0500	ND	98	37-168	16	30	
Diazinon	0.0307	0.0010	0.010	ug/l	0.0500	ND	61	36-153	7	30	
<i>Surrogate(s)</i>											
1,3-Dimethyl-2-nitrobenzene	0.351			ug/l	0.500		70	50-141			
Triphenyl phosphate	0.538			ug/l	0.500		108	63-200			

Notes and Definitions

Item	Definition
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Reviewed by:



Rahul R. Nair
Project Manager



DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

ICOC No:
570-203138

Containers

Count 2 **Container Type** Amber Glass 1 liter - Hydrochloric **Preservative** Hydrochloric Acid

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Weck- 525.2 - Diazinon and Chlorpyrifos (ug/L units))	525.2- 24 hour extraction for Diazinon and Chlorpyrifos needed
2	SUBCONTRACT	SUB (Weck- 525.2 - Diazinon and Chlorpyrifos (ug/L units))	525.2- 24 hour extraction for Diazinon and Chlorpyrifos needed





Sample Receipt Checklist

Veck WKO: 3A04001
 Logged by: Jaime Gomez
 Checked by: Jaime Gomez

Date/Time Received: 01/03/23 @ 15:30
 # of Samples: 02
 Delivered by: Client

Check	Yes	No	N/A	Comments
Label present at receipt?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Label properly completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Label matches sample labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Subject Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Sample Temperature	2.6 °C			
Samples received on ice?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Ice Type (Blue/Wet)	Wet			
Samples intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Samples in proper containers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Sufficient sample volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Samples intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Subject Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Sample labels checked for correct preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
GC Headspace: (No) none, If Yes (See comment) 1.2, 524.3, 624.1, 8260, 1666 P/T, LUFT	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> <6mm/Pea size?
GC verified upon receipt?				pH paper Lot# 2071882
Metals <2; H2SO4 pres tests <2; 522<4; TOC <2; 508.1, 5.2<2; 6710B<2; 608.3 5-9	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Free Chlorine Tested <0.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cl Test Strip Lot# 061221E
GC pH <2 verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	pH paper Lot#
GC adjusted for O&G	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	pH Reading: Acid Lot# Amt added:
Subject Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



122387

CHAIN OF CUSTODY FORM

<p>Client Name/Address: Halley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p>		<p>Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall 009, 010 Outfall 009 Comp</p>		<p>Priority Pollutants-SVOCs (E25)</p>		<p>Asbestos (EPA 002) OF09 only</p>		<p>Chlorides, Diazine (E25.2)</p>		<p>Cr (VI) Total (E21.6)</p>		<p>ANALYSIS REQUIRED</p>		<p>Comments</p>	
<p>TestAmerica's services under this COC shall be performed in accordance with the T&Ca within Blanket Service Agreement# 2019-22-TestAmerica by and between Halley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.</p>		<p>Project Manager: Katherine Miller 520.289.8906, 520.904.6944 (cell)</p>		<p>Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)</p>		<p>Preservative</p>		<p>Bottle #</p>		<p>MSMSD</p>		<p>Cr (VI) Total (E21.6)</p>		<p>Chlorides, Diazine (E25.2)</p>	
<p>Sampler: Adrien Mobeka</p>		<p>Sample I.D. Outfall009_20230102_Comp</p>		<p>Sampling Date/Time 1/22/2023 / 10:04</p>		<p>Sample Matrix WM</p>		<p>Container Type 1 L Glass Amber</p>		<p># of Cont. 2</p>		<p>Priority Pollutants-SVOCs (E25)</p>		<p>Asbestos (EPA 002) OF09 only</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:04</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>1</p>		<p>X</p>		<p>X</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp_Extra</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>		<p>1 L Glass Amber</p>		<p>2</p>		<p>H</p>		<p>H</p>	
<p>Outfall 009</p>		<p>Outfall009_20230102_Comp</p>		<p>1/22/2023 / 10:10</p>		<p>WM</p>									

ICOC No:
570-203251

Containers

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
1	Plastic 1 liter - unpreserved	None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Asbestos 100 2)/ Asbestos 100 2	Wastewater



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122381-5

Login Number: 122381

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/3/2023 11:06:51 AM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 009 COMP

JOB NUMBER

570-122381-6

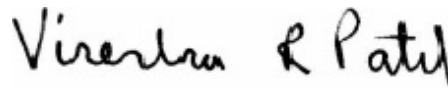
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization

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2/3/2023 11:06:51 AM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



Table of Contents

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Sample Summary	7
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Chain of Custody	22
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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-6

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-6

Job ID: 570-122381-6

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-122381-6

Comments

No additional comments.

Receipt

The samples were received on 1/3/2023 5:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.5° C, 1.8° C, 2.1° C and 2.9° C.

Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work

Method Chronic-Selenestrum: This method was subcontracted to Aquatic Bioassay & Consulting. The subcontract laboratory certification is different from that of the facility issuing the final report.



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-6

Method	Method Description	Protocol	Laboratory
EPA	Bioassay	EPA	Aquatic

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-6

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122381-1	Outfall009_20230102_Comp	Water	01/02/23 08:00	01/03/23 17:05

1

2

3

4

5

6

7

8

9



January 24, 2023

Mr. Virendra Patel
Eurofins Calscience
7440 Lincoln Way
Garden Grove, CA 92841-1432

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA-821-R-02-013*. Results were as follows:

CLIENT: Eurofins Calscience
SAMPLE I.D.: Outfall 009
DATE RECEIVED: 3 Jan - 2023
ABC LAB. NO.: CSE0123.003

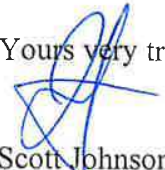
CHRONIC SELENASTRUM ALGAE GROWTH BIOASSAY

IWC = 100.00 %

TST RESULT

GROWTH = PASS % EFFECT = -1.00 %

Yours very truly,


Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 19 Jan-23 17:05 (p 1 of 1)
 Test Code/ID: CSE0123.003 / 04-3426-8369

Selenastrum Growth Test			Aquatic Bioassay & Consulting Labs, Inc.		
Batch ID: 20-3625-3180	Test Type: Cell Growth	Analyst:			
Start Date: 04 Jan-23 09:31	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water			
Ending Date: 08 Jan-23 10:15	Species: Selenastrum capricornutum	Brine: Not Applicable			
Test Length: 4d 1h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO	Age: 6d		
Sample ID: 06-7170-4332	Code: CSE0123.003	Project: Boeing-SSFL NPDES			
Sample Date: 02 Jan-23 08:00	Material: Sample Water	Source: Bioassay Report			
Receipt Date: 03 Jan-23 14:45	CAS (PC):	Station: Outfall 009			
Sample Age: 50h (0.5 °C)	Client: Eurofins Calscience				

Single Comparison Summary					
Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
17-3351-0386	Cell Density	TST-Welch's t Test	<1.0E-05	100% passed cell density	1

Test Acceptability		TAC Limits					
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
17-3351-0386	Cell Density	Control CV	0.05696	<<	0.2	Yes	Passes Criteria
17-3351-0386	Cell Density	Control Resp	1.39E+6	1.00E+6	<<	Yes	Passes Criteria

Cell Density Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.387E+6	1.321E+6	1.453E+6	1.232E+6	1.460E+6	2.793E+4	7.900E+4	5.70%	0.00%
100		8	1.401E+6	1.332E+6	1.469E+6	1.305E+6	1.532E+6	2.891E+4	8.178E+4	5.84%	-1.00%

Cell Density Detail		MD5: A95491691B87E56F63321B261B27944A									
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8		
0	N	1.438E+6	1.232E+6	1.460E+6	1.404E+6	1.449E+6	1.324E+6	1.436E+6	1.352E+6		
100		1.346E+6	1.305E+6	1.532E+6	1.373E+6	1.422E+6	1.308E+6	1.443E+6	1.477E+6		

CETIS Analytical Report

Report Date: 19 Jan-23 17:05 (p 1 of 2)
 Test Code/ID: CSE0123.003 / 04-3426-8369

Selenastrum Growth Test			Aquatic Bioassay & Consulting Labs, Inc.		
Analysis ID: 17-3351-0386	Endpoint: Cell Density	CETIS Version: CETISv2.1.4	Analyzed: 19 Jan-23 17:04	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 19 Jan-23 17:03	MD5 Hash: A95491691B87E56F63321B261B27944A	Editor ID: 009-702-627-3	Batch ID: 20-3625-3180	Test Type: Cell Growth	Analyst:
Start Date: 04 Jan-23 09:31	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water	Ending Date: 08 Jan-23 10:15	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 4d 1h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO	Age: 6d	Sample ID: 06-7170-4332	Code: CSE0123.003
Sample Date: 02 Jan-23 08:00	Material: Sample Water	Project: Boeing-SSFL NPDES	Receipt Date: 03 Jan-23 14:45	CAS (PC):	Source: Bioassay Report
Sample Age: 50h (0.5 °C)	Client: Eurofins Calscience	Station: Outfall 009			

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed cell density endpoint

TST-Welch's t Test								
Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	12	10.1	0.6955	CDF	<1.0E-05	Non-Significant Effect

Test Acceptability Criteria					
Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control CV	0.05696	<<	0.2	Yes	Passes Criteria
Control Resp	1.39E+6	1.00E+6	<<	Yes	Passes Criteria

ANOVA Table						
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	770062000	770062000	1	0.1191	0.7351	Non-Significant Effect
Error	9.05E+10	6.464E+09	14			
Total	9.127E+10		15			

ANOVA Assumptions Tests						
Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)	
Variance	Levene Equality of Variance Test	0.05404	8.862	0.8195	Equal Variances	
	Mod Levene Equality of Variance Test	0.1263	8.862	0.7275	Equal Variances	
	Variance Ratio F Test	1.072	8.885	0.9296	Equal Variances	
Distribution	Anderson-Darling A2 Test	0.3614	3.878	0.4495	Normal Distribution	
	D'Agostino Skewness Test	0.6629	2.576	0.5074	Normal Distribution	
	Kolmogorov-Smirnov D Test	0.1497	0.2471	0.4572	Normal Distribution	
	Shapiro-Wilk W Normality Test	0.9636	0.8408	0.7271	Normal Distribution	

Cell Density Summary											
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.387E+6	1.321E+6	1.453E+6	1.420E+6	1.232E+6	1.460E+6	2.793E+4	5.70%	0.00%
100		8	1.401E+6	1.332E+6	1.469E+6	1.398E+6	1.305E+6	1.532E+6	2.891E+4	5.84%	-1.00%

Cell Density Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	
0	N	1.438E+6	1.232E+6	1.460E+6	1.404E+6	1.449E+6	1.324E+6	1.436E+6	1.352E+6	
100		1.346E+6	1.305E+6	1.532E+6	1.373E+6	1.422E+6	1.308E+6	1.443E+6	1.477E+6	

CETIS Analytical Report

Report Date: 19 Jan-23 17:05 (p 2 of 2)
Test Code/ID: CSE0123.003 / 04-3426-8369

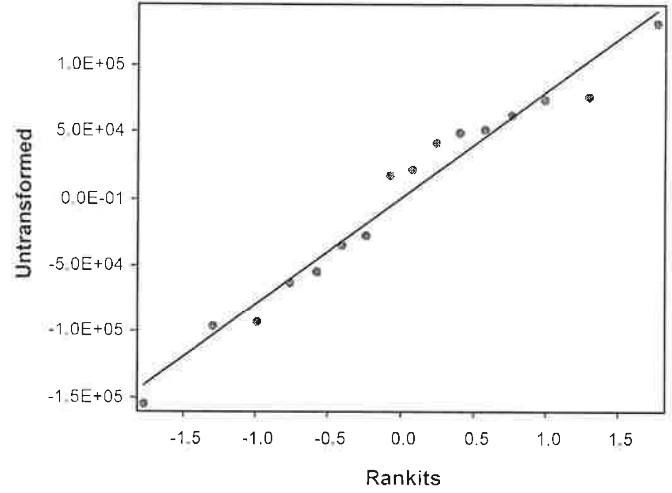
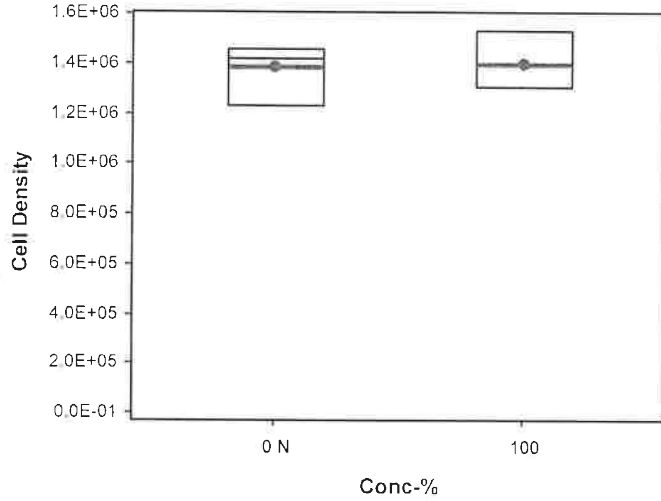
Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 17-3351-0386 Endpoint: Cell Density
Analyzed: 19 Jan-23 17:04 Analysis: Parametric Bioequivalence-Two Sample
Edit Date: 19 Jan-23 17:03 MD5 Hash: A95491691B87E56F63321B261B27944A

CETIS Version: CETISv2.1.4
Status Level: 1
Editor ID: 009-702-627-3

Graphics



CETIS Measurement Report

Report Date: 19 Jan-23 17:05 (p 1 of 1)
 Test Code/ID: CSE0123.003 / 04-3426-8369

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 20-3625-3180	Test Type: Cell Growth	Analyst:
Start Date: 04 Jan-23 09:31	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 08 Jan-23 10:15	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 4d 1h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 6d
Sample ID: 06-7170-4332	Code: CSE0123.003	Project: Boeing-SSFL NPDES
Sample Date: 02 Jan-23 08:00	Material: Sample Water	Source: Bioassay Report
Receipt Date: 03 Jan-23 14:45	CAS (PC):	Station: Outfall 009
Sample Age: 50h (0.5 °C)	Client: Eurofins Calscience	

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	78	---	---	78	78	---	---	---	0
100		1	37	---	---	37	37	---	---	---	0
Overall		2	57.5	-203	318	37	78	20.5	28.99	50.42%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	460	453.2	466.8	452	466	1.095	5.477	1.19%	0
100		5	203	192.5	213.5	190	210	1.691	8.456	4.17%	0
Overall		10	331.5	234.5	428.5	190	466	42.89	135.6	40.91%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	115	---	---	115	115	---	---	---	0
100		1	39	---	---	39	39	---	---	---	0
Overall		2	77	-405.8	559.8	39	115	38	53.74	69.79%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.6	7.424	7.776	7.4	7.7	0.02828	0.1414	1.86%	0
100		5	7.64	7.529	7.751	7.5	7.7	0.01789	0.08944	1.17%	0
Overall		10	7.62	7.539	7.701	7.4	7.7	0.0359	0.1135	1.49%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	25.8	25.8	25.8	25.8	25.8	0	0	0.00%	0
100		5	25.8	25.8	25.8	25.8	25.8	0	0	0.00%	0
Overall		10	25.8	25.8	25.8	25.8	25.8	0	0	0.00%	0 (0%)

Test America

CHAIN OF CUSTODY FORM

R/A R R/A R A R/A R R A R R

Client Name/Address:
 Halsey & Aldrich
 5333 Wilshire Center Rd Suite 300
 San Diego, CA 92108
 Test America Contact: Christian Bondoc
 17461 Denison Ave Suite #100
 Irvine CA 92614
 Tel: 949-260-3218

Project:
 Boeing-SSRL NPDES
 Perms 2023
 Annual Outfall [003-007, 009, 010]
 Outfall 009
 Camp

Project Manager: Katherine Miller
 520 298 8606; 520 904 6944 (cell)
 Field Manager: Mark Dominick
 978 234 5033; 818 598 0702 (cell)

Sample Description	Sample ID	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservation	Bottle #	MSMSD	Total Recoverable Metals: (E200.7): Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (and all congeners) (E1613B)	Cl-, F-, SO4, NO3+NO2-N, Perchlorate (E300)	TDS (SM2540C/E160.1)	TSS (160.2 (SM2540D))	Total Dissolved Metals: (E200.7): Al, B, Fe, Ni, V, Zn, Hardness as CaCO3 (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Ti	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E908.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Cyanide (SM4500-CN-E / E335.2)	Priority Pollutants-Pesticides+PCBs (E608)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	40 hours Holding Time HCl & HNO3	Comments	
Outfall009_20230102_Camp_F		1/2/2023	WVA	500 mL Poly	1	HNO3	86	No	X													
Outfall009_20230102_Camp_F		1/2/2023	WVA	1 L Glass Amber	2	None	110	No		X												
Outfall009_20230102_Camp_F		1/2/2023	WVA	500 mL Poly	2	None	135	No			X											
Outfall009_20230102_Camp_F		1/2/2023	WVA	500 mL Poly	1	None	155	No				X										
Outfall009_20230102_Camp_F		1/2/2023	WVA	1 L Poly	1	None	165	No					X									
Outfall009_20230102_Camp_F		1/2/2023	WVA	500 mL Poly	1	HNO3	220	No														
Outfall009_20230102_Camp_F		1/2/2023	WVA	25 mL Glass	1	None	225	No														
Outfall009_20230102_Camp_F		1/2/2023	WVA	1 L Glass Amber	1	None	230	No														
Outfall009_20230102_Camp_F		1/2/2023	WVA	1 L Glass Amber	2	None	250	No														
Outfall009_20230102_Camp_F		1/2/2023	WVA	1 L Poly	1	None	165	No														
Outfall009_20230102_Camp_F		1/2/2023	WVA	Extraction vial	1	None	320	No														
Outfall009_20230102_Camp_F		1/2/2023	WVA	1 L Glass Amber	2	None	110	No			H											
Outfall009_20230102_Camp_F		1/2/2023	WVA	500 mL Poly	2	None	135	No			H											
Outfall009_20230102_Camp_F		1/2/2023	WVA	1 L Glass Amber	2	None	250	No														

Requested By: MD Date/TIME: 1-3-2023/1445 Company: H.A

Received By: EM Date/TIME: 1-9-23 Company: WYS

Requested By: _____ Date/TIME: _____ Company: _____

Received By: _____ Date/TIME: _____ Company: _____

Turn-around time (Check):
 24 Hour _____ 72 Hour _____ 10 Day _____ X
 48 Hour _____ 5 Day _____ Normal _____

Sample Integrity (Check):
 Intact _____ On Ice _____
 Store samples for 6 months _____
 Data Requirements (Check):
 All Level IV _____ X

* This copy of original COC is for hand-delivery of asterisked sample only

Temp. deg. C = 05°C

Chlorine (mg/L) = 60.1

NH3 (mg/L) = 60.1



CHRONIC SELENASTRUM GROWTH BIOASSAY


DATE: 12 January - 2023

STANDARD TOXICANT: Cadmium Chloride

NOEC = 20.00 ug/l

IC25 = 53.36 ug/l
IC50 = 102.30 ug/l

Yours very truly,


Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 20 Jan-23 16:52 (p 1 of 1)
 Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test				Aquatic Bioassay & Consulting Labs, Inc.			
Batch ID:	19-4179-0418	Test Type:	Cell Growth	Analyst:			
Start Date:	12 Jan-23 13:24	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Laboratory Water		
Ending Date:	16 Jan-23 13:10	Species:	Selenastrum capricornutum	Brine:	Not Applicable		
Test Length:	96h	Taxon:	Chlorophyta	Source:	Aquatic Biosystems, CO	Age:	7d
Sample ID:	01-0315-3386	Code:	SEL011223	Project:	REF TOX		
Sample Date:	12 Jan-23 13:24	Material:	Cadmium chloride	Source:	Reference Toxicant		
Receipt Date:		CAS (PC):		Station:	REF TOX		
Sample Age:	---	Client:	Internal Lab				

Multiple Comparison Summary							
Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	S
02-3719-8182	Cell Density	Dunnett Multiple Comparison Test	20	40	28.28	4.66%	1

Point Estimate Summary							
Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	S
05-1997-3179	Cell Density	Linear Interpolation (ICPIN)	IC15	34.55	31.57	37.91	1
			IC20	39.4	35.65	48.58	
			IC25	53.36	40.71	62.3	
			IC40	88.59	84.67	92.36	
			IC50	102.3	99.22	105.6	

Test Acceptability							
Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
02-3719-8182	Cell Density	Control CV	0.03087	<<	0.2	Yes	Passes Criteria
05-1997-3179	Cell Density	Control CV	0.03087	<<	0.2	Yes	Passes Criteria
02-3719-8182	Cell Density	Control Resp	1.06E+6	1.00E+6	<<	Yes	Passes Criteria
05-1997-3179	Cell Density	Control Resp	1.06E+6	1.00E+6	<<	Yes	Passes Criteria

Cell Density Summary												
Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect	
0	N	4	1.057E+6	1.005E+6	1.109E+6	1.033E+6	1.105E+6	1.631E+4	3.262E+4	3.09%	0.00%	
20		4	1.091E+6	1.026E+6	1.156E+6	1.040E+6	1.131E+6	2.040E+4	4.080E+4	3.74%	-3.26%	
40		4	8.525E+5	8.034E+5	9.016E+5	8.250E+5	8.890E+5	1.541E+4	3.083E+4	3.62%	19.33%	
80		4	7.118E+5	6.788E+5	7.447E+5	6.940E+5	7.330E+5	1.035E+4	2.069E+4	2.91%	32.65%	
140		4	2.412E+5	1.995E+5	2.830E+5	2.190E+5	2.790E+5	1.312E+4	2.623E+4	10.87%	77.17%	
180		4	1.472E+5	1.228E+5	1.717E+5	1.320E+5	1.610E+5	7.696E+3	1.539E+4	10.45%	86.07%	

Cell Density Detail						MD5: 8002C18F242E2CF77D044A91E3CE4461						
Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4							
0	N	1.045E+6	1.033E+6	1.044E+6	1.105E+6							
20		1.131E+6	1.078E+6	1.116E+6	1.040E+6							
40		8.670E+5	8.290E+5	8.250E+5	8.890E+5							
80		6.940E+5	7.330E+5	6.940E+5	7.260E+5							
140		2.190E+5	2.370E+5	2.300E+5	2.790E+5							
180		1.360E+5	1.610E+5	1.600E+5	1.320E+5							

CETIS Analytical Report

Report Date: 20 Jan-23 16:52 (p 1 of 2)
 Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 02-3719-8182	Endpoint: Cell Density	CETIS Version: CETISv2.1.4
Analyzed: 20 Jan-23 16:51	Analysis: Parametric-Control vs Treatments	Status Level: 1
Edit Date: 20 Jan-23 16:48	MD5 Hash: 8002C18F242E2CF77D044A91E3CE4461	Editor ID: 009-702-627-3
Batch ID: 19-4179-0418	Test Type: Cell Growth	Analyst:
Start Date: 12 Jan-23 13:24	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 16 Jan-23 13:10	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 96h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 7d
Sample ID: 01-0315-3386	Code: SEL011223	Project: REF TOX
Sample Date: 12 Jan-23 13:24	Material: Cadmium chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: Internal Lab	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	20	40	28.28	---	49300	4.66%

Dunnett Multiple Comparison Test

Control	vs	Conc-µg/L	df	Test Stat	Critical	MSD	P-Type	P-Value	Decision(α:5%)
Negative Control		20	6	-1.685	2.407	49300	CDF	0.9976	Non-Significant Effect
		40*	6	9.973	2.407	49300	CDF	2.7E-05	Significant Effect
		80*	6	16.85	2.407	49300	CDF	2.7E-05	Significant Effect
		140*	6	39.82	2.407	49300	CDF	2.7E-05	Significant Effect
		180*	6	44.41	2.407	49300	CDF	2.7E-05	Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control CV	0.03087	<<	0.2	Yes	Passes Criteria
Control Resp	1.06E+6	1.00E+6	<<	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	3.272E+12	6.545E+11	5	780.2	<1.0E-05	Significant Effect
Error	1.51E+10	838820000	18			
Total	3.287E+12		23			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	2.884	15.09	0.7178	Equal Variances
	Levene Equality of Variance Test	1.242	4.248	0.3306	Equal Variances
	Mod Levene Equality of Variance Test	0.6992	4.248	0.6311	Equal Variances
Distribution	Anderson-Darling A2 Test	0.7994	3.878	0.0381	Normal Distribution
	D'Agostino Kurtosis Test	0.7357	2.576	0.4619	Normal Distribution
	D'Agostino Skewness Test	0.6079	2.576	0.5433	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	0.9108	9.21	0.6342	Normal Distribution
	Kolmogorov-Smirnov D Test	0.2114	0.2056	0.0070	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.9401	0.884	0.1636	Normal Distribution

Cell Density Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.057E+6	1.005E+6	1.109E+6	1.044E+6	1.033E+6	1.105E+6	1.631E+4	3.09%	0.00%
20		4	1.091E+6	1.026E+6	1.156E+6	1.097E+6	1.040E+6	1.131E+6	2.040E+4	3.74%	-3.26%
40		4	8.525E+5	8.034E+5	9.016E+5	8.480E+5	8.250E+5	8.890E+5	1.541E+4	3.62%	19.33%
80		4	7.118E+5	6.788E+5	7.447E+5	7.047E+5	6.940E+5	7.330E+5	1.035E+4	2.91%	32.65%
140		4	2.412E+5	1.995E+5	2.830E+5	2.335E+5	2.190E+5	2.790E+5	1.312E+4	10.87%	77.17%
180		4	1.472E+5	1.228E+5	1.717E+5	1.480E+5	1.320E+5	1.610E+5	7.696E+3	10.45%	86.07%

CETIS Analytical Report

Report Date: 20 Jan-23 16:52 (p 1 of 2)
 Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test			Aquatic Bioassay & Consulting Labs, Inc.		
Analysis ID: 05-1997-3179	Endpoint: Cell Density	CETIS Version: CETISv2.1.4			
Analyzed: 20 Jan-23 16:51	Analysis: Linear Interpolation (ICPIN)	Status Level: 1			
Edit Date: 20 Jan-23 16:48	MD5 Hash: 8002C18F242E2CF77D044A91E3CE4461	Editor ID: 009-702-627-3			
Batch ID: 19-4179-0418	Test Type: Cell Growth	Analyst:			
Start Date: 12 Jan-23 13:24	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water			
Ending Date: 16 Jan-23 13:10	Species: Selenastrum capricornutum	Brine: Not Applicable			
Test Length: 96h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 7d			
Sample ID: 01-0315-3386	Code: SEL011223	Project: REF TOX			
Sample Date: 12 Jan-23 13:24	Material: Cadmium chloride	Source: Reference Toxicant			
Receipt Date:	CAS (PC):	Station: REF TOX			
Sample Age: ---	Client: Internal Lab				

Linear Interpolation Options					
X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria		TAC Limits		Overlap	Decision
Attribute	Test Stat	Lower	Upper		
Control CV	0.03087	<<	0.2	Yes	Passes Criteria
Control Resp	1.06E+6	1.00E+6	<<	Yes	Passes Criteria

Point Estimates			
Level	µg/L	95% LCL	95% UCL
IC15	34.55	31.57	37.91
IC20	39.4	35.65	48.58
IC25	53.36	40.71	62.3
IC40	88.59	84.67	92.36
IC50	102.3	99.22	105.6

Cell Density Summary		Calculated Variate							Isotonic Variate	
Conc-µg/L	Code	Count	Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	4	1.057E+6	1.044E+6	1.033E+6	1.105E+6	3.09%	0.00%	1.074E+6	0.00%
20		4	1.091E+6	1.097E+6	1.040E+6	1.131E+6	3.74%	-3.26%	1.074E+6	0.00%
40		4	8.525E+5	8.480E+5	8.250E+5	8.890E+5	3.62%	19.33%	8.525E+5	20.62%
80		4	7.118E+5	7.047E+5	6.940E+5	7.330E+5	2.91%	32.65%	7.118E+5	33.72%
140		4	2.412E+5	2.335E+5	2.190E+5	2.790E+5	10.87%	77.17%	2.412E+5	77.54%
180		4	1.472E+5	1.480E+5	1.320E+5	1.610E+5	10.45%	86.07%	1.472E+5	86.29%

Cell Density Detail					
Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.045E+6	1.033E+6	1.044E+6	1.105E+6
20		1.131E+6	1.078E+6	1.116E+6	1.040E+6
40		8.670E+5	8.290E+5	8.250E+5	8.890E+5
80		6.940E+5	7.330E+5	6.940E+5	7.260E+5
140		2.190E+5	2.370E+5	2.300E+5	2.790E+5
180		1.360E+5	1.610E+5	1.600E+5	1.320E+5

CETIS Measurement Report

Report Date: 20 Jan-23 16:52 (p 1 of 2)
 Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 19-4179-0418	Test Type: Cell Growth	Analyst:
Start Date: 12 Jan-23 13:24	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 16 Jan-23 13:10	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 96h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 7d
Sample ID: 01-0315-3386	Code: SEL011223	Project: REF TOX
Sample Date: 12 Jan-23 13:24	Material: Cadmium chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: Internal Lab	

Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	77	---	---	77	77	---	---	---	0
20		1	80	---	---	80	80	---	---	---	0
40		1	77	---	---	77	77	---	---	---	0
80		1	68	---	---	68	68	---	---	---	0
140		1	66	---	---	66	66	---	---	---	0
180		1	65	---	---	65	65	---	---	---	0
Overall		6	72.17	65.29	79.05	65	80	2.676	6.555	9.08%	0 (0%)

Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	497.6	487.7	507.5	489	510	1.591	7.956	1.60%	0
20		5	489.2	474.1	504.3	468	499	2.439	12.19	2.49%	0
40		5	453.6	434.3	472.9	445	481	3.104	15.52	3.42%	0
80		5	432.4	417.2	447.6	425	454	2.452	12.26	2.84%	0
140		5	407.8	390.9	424.7	400	432	2.722	13.61	3.34%	0
180		5	390.4	369.6	411.2	379	420	3.348	16.74	4.29%	0
Overall		30	445.2	429.5	460.8	379	510	7.646	41.88	9.41%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	118	---	---	118	118	---	---	---	0
20		1	110	---	---	110	110	---	---	---	0
40		1	125	---	---	125	125	---	---	---	0
80		1	95	---	---	95	95	---	---	---	0
140		1	98	---	---	98	98	---	---	---	0
180		1	93	---	---	93	93	---	---	---	0
Overall		6	106.5	92.63	120.4	93	125	5.396	13.22	12.41%	0 (0%)

pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.96	7.849	8.071	7.8	8	0.01789	0.08944	1.12%	0
20		5	8	8	8	8	8	0	0	0.00%	0
40		5	8	8	8	8	8	0	0	0.00%	0
80		5	8	8	8	8	8	0	0	0.00%	0
140		5	7.98	7.924	8.036	7.9	8	0.008943	0.04472	0.56%	0
180		5	7.98	7.924	8.036	7.9	8	0.008943	0.04472	0.56%	0
Overall		30	7.987	7.97	8.003	7.8	8	0.007927	0.04342	0.54%	0 (0%)

Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
20		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
40		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
80		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
140		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
180		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
Overall		30	25.28	25.21	25.35	25	25.5	0.03601	0.1972	0.78%	0 (0%)

CETIS Measurement Report

Report Date: 20 Jan-23 16:52 (p 2 of 2)
Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

CHAIN OF CUSTODY FORM

<p>Client Name/Address: Halley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p>		<p>Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall 003-007 009, 010 Outfall 009 Comp</p>		<p>Priority Pollutants-SVOCs (E25)</p>		<p>Asbestos (EPA 002) OF09 only</p>		<p>Chlorides, Diazine (E25.2)</p>		<p>Cr (VI) Total (E21.6)</p>		<p>ANALYSIS REQUIRED</p>		<p>Comments</p>		
<p>TestAmerica's services under this CoC shall be performed in accordance with the T&Ca within Blanket Service Agreement# 2019-125-TestAmerica by and between Halley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.</p>		<p>Project Manager: Katherine Miller 520.289.8906, 520.904.6944 (cell)</p>		<p>Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)</p>		<p>Preservative</p>		<p>Bottle #</p>		<p>MSMSD</p>		<p>Only at Outfall 009</p>		<p>Extract within 24-Hours of sampling.</p>		
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSMSD	Cr (VI) Total (E21.6)	Chlorides, Diazine (E25.2)	Asbestos (EPA 002) OF09 only	Priority Pollutants-SVOCs (E25)	Priority Pollutants-SVOCs (E25)	Chlorides, Diazine (E25.2)	Cr (VI) Total (E21.6)	Comments
Outfall 009	Outfall009_20230102_Comp	1/22/2023 10:04	WM	1 L Glass Amber	2	None	175	No			X	X				
	Outfall009_20230102_Comp_Extra	1/22/2023 10:10	WM	1 L Glass Amber	2	None	175	No				H				
			WM	500 mL Poly	1	None	260	No								
			WM	1 L Glass Amber	2	None	175	No								
			WM	1 L Glass Amber	2	HCl	275	No								

Relinquished By: *[Signature]* Date/Time: 1-3-23/1245 Company: HA

Relinquished By: *[Signature]* Date/Time: 01/03/23 17:05 Company: EC

Relinquished By: *[Signature]* Date/Time: 1/3/23/1245 Company: EC

Relinquished By: *[Signature]* Date/Time: EC 1-3-23 17:05 Company: EC

Legend: R = Routine, A = Annual

Received By: *[Signature]* Date/Time: 1/3/23/1245 Company: EC

Received By: *[Signature]* Date/Time: EC 1-3-23 17:05 Company: EC

Turn-around time: (Check) 24 Hour ___ 72 Hour ___ 10 Day ___ X ___
 48 Hour ___ 5 Day ___ Normal: ___
 Sample Integrity: (Check) Intact: ___ On Ice: ___
 Store samples for 6 months. Data Requirements: (Check) No Level IV ___ All Level IV ___ X ___



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab PM	Carrier Tracking No(s)	COC No.
Client Contact: 520 Mission Street, South Pasadena, CA, 91030		Patel Virendra	Patel Virendra	570-2032511	570-2032511
Shipping/Receiving Company: EMSL Analytical, Inc.		E-Mail: Virendra.Patel@eurofins.com	State of Origin: California	Page: Page 1 of 1	
Address: 520 Mission Street, South Pasadena, CA, 91030		Accreditations Required (See note): State Program - California		Job #: 570-122381-3	Preservation Codes
City: South Pasadena		Due Date Requested: 1/16/2023		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SSO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Y - Trizma Z - other (specify)	
State: CA, 91030		TAT Requested (days)		A - HCl B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Phone:		PO #:			
Email:		WO #:			
Project Name: Boeing SSFL NPDES - Outfall 009 COMP		Project #: 44024446			
Site:		SSOW#:			
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=tissue, A=air)
Outfall009_20230102_Comp (570-122381-1)	1/2/23	08 00 Pacific	Water		
Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		SUB (Asbestos 100 2) / Asbestos 100.2	
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Special Instructions/Note:		Total Number of Containers		Special Instructions/Note:	
		1		See Attached Instructions	
<p>Note: Since laboratory accreditations are subject to change Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>					
<p>Possible Hazard Identification Unconfirmed Deliverable Requested I, II, III, IV, Other (specify) _____ Months</p>					
<p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p>					
Special Instructions/QC Requirements					
Empty Kit Relinquished by:		Date:		Method of Shipment:	
Relinquished by:		Date/Time:		Received by:	
Relinquished by:		Date/Time:		Received by:	
Relinquished by:		Date/Time:		Received by:	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.		Cooler Temperature(s) °C and Other Remarks:	



ICOC No:
570-203251

Containers

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
1	Plastic 1 liter - unpreserved	None

Subcontract Method Instructions

<u>Sample IDs</u>	<u>Method</u>	<u>Method Description</u>	<u>Method Comments</u>
1	SUBCONTRACT	SUB (Asbestos 100 2)/ Asbestos 100 2	Wastewater



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122381-6

Login Number: 122381

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004
Generated 3/11/2023 2:52:35 PM

JOB DESCRIPTION

Boeing SSFL NPDES - Outfall 009 COMP

JOB NUMBER

570-122381-7

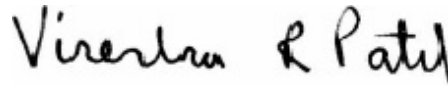
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

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Authorization



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3/11/2023 2:52:35 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-7

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-7

Job ID: 570-122381-7

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-122381-7

Comments

No additional comments.

Receipt

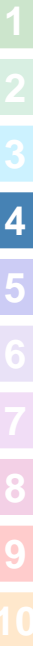
The samples were received on 1/3/2023 5:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.5° C, 1.8° C, 2.1° C and 2.9° C.

Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work

Method EPA 608.3 Low Level - Endrin Aldehyde only (ug/L units) - MDL(J): This method was subcontracted to Weck Laboratories, Inc.. The subcontract laboratory certification is different from that of the facility issuing the final report.



Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-122381-7

Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Client Sample ID: Outfall009_20230102_Comp_Extra

Lab Sample ID: 570-122381-3

No Detections.

1

2

3

4

5

6

7

8

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10

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-7

Method	Method Description	Protocol	Laboratory
608	EPA 608 Organochlorine Pesticides/PCBs i	EPA	Weck Lab

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

Weck Lab = Weck Laboratories, Inc., 14859 East Clark Avenue, City of Industry, CA 917451396



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing SSFL NPDES - Outfall 009 COMP

Job ID: 570-122381-7

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-122381-3	Outfall009_20230102_Comp_Extra	Water	01/02/23 08:00	01/03/23 17:05

1

2

3

4

5

6

7

8

9

10

Work Orders: 3B02113

Report Date: 3/09/2023

Project: 570-122381-7

Received Date: 2/2/2023

Turnaround Time: Normal

Phones: (949) 261-1022

Fax: (949) 260-3297

Attn: Virendra Patel

P.O. #:

Client: Eurofins Calscience - Tustin
2841 Dow Avenue, Suite 100
Tustin, CA 92780

Billing Code:

Dear Virendra Patel,

Enclosed are the results of analyses for samples received 2/02/23 with the Chain-of-Custody document. The samples were received in good condition, at 1.9 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: Outfall009_20230102_Comp_Extra (570-122381-3) Sampled: 01/02/23 8:00 by Client
3B02113-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 608.3			Instr: GC07				
Batch ID: W3B0658		Preparation: EPA 608/L-L SF			Prepared: 02/08/23 10:02		Analyst: RJG
Endrin aldehyde	ND	0.0038	0.010	ug/l	2	03/02/23	M-04, O-09
<i>Surrogate(s)</i>							
Decachlorobiphenyl	49%		33-133	Conc: 0.0470		03/02/23	
Tetrachloro-meta-xylene	55%		32-130	Conc: 0.0526		03/02/23	

Quality Control Results

Chlorinated Pesticides and/or PCBs by GC/ECD

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Blank (W3B0658-BLK1)					Prepared: 02/08/23 Analyzed: 03/01/23						
Endrin aldehyde	ND	0.0019	0.0050	ug/l							
<i>Surrogate(s)</i>											
Decachlorobiphenyl	0.0752			ug/l	0.100		75	33-133			
Tetrachloro-meta-xylene	0.0603			ug/l	0.100		60	32-130			
LCS (W3B0658-BS1)					Prepared: 02/08/23 Analyzed: 03/01/23						
Endrin aldehyde	0.0677	0.0019	0.0050	ug/l	0.100		68	18-130			
<i>Surrogate(s)</i>											
Decachlorobiphenyl	0.0759			ug/l	0.100		76	33-133			
Tetrachloro-meta-xylene	0.0589			ug/l	0.100		59	32-130			
LCS Dup (W3B0658-BSD1)					Prepared: 02/08/23 Analyzed: 03/01/23						
Endrin aldehyde	0.0582	0.0019	0.0050	ug/l	0.100		58	18-130	15	30	
<i>Surrogate(s)</i>											
Decachlorobiphenyl	0.0647			ug/l	0.100		65	33-133			
Tetrachloro-meta-xylene	0.0453			ug/l	0.100		45	32-130			

Notes and Definitions

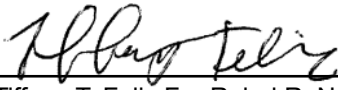
Item	Definition
M-04	Due to the nature of matrix interferences, sample extract was diluted prior to analysis. The MDL and MRL were raised due to the dilution.
O-09	This sample was received with the EPA recommended holding time expired.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Reviewed by:



Tiffany T. Felix For Rahul R. Nair
Project Manager



DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

38

ICOC No:
570-206007

Containers

Count Container Type Preservative
2 Amber Glass 1 liter - unpreserved None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
3	SUBCONTRACT	SUB (EPA 608.3 Low Level - Endrin Aldehyde only (ug/L units) - MDL(J))	Level IV, EQUIS 5C, MDL reporting w/J flag. Pe ug/L



COC	COC matches sample labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Project Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Receipt Information	Sample Temperature	1.9°C		
	Samples received on ice?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Ice Type (Blue/Wet)	WET		
	All samples intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Samples in proper containers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Sufficient sample volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Samples intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Project Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample Preservation Verification?	Sample labels checked for correct preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	VOC Headspace: (No) none, If Yes (See comment) 524.2, 524.3, 624.1, 8260, 1666 P/T, LUFT	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	pH verified upon receipt?			
	Metals <2; H2SO4 pres tests <2; 522<4; TOC <2; 525.2<2; 6710B<2; 608.3 5-9	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Free Chlorine Tested <0.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	O&G pH <2 verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	pH adjusted for O&G	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Project Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

08

PM Comments

Sample Receipt Checklist Prepared by:

Signature: Lester Abad

Date: 02/02/23

QAF-006 V1.0 12/16/2021

F:\SC\ Resources\Forms\220509 Sample Receipt Checklist.docx(Type here)

122387

CHAIN OF CUSTODY FORM

<p>Client Name/Address: Halley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p>		<p>Project: Boeing-SSFL NPDES Permit 2023 Annual Outfall 009 (003-007 009, 010) Outfall 009 Comp</p>		<p>Priority Pollutants-SVOCs (E25) Asbestos (EPA 002) OF09 only Chlorpyrifos, Diazinon (E25, 2) Cr (VI) Total (E21, 6)</p>		<p>ANALYSIS REQUIRED</p>		<p>Comments</p>		
<p>TestAmerica's services under this CoC shall be performed in accordance with the T&Ca within Blanket Service Agreement# 2019-22-TestAmerica by and between Halley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.</p>		<p>Project Manager: Katherine Miller 520.289.8906, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)</p>		<p>Priority Pollutants-SVOCs (E25) Asbestos (EPA 002) OF09 only Chlorpyrifos, Diazinon (E25, 2) Cr (VI) Total (E21, 6)</p>		<p>ANALYSIS REQUIRED</p>		<p>Comments</p>		
<p>Sample Description</p>	<p>Sample I.D.</p>	<p>Sampling Date/Time</p>	<p>Sample Matrix</p>	<p>Container Type</p>	<p># of Cont.</p>	<p>Preservative</p>	<p>Bottle #</p>	<p>MSMSD</p>	<p>Cr (VI) Total (E21, 6) Chlorpyrifos, Diazinon (E25, 2) Asbestos (EPA 002) OF09 only Priority Pollutants-SVOCs (E25)</p>	<p>Comments</p>
<p>Outfall 009</p>	<p>Outfall009_20230102_Comp</p>	<p>1/22/2023 10:04</p>	<p>WM</p>	<p>1 L Glass Amber</p>	<p>2</p>	<p>None</p>	<p>175</p>	<p>No</p>	<p>X</p>	<p>Only at Outfall 009 Extract within 24-Hours of sampling.</p>
	<p>Outfall009_20230102_Comp_Extra</p>	<p>1/22/2023 10:10</p>	<p>WM</p>	<p>500 mL Poly</p>	<p>1</p>	<p>None</p>	<p>260</p>	<p>No</p>	<p>X</p>	<p>Hold</p>
			<p>WM</p>	<p>1 L Glass Amber</p>	<p>2</p>	<p>None</p>	<p>175</p>	<p>No</p>	<p>H</p>	<p>Hold</p>
			<p>WM</p>	<p>1 L Glass Amber</p>	<p>2</p>	<p>HCl</p>	<p>275</p>	<p>No</p>	<p>H</p>	<p>Hold</p>

Relinquished By: *[Signature]* Date/Time: 1-3-23/1245 Company: HA
 Relinquished By: *[Signature]* Date/Time: 01/03/23 17:05 Company: EC
 Relinquished By: *[Signature]* Date/Time: 1/3/23/1245 Company: EC
 Relinquished By: *[Signature]* Date/Time: EC 1-3-23 17:05 Company: EC

Legend: R = Routine, A = Annual
 Received By: *[Signature]* Date/Time: 1/3/23/1245 Company: EC
 Received By: *[Signature]* Date/Time: EC 1-3-23 17:05 Company: EC

Turn-around time: (Check)
 24 Hour ___ 72 Hour ___ 10 Day ___ X ___
 48 Hour ___ 5 Day ___ Normal: ___
 Sample Integrity: (Check)
 Intact: ___ On Ice: ___
 Store samples for 6 months.
 Data Requirements: (Check)
 No Level IV ___ All Level IV ___ X ___



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel Virendra	Lab PM: Patel Virendra	Carrier Tracking No(s): 570-2032511	COC No.: 570-2032511
Client Contact: Shipping/Receiving		Phone:	E-Mail: Virendra.Patel@eurofins.com	State of Origin: California	Page: Page 1 of 1
Company: EMSL Analytical, Inc.		Accreditations Required (See note): State Program - California		Job #: 570-122381-3	Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SSO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Y - Trizma Z - other (specify) A - HCl B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:
Address: 520 Mission Street, South Pasadena, CA, 91030		Due Date Requested: 1/16/2023	Analysis Requested		
City: South Pasadena, State: CA, Zip: CA, 91030		TAT Requested (days):			
PO #: WO #:		Field Filtered Sample (Yes or No):	Perform MS/MSD (Yes or No):	SUB (Asbestos 100 2) / Asbestos 100.2	Total Number of Containers: 1
Project Name: Boeing SSFL NPDES - Outfall 009 COMP		Sample Date: 1/2/23	Sample Time: 08 00 Pacific	Preservation Code: Water	Special Instructions/Note: See Attached Instructions
Site:		Sample Type (C=Comp, G=grab):	Matrix (W=water, S=solid, O=waste/oil, BT=tissue, A=air):		
Sample Identification - Client ID (Lab ID):					
Outfall009_20230102_Comp (570-122381-1)					
<p>Possible Hazard Identification Unconfirmed Deliverable Requested I, II, III, IV, Other (specify) Primary Deliverable Rank. 2</p>					
Empty Kit Relinquished by:		Date:		Method of Shipment:	
Relinquished by:		Date/Time: 1/4/23 1450		Received by: Company	
Relinquished by:		Date/Time:		Received by: Company	
Relinquished by:		Date/Time:		Received by: Company	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.		Cooler Temperature(s) °C and Other Remarks:	



ICOC No:
570-203251

Containers

<u>Count</u>	<u>Container Type</u>	<u>Preservative</u>
1	Plastic 1 liter - unpreserved	None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Asbestos 100 2)/ Asbestos 100 2	Wastewater



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-122381-7

Login Number: 122381

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 009 Grab

JOB NUMBER

570-123266-1

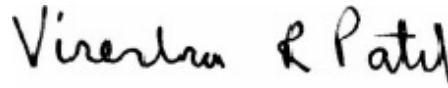
Job Notes

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Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Method Summary	12
Sample Summary	13
Chain of Custody	14
Receipt Checklists	15

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-123266-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-123266-1

Job ID: 570-123266-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-123266-1

Comments

No additional comments.

Receipt

The samples were received on 1/9/2023 5:15 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.9° C.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 1664A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-295348. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method 1664.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-123266-1

Client Sample ID: Outfall009_20230109_Grab

Lab Sample ID: 570-123266-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-123266-1

General Chemistry

Client Sample ID: Outfall009_20230109_Grab
Date Collected: 01/09/23 09:00
Date Received: 01/09/23 17:15

Lab Sample ID: 570-123266-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	ND		0.96	0.49	mg/L		01/12/23 10:07	01/12/23 15:55	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-123266-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-295348/1-A
Matrix: Water
Analysis Batch: 295498

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 295348

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		1.0	0.51	mg/L		01/12/23 10:07	01/12/23 15:55	1

Lab Sample ID: LCS 570-295348/2-A
Matrix: Water
Analysis Batch: 295498

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 295348

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	38.2		mg/L		96	78 - 114

Lab Sample ID: LCSD 570-295348/3-A
Matrix: Water
Analysis Batch: 295498

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 295348

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	38.6		mg/L		97	78 - 114	1	18

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-123266-1

General Chemistry

Prep Batch: 295348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123266-1	Outfall009_20230109_Grab	Total/NA	Water	1664A	
MB 570-295348/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-295348/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-295348/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 295498

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123266-1	Outfall009_20230109_Grab	Total/NA	Water	1664A	295348
MB 570-295348/1-A	Method Blank	Total/NA	Water	1664A	295348
LCS 570-295348/2-A	Lab Control Sample	Total/NA	Water	1664A	295348
LCSD 570-295348/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	295348

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-123266-1

Client Sample ID: Outfall009_20230109_Grab

Lab Sample ID: 570-123266-1

Date Collected: 01/09/23 09:00

Matrix: Water

Date Received: 01/09/23 17:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1664A			1037 mL	1000 mL	295348	01/12/23 10:07	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			295498	01/12/23 15:55	L6IE	EET CAL 4

Instrument ID: NO EQUIQ

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-123266-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	State	3082	07-31-23
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-23
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-12-22 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-123266-1

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-123266-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-123266-1	Outfall009_20230109_Grab	Water	01/09/23 09:00	01/09/23 17:15

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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-123266-1

Login Number: 123266

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 4/4/2023 3:23:24 PM Revision 3

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 009 - COMP

JOB NUMBER

570-123393-1

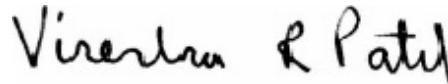
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



Generated
4/4/2023 3:23:24 PM
Revision 3

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Qualifiers

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Job ID: 570-123393-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-123393-1

Comments

No additional comments.

Revision

The report being provided is a revision of the original report sent on 1/23/2023. The report (revision 3) is being revised due to: Revised to report only Nitrate Calc method, removed NO2/NO3.

Report revision history

Revision 1 - 2/7/2023 - Reason - Narrative revised to remove 200.7 comment for Zinc..

Revision 2 - 4/4/2023 - Reason - Revised to report only Nitrate Calc method, removed NO2/NO3.

Receipt

The samples were received on 1/10/2023 5:55 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.3° C and 1.9° C.

Receipt Exceptions

The reference method requires samples to be preserved to a pH of <2. The following samples were received with insufficient preservation at a pH of 7: Outfall009_20230110_Comp (570-123393-1) and Outfall002_20230110_Comp (570-123414-1). The samples were preserved to the appropriate pH in the laboratory.

sample 1 received 1 of 2 containers broken. Outfall009_20230110_Comp (570-123393-1)

HPLC/IC

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

Method 200.7 Rev 4.4: The method blank for preparation batch 570-295622 and analytical batch 570-295754 contained Zinc above the method detection limit. This target analyte concentration was less than the reporting limit (RL) or greater than 10X the value found in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

Method 200.8: The method blank for preparation batch 570-295400 and analytical batch 570-295684 contained Zinc above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall009_20230110_Comp_F (570-123393-2). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall009_20230110_Comp_F (570-123393-2). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Client Sample ID: Outfall009_20230110_Comp

Lab Sample ID: 570-123393-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	2.9		1.0	0.36	mg/L	1		300.0	Total/NA
Sulfate	3.0		1.0	0.24	mg/L	1		300.0	Total/NA
Nitrate Nitrite as N	1.2		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Copper	4.4		2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	1.2		1.0	0.12	ug/L	1		200.8	Total Recoverable
Antimony	0.85	J,DX	2.0	0.36	ug/L	1		200.8	Total Recoverable
Nickel	1.6	J,DX	2.0	0.17	ug/L	1		200.8	Total Recoverable
Zinc	9.3	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Total Dissolved Solids	74		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	5.2		1.3	1.0	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Outfall009_20230110_Comp_F

Lab Sample ID: 570-123393-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	2.4	BU	2.0	0.32	ug/L	1		200.8	Dissolved
Lead	0.30	J,DX BU	1.0	0.12	ug/L	1		200.8	Dissolved
Antimony	0.94	J,DX BU	2.0	0.36	ug/L	1		200.8	Dissolved
Selenium	0.66	J,DX BU	2.0	0.52	ug/L	1		200.8	Dissolved
Nickel	1.4	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Zinc	4.6	J,DX BU MB	20	2.8	ug/L	1		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall009_20230110_Comp

Date Collected: 01/10/23 09:30

Date Received: 01/10/23 17:55

Lab Sample ID: 570-123393-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2.9		1.0	0.36	mg/L			01/11/23 09:24	1
Sulfate	3.0		1.0	0.24	mg/L			01/11/23 09:24	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall009_20230110_Comp

Date Collected: 01/10/23 09:30

Date Received: 01/10/23 17:55

Lab Sample ID: 570-123393-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	1.2		0.10	0.020	mg/L			01/30/23 10:15	1

- 1
- 2
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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall009_20230110_Comp

Date Collected: 01/10/23 09:30

Date Received: 01/10/23 17:55

Lab Sample ID: 570-123393-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.23	ug/L		01/13/23 08:13	01/13/23 14:26	1
Cadmium	ND		1.0	0.13	ug/L		01/13/23 08:13	01/13/23 14:26	1
Copper	4.4		2.0	0.32	ug/L		01/13/23 08:13	01/13/23 14:26	1
Lead	1.2		1.0	0.12	ug/L		01/13/23 08:13	01/13/23 14:26	1
Antimony	0.85	J,DX	2.0	0.36	ug/L		01/13/23 08:13	01/13/23 14:26	1
Selenium	ND		2.0	0.52	ug/L		01/13/23 08:13	01/13/23 14:26	1
Thallium	ND		1.0	0.11	ug/L		01/13/23 08:13	01/13/23 14:26	1
Nickel	1.6	J,DX	2.0	0.17	ug/L		01/13/23 08:13	01/13/23 14:26	1
Zinc	9.3	J,DX	20	2.8	ug/L		01/13/23 08:13	01/13/23 14:26	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall009_20230110_Comp_F
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 17:55

Lab Sample ID: 570-123393-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND	BU	1.0	0.23	ug/L			01/13/23 10:32	1
Cadmium	ND	BU	1.0	0.13	ug/L			01/13/23 10:32	1
Copper	2.4	BU	2.0	0.32	ug/L			01/13/23 10:32	1
Lead	0.30	J,DX BU	1.0	0.12	ug/L			01/13/23 10:32	1
Antimony	0.94	J,DX BU	2.0	0.36	ug/L			01/13/23 10:32	1
Selenium	0.66	J,DX BU	2.0	0.52	ug/L			01/13/23 10:32	1
Thallium	ND	BU	1.0	0.11	ug/L			01/13/23 10:32	1
Nickel	1.4	J,DX BU	2.0	0.17	ug/L			01/13/23 10:32	1
Zinc	4.6	J,DX BU MB	20	2.8	ug/L			01/13/23 10:32	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall009_20230110_Comp
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 17:55

Lab Sample ID: 570-123393-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/12/23 18:36	01/13/23 15:20	1

- 1
- 2
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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall009_20230110_Comp_F
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 17:55

Lab Sample ID: 570-123393-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU	0.20	0.12	ug/L		01/11/23 18:15	01/16/23 17:59	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

General Chemistry

Client Sample ID: Outfall009_20230110_Comp

Date Collected: 01/10/23 09:30

Date Received: 01/10/23 17:55

Lab Sample ID: 570-123393-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			01/11/23 14:55	1
Total Dissolved Solids (SM 2540C)	74		10	8.7	mg/L			01/13/23 19:50	1
Total Suspended Solids (SM 2540D)	5.2		1.3	1.0	mg/L			01/13/23 14:53	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-294999/5
Matrix: Water
Analysis Batch: 294999

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			01/11/23 07:57	1
Sulfate	ND		1.0	0.24	mg/L			01/11/23 07:57	1

Lab Sample ID: LCS 570-294999/6
Matrix: Water
Analysis Batch: 294999

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	49.3		mg/L		99	90 - 110
Sulfate	50.0	49.1		mg/L		98	90 - 110

Lab Sample ID: LCSD 570-294999/7
Matrix: Water
Analysis Batch: 294999

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	49.3		mg/L		99	90 - 110	0	15
Sulfate	50.0	49.2		mg/L		98	90 - 110	0	15

Lab Sample ID: 570-123391-K-2 MS
Matrix: Water
Analysis Batch: 294999

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	30		50.0	87.5		mg/L		116	80 - 120
Sulfate	10		50.0	63.3		mg/L		106	80 - 120

Lab Sample ID: 570-123391-K-2 MSD
Matrix: Water
Analysis Batch: 294999

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	30		50.0	87.5		mg/L		116	80 - 120	0	20
Sulfate	10		50.0	63.2		mg/L		106	80 - 120	0	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-295623/1-A
Matrix: Water
Analysis Batch: 295781

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 295623

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.23	ug/L		01/13/23 08:13	01/13/23 13:51	1
Cadmium	ND		1.0	0.13	ug/L		01/13/23 08:13	01/13/23 13:51	1
Copper	ND		2.0	0.32	ug/L		01/13/23 08:13	01/13/23 13:51	1
Lead	ND		1.0	0.12	ug/L		01/13/23 08:13	01/13/23 13:51	1
Antimony	ND		2.0	0.36	ug/L		01/13/23 08:13	01/13/23 13:51	1
Selenium	ND		2.0	0.52	ug/L		01/13/23 08:13	01/13/23 13:51	1
Thallium	ND		1.0	0.11	ug/L		01/13/23 08:13	01/13/23 13:51	1
Nickel	ND		2.0	0.17	ug/L		01/13/23 08:13	01/13/23 13:51	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 570-295623/1-A
Matrix: Water
Analysis Batch: 295781

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 295623

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		20	2.8	ug/L		01/13/23 08:13	01/13/23 13:51	1

Lab Sample ID: LCS 570-295623/2-A
Matrix: Water
Analysis Batch: 295781

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 295623

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	50.0	49.4		ug/L		99	85 - 115
Cadmium	100	99.9		ug/L		100	85 - 115
Copper	100	107		ug/L		107	85 - 115
Lead	100	101		ug/L		101	85 - 115
Antimony	100	86.7		ug/L		87	85 - 115
Selenium	100	99.1		ug/L		99	85 - 115
Thallium	100	100		ug/L		100	85 - 115
Nickel	100	101		ug/L		101	85 - 115
Zinc	100	102		ug/L		102	85 - 115

Lab Sample ID: LCSD 570-295623/3-A
Matrix: Water
Analysis Batch: 295781

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 295623

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Silver	50.0	51.4		ug/L		103	85 - 115	4	20
Cadmium	100	103		ug/L		103	85 - 115	3	20
Copper	100	107		ug/L		107	85 - 115	0	20
Lead	100	104		ug/L		104	85 - 115	3	20
Antimony	100	92.2		ug/L		92	85 - 115	6	20
Selenium	100	102		ug/L		102	85 - 115	3	20
Thallium	100	104		ug/L		104	85 - 115	4	20
Nickel	100	106		ug/L		106	85 - 115	4	20
Zinc	100	103		ug/L		103	85 - 115	2	20

Lab Sample ID: 570-123393-1 MS
Matrix: Water
Analysis Batch: 295781

Client Sample ID: Outfall009_20230110_Comp
Prep Type: Total Recoverable
Prep Batch: 295623

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	ND		50.0	49.5		ug/L		99	80 - 120
Cadmium	ND		100	99.6		ug/L		100	80 - 120
Copper	4.4		100	107		ug/L		103	80 - 120
Lead	1.2		100	101		ug/L		100	80 - 120
Antimony	0.85	J,DX	100	98.9		ug/L		98	80 - 120
Selenium	ND		100	93.4		ug/L		93	80 - 120
Thallium	ND		100	101		ug/L		101	80 - 120
Nickel	1.6	J,DX	100	102		ug/L		101	80 - 120
Zinc	9.3	J,DX	100	103		ug/L		94	80 - 120

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-123393-1 MSD

Matrix: Water

Analysis Batch: 295781

Client Sample ID: Outfall009_20230110_Comp

Prep Type: Total Recoverable

Prep Batch: 295623

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Silver	ND		50.0	49.6		ug/L		99	80 - 120	0	20
Cadmium	ND		100	100		ug/L		100	80 - 120	0	20
Copper	4.4		100	106		ug/L		102	80 - 120	1	20
Lead	1.2		100	102		ug/L		101	80 - 120	0	20
Antimony	0.85	J,DX	100	98.9		ug/L		98	80 - 120	0	20
Selenium	ND		100	97.8		ug/L		98	80 - 120	5	20
Thallium	ND		100	101		ug/L		101	80 - 120	1	20
Nickel	1.6	J,DX	100	102		ug/L		100	80 - 120	1	20
Zinc	9.3	J,DX	100	105		ug/L		96	80 - 120	2	20

Lab Sample ID: MB 570-295400/1-A

Matrix: Water

Analysis Batch: 295684

Client Sample ID: Method Blank

Prep Type: Dissolved

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Silver	ND		1.0	0.23	ug/L			01/13/23 10:03	1
Cadmium	ND		1.0	0.13	ug/L			01/13/23 10:03	1
Copper	ND		2.0	0.32	ug/L			01/13/23 10:03	1
Lead	ND		1.0	0.12	ug/L			01/13/23 10:03	1
Antimony	ND		2.0	0.36	ug/L			01/13/23 10:03	1
Selenium	ND		2.0	0.52	ug/L			01/13/23 10:03	1
Thallium	ND		1.0	0.11	ug/L			01/13/23 10:03	1
Nickel	ND		2.0	0.17	ug/L			01/13/23 10:03	1
Zinc	2.95	J,DX	20	2.8	ug/L			01/13/23 10:03	1

Lab Sample ID: LCS 570-295400/2-A

Matrix: Water

Analysis Batch: 295684

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec
		Added	Result				Qualifier
Silver	80.0	81.0		ug/L		101	85 - 115
Cadmium	80.0	80.8		ug/L		101	85 - 115
Copper	80.0	82.0		ug/L		102	85 - 115
Lead	80.0	80.6		ug/L		101	85 - 115
Antimony	80.0	80.0		ug/L		100	85 - 115
Selenium	80.0	77.7		ug/L		97	85 - 115
Thallium	80.0	81.0		ug/L		101	85 - 115
Nickel	80.0	80.9		ug/L		101	85 - 115
Zinc	80.0	79.0		ug/L		99	85 - 115

Lab Sample ID: LCSD 570-295400/3-A

Matrix: Water

Analysis Batch: 295684

Client Sample ID: Lab Control Sample Dup

Prep Type: Dissolved

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec	RPD	Limit
		Added	Result				Qualifier		
Silver	80.0	80.8		ug/L		101	85 - 115	0	20
Cadmium	80.0	80.9		ug/L		101	85 - 115	0	20
Copper	80.0	83.1		ug/L		104	85 - 115	1	20
Lead	80.0	82.7		ug/L		103	85 - 115	3	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 570-295400/3-A
Matrix: Water
Analysis Batch: 295684

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	80.0	81.1		ug/L		101	85 - 115	1	20
Selenium	80.0	77.3		ug/L		97	85 - 115	1	20
Thallium	80.0	83.7		ug/L		105	85 - 115	3	20
Nickel	80.0	81.5		ug/L		102	85 - 115	1	20
Zinc	80.0	79.0		ug/L		99	85 - 115	0	20

Lab Sample ID: 570-123391-C-1-C MS
Matrix: Water
Analysis Batch: 295684

Client Sample ID: Matrix Spike
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silver	ND		20.0	19.1		ug/L		96	80 - 120		
Cadmium	ND		40.0	39.1		ug/L		98	80 - 120		
Copper	5.9		40.0	45.8		ug/L		100	80 - 120		
Lead	ND		40.0	39.6		ug/L		99	80 - 120		
Antimony	0.62	J,DX	40.0	35.7		ug/L		88	80 - 120		
Selenium	0.65	J,DX	40.0	38.2		ug/L		94	80 - 120		
Thallium	ND		40.0	39.8		ug/L		99	80 - 120		
Nickel	1.7	J,DX	40.0	41.3		ug/L		99	80 - 120		
Zinc	13	J,DX MB	40.0	49.8		ug/L		93	80 - 120		

Lab Sample ID: 570-123391-C-1-D MSD
Matrix: Water
Analysis Batch: 295684

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silver	ND		20.0	18.6		ug/L		93	80 - 120	3	20
Cadmium	ND		40.0	38.2		ug/L		96	80 - 120	2	20
Copper	5.9		40.0	44.8		ug/L		97	80 - 120	2	20
Lead	ND		40.0	38.5		ug/L		96	80 - 120	3	20
Antimony	0.62	J,DX	40.0	35.9		ug/L		88	80 - 120	1	20
Selenium	0.65	J,DX	40.0	37.1		ug/L		91	80 - 120	3	20
Thallium	ND		40.0	38.8		ug/L		97	80 - 120	3	20
Nickel	1.7	J,DX	40.0	40.2		ug/L		96	80 - 120	2	20
Zinc	13	J,DX MB	40.0	47.3		ug/L		87	80 - 120	5	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-295551/1-A
Matrix: Water
Analysis Batch: 295765

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 295551

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/12/23 18:36	01/13/23 14:46	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 570-295551/2-A
Matrix: Water
Analysis Batch: 295765

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 295551

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	6.98		ug/L		87	85 - 115

Lab Sample ID: LCSD 570-295551/3-A
Matrix: Water
Analysis Batch: 295765

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 295551

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	8.00	7.17		ug/L		90	85 - 115	3	10

Lab Sample ID: 570-123324-H-1-D MS
Matrix: Water
Analysis Batch: 295765

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 295551

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.06		ug/L		101	85 - 115

Lab Sample ID: 570-123324-H-1-E MSD
Matrix: Water
Analysis Batch: 295765

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 295551

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	ND		8.00	7.98		ug/L		100	85 - 115	1	10

Lab Sample ID: MB 570-295217/1-B
Matrix: Water
Analysis Batch: 296261

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 295283

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/11/23 18:15	01/16/23 17:29	1

Lab Sample ID: LCS 570-295217/2-B
Matrix: Water
Analysis Batch: 296261

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 295283

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.65		ug/L		108	85 - 115

Lab Sample ID: LCSD 570-295217/3-B
Matrix: Water
Analysis Batch: 296261

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 295283

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	8.00	8.54		ug/L		107	85 - 115	1	10

Lab Sample ID: 570-123377-B-1-E MS
Matrix: Water
Analysis Batch: 296261

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 295283

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.08		ug/L		101	85 - 115

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: 570-123377-B-1-F MSD
Matrix: Water
Analysis Batch: 296261

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 295283

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	8.45		ug/L		106	85 - 115	4	10

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-295446/11
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			01/11/23 14:55	1

Lab Sample ID: LCS 570-295446/12
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	255		ug/L		102	90 - 110

Lab Sample ID: LCSD 570-295446/18
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	250	233		ug/L		93	90 - 110	9	20

Lab Sample ID: MRL 570-295446/10
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	5.00	4.11	J,DX	ug/L		82	50 - 150

Lab Sample ID: 570-122475-D-1 MS
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	8.7		250	226		ug/L		87	70 - 130

Lab Sample ID: 570-122475-D-1 MSD
Matrix: Water
Analysis Batch: 295446

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	8.7		250	266		ug/L		103	70 - 130	16	30

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-295879/1
Matrix: Water
Analysis Batch: 295879

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			01/13/23 19:50	1

Lab Sample ID: LCS 570-295879/2
Matrix: Water
Analysis Batch: 295879

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1010		mg/L		101	84 - 108

Lab Sample ID: LCSD 570-295879/3
Matrix: Water
Analysis Batch: 295879

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1030		mg/L		103	84 - 108	2	10

Lab Sample ID: 570-123290-K-2 DU
Matrix: Water
Analysis Batch: 295879

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	220		208		mg/L		7	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-295772/1
Matrix: Water
Analysis Batch: 295772

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			01/13/23 14:53	1

Lab Sample ID: LCS 570-295772/2
Matrix: Water
Analysis Batch: 295772

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	105		mg/L		105	77 - 116

Lab Sample ID: LCSD 570-295772/3
Matrix: Water
Analysis Batch: 295772

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	106		mg/L		106	77 - 116	1	10

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: 570-123462-I-5 DU
Matrix: Water
Analysis Batch: 295772

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	70		70.0		mg/L		0.4	10

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

HPLC/IC

Analysis Batch: 294999

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-1	Outfall009_20230110_Comp	Total/NA	Water	300.0	
MB 570-294999/5	Method Blank	Total/NA	Water	300.0	
LCS 570-294999/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-294999/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-123391-K-2 MS	Matrix Spike	Total/NA	Water	300.0	
570-123391-K-2 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 299523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-1	Outfall009_20230110_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Filtration Batch: 295217

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-2	Outfall009_20230110_Comp_F	Dissolved	Water	Filtration	
MB 570-295217/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-295217/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-295217/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-123377-B-1-E MS	Matrix Spike	Dissolved	Water	Filtration	
570-123377-B-1-F MSD	Matrix Spike Duplicate	Dissolved	Water	Filtration	

Prep Batch: 295283

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-2	Outfall009_20230110_Comp_F	Dissolved	Water	245.1	295217
MB 570-295217/1-B	Method Blank	Dissolved	Water	245.1	295217
LCS 570-295217/2-B	Lab Control Sample	Dissolved	Water	245.1	295217
LCSD 570-295217/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	295217
570-123377-B-1-E MS	Matrix Spike	Dissolved	Water	245.1	295217
570-123377-B-1-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	295217

Filtration Batch: 295400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-2	Outfall009_20230110_Comp_F	Dissolved	Water	Filtration	
MB 570-295400/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-295400/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-295400/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-123391-C-1-C MS	Matrix Spike	Dissolved	Water	Filtration	
570-123391-C-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	Filtration	

Prep Batch: 295551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-1	Outfall009_20230110_Comp	Total/NA	Water	245.1	
MB 570-295551/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-295551/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-295551/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-123324-H-1-D MS	Matrix Spike	Total/NA	Water	245.1	
570-123324-H-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Metals

Prep Batch: 295623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-1	Outfall009_20230110_Comp	Total Recoverable	Water	200.8	
MB 570-295623/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-295623/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-295623/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-123393-1 MS	Outfall009_20230110_Comp	Total Recoverable	Water	200.8	
570-123393-1 MSD	Outfall009_20230110_Comp	Total Recoverable	Water	200.8	

Analysis Batch: 295684

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-2	Outfall009_20230110_Comp_F	Dissolved	Water	200.8	295400
MB 570-295400/1-A	Method Blank	Dissolved	Water	200.8	295400
LCS 570-295400/2-A	Lab Control Sample	Dissolved	Water	200.8	295400
LCSD 570-295400/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	295400
570-123391-C-1-C MS	Matrix Spike	Dissolved	Water	200.8	295400
570-123391-C-1-D MSD	Matrix Spike Duplicate	Dissolved	Water	200.8	295400

Analysis Batch: 295765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-1	Outfall009_20230110_Comp	Total/NA	Water	245.1	295551
MB 570-295551/1-A	Method Blank	Total/NA	Water	245.1	295551
LCS 570-295551/2-A	Lab Control Sample	Total/NA	Water	245.1	295551
LCSD 570-295551/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	295551
570-123324-H-1-D MS	Matrix Spike	Total/NA	Water	245.1	295551
570-123324-H-1-E MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	295551

Analysis Batch: 295781

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-1	Outfall009_20230110_Comp	Total Recoverable	Water	200.8	295623
MB 570-295623/1-A	Method Blank	Total Recoverable	Water	200.8	295623
LCS 570-295623/2-A	Lab Control Sample	Total Recoverable	Water	200.8	295623
LCSD 570-295623/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	295623
570-123393-1 MS	Outfall009_20230110_Comp	Total Recoverable	Water	200.8	295623
570-123393-1 MSD	Outfall009_20230110_Comp	Total Recoverable	Water	200.8	295623

Analysis Batch: 296261

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-2	Outfall009_20230110_Comp_F	Dissolved	Water	245.1	295283
MB 570-295217/1-B	Method Blank	Dissolved	Water	245.1	295283
LCS 570-295217/2-B	Lab Control Sample	Dissolved	Water	245.1	295283
LCSD 570-295217/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	295283
570-123377-B-1-E MS	Matrix Spike	Dissolved	Water	245.1	295283
570-123377-B-1-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	295283

General Chemistry

Analysis Batch: 295446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-1	Outfall009_20230110_Comp	Total/NA	Water	Kelada 01	
MB 570-295446/11	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-295446/12	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-295446/18	Lab Control Sample Dup	Total/NA	Water	Kelada 01	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

General Chemistry (Continued)

Analysis Batch: 295446 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MRL 570-295446/10	Lab Control Sample	Total/NA	Water	Kelada 01	
570-122475-D-1 MS	Matrix Spike	Total/NA	Water	Kelada 01	
570-122475-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	Kelada 01	

Analysis Batch: 295772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-1	Outfall009_20230110_Comp	Total/NA	Water	SM 2540D	
MB 570-295772/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-295772/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-295772/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
570-123462-I-5 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 295879

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-1	Outfall009_20230110_Comp	Total/NA	Water	SM 2540C	
MB 570-295879/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-295879/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-295879/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
570-123290-K-2 DU	Duplicate	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Client Sample ID: Outfall009_20230110_Comp

Lab Sample ID: 570-123393-1

Date Collected: 01/10/23 09:30

Matrix: Water

Date Received: 01/10/23 17:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	4 mL	4 mL	294999	01/11/23 09:24	PS	EET CAL 4
	Instrument ID: IC9									
Total/NA	Analysis	NO2NO3 Calc		1			299523	01/30/23 10:15	UWCT	EET CAL 4
	Instrument ID: IC9									
Total Recoverable	Prep	200.8			50 mL	50 mL	295623	01/13/23 08:13	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			295781	01/13/23 14:26	Y2WS	EET CAL 4
	Instrument ID: ICPMS10									
Total/NA	Prep	245.1			25 mL	50 mL	295551	01/12/23 18:36	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			295765	01/13/23 15:20	C0YH	EET CAL 4
	Instrument ID: HG8									
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	295446	01/11/23 14:55	GG0B	EET CAL 4
	Instrument ID: NOEQUIP									
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	295879	01/13/23 19:50	ZL7L	EET CAL 4
	Instrument ID: NOEQUIP									
Total/NA	Analysis	SM 2540D		1	800 mL	1000 mL	295772	01/13/23 14:53	UWCT	EET CAL 4
	Instrument ID: NOEQUIP									

Client Sample ID: Outfall009_20230110_Comp_F

Lab Sample ID: 570-123393-2

Date Collected: 01/10/23 09:30

Matrix: Water

Date Received: 01/10/23 17:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	295400	01/12/23 15:37	W1BQ	EET CAL 4
Dissolved	Analysis	200.8		1			295684	01/13/23 10:32	Y2WS	EET CAL 4
	Instrument ID: ICPMS10									
Dissolved	Filtration	Filtration			25 mL	50 mL	295217	01/11/23 17:44	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	295283	01/11/23 18:15	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			296261	01/16/23 17:59	C0YH	EET CAL 4
	Instrument ID: HG8									

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-23
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4

Protocol References:

- EPA = US Environmental Protection Agency
- None = None
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

- EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-123393-1	Outfall009_20230110_Comp	Water	01/10/23 09:30	01/10/23 17:55
570-123393-2	Outfall009_20230110_Comp_F	Water	01/10/23 09:30	01/10/23 17:55

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Eurofins Calscience Irvine

570-123393 Chain of Custody

CHAIN OF CUSTODY FORM

123393

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Eurofins Calscience Irvine Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel: 949-260-3218

Project:
Boeing-SSFL NPDES
Permit 2023
Routine Outfall 009-007 009 010
Outfall 009
Comp

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)
Field Manager: Mark Dominick
978.234.5033, 818.599.0702 (cell)

Sample Description	Sample I.D.	Sample Matrix	Sampling Date/Time	Container Type	# of Cont.	Preservative	MSMSD
		WM		500 mL Poly	1	HNO ₃	95
		WM		1 L Glass Amber	2	None	110
		WM		500 mL Poly	2	None	145
		WM		500 mL Poly	1	None	155
		WM		500 mL Poly	1	NaOH	220
		WM		2.5 Gal Cube	1	None	225
		WM		1 L Glass Amber	1	None	230
		WM		1 Gal Cube	6	None	235
		WM		1 L Poly	1	None	185
		WM		1 L Poly	1	None	205
		WM		borosilicate vials	1	None	320
		WM		1 L Glass Amber	2	None	110
		WM		500 mL Poly	2	None	145

Outfall009_20230110_Comp

Outfall009_20230110_Comp_F

Outfall009_20230110_Comp_Extra

Relinquished By: *Mark Dominick* Date/Time: 1-10-2023 1235 HA Company: *HA*

Relinquished By: *[Signature]* Date/Time: 1/10/23 1755 EC Company: *EC*

Relinquished By: *[Signature]* Date/Time: 1/10/23 1755 EC Company: *EC*

Legend EP=Expert Panel, R=Routine

Relinquished By: *[Signature]* Date/Time: 1/10/23 1235 EC Company: *EC*

Relinquished By: *[Signature]* Date/Time: 1/10/23 1755 EC Company: *EC*

Relinquished By: *[Signature]* Date/Time: 1/10/23 1755 EC Company: *EC*

Turn-around time: (Check)
24 Hour _____ 72 Hour _____ 10 Day _____ X
48 Hour _____ 5 Day _____ Normal: _____

Sample Integrity (Check)
Intact: _____ On Ice: _____
Store samples for 6 months. _____
Data Requirements: (Check)
No Level IV: _____ All Level IV: _____ X

* Handl. delivered to ABC Labs with copy of COC 1-3/13 1-9/19 5c11



ICOC No
570-203785

Containers
Count

Container Type

Preservative

- 1
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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-123393-1

Login Number: 123393

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004
Generated 2/6/2023 12:37:55 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 009 - COMP

JOB NUMBER

570-123393-2

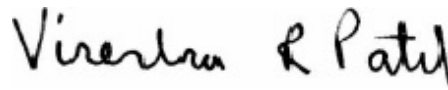
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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2/6/2023 12:37:55 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
♠	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-2

Job ID: 570-123393-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-123393-2

Comments

No additional comments.

Receipt

The samples were received on 1/10/2023 5:55 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.3° C and 1.9° C.

Dioxin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-2

Client Sample ID: Outfall009_20230110_Comp

Lab Sample ID: 570-123393-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,7,8-HxCDD	0.0000015	J,DX MB q	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				77					
1,2,3,6,7,8-HxCDD	0.0000040	J,DX MB q	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				96					
1,2,3,7,8,9-HxCDD	0.0000043	J,DX MB q	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				78					
1,2,3,4,6,7,8-HpCDD	0.0000074	J,DX MB q	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				6					
1,2,3,4,6,7,8-HpCDF	0.0000036	J,DX MB	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				2					
OCDD	0.00012	MB	0.000095	0.0000002	ug/L	1		1613B	Total/NA
				4					
OCDF	0.0000062	J,DX MB	0.000095	0.0000002	ug/L	1		1613B	Total/NA
				4					
Total HxCDD	0.0000034	J,DX MB q	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				77					
Total HpCDD	0.000017	J,DX MB q	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				6					
Total HpCDF	0.0000060	J,DX MB q	0.000048	0.0000001	ug/L	1		1613B	Total/NA
				2					

This Detection Summary does not include radiochemical test results.

Eurofins Calscience



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall009_20230110_Comp

Date Collected: 01/10/23 09:30

Date Received: 01/10/23 17:55

Lab Sample ID: 570-123393-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000095	0.0000004	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
2,3,7,8-TCDF	ND		0.0000095	0.0000001	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
1,2,3,7,8-PeCDD	ND		0.000048	0.00000011	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
1,2,3,7,8-PeCDF	ND		0.000048	0.0000000	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
2,3,4,7,8-PeCDF	ND		0.000048	0.0000000	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
1,2,3,4,7,8-HxCDD	0.0000015	J,DX MB q	0.000048	0.0000000	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
1,2,3,6,7,8-HxCDD	0.0000040	J,DX MB q	0.000048	0.0000000	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
1,2,3,7,8,9-HxCDD	0.0000043	J,DX MB q	0.000048	0.0000000	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
1,2,3,4,7,8-HxCDF	ND		0.000048	0.0000000	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
1,2,3,6,7,8-HxCDF	ND		0.000048	0.0000000	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
1,2,3,7,8,9-HxCDF	ND		0.000048	0.0000000	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
2,3,4,6,7,8-HxCDF	ND		0.000048	0.0000000	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
1,2,3,4,6,7,8-HpCDD	0.0000074	J,DX MB q	0.000048	0.0000001	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
1,2,3,4,6,7,8-HpCDF	0.0000036	J,DX MB	0.000048	0.0000001	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
1,2,3,4,7,8,9-HpCDF	ND		0.000048	0.0000001	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
OCDD	0.00012	MB	0.000095	0.0000002	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
OCDF	0.0000062	J,DX MB	0.000095	0.0000002	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
Total TCDD	ND		0.0000095	0.0000004	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
Total TCDF	ND		0.0000095	0.0000001	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
Total PeCDD	ND		0.000048	0.00000011	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
Total PeCDF	ND		0.000048	0.0000000	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
Total HxCDD	0.0000034	J,DX MB q	0.000048	0.0000000	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
Total HxCDF	ND		0.000048	0.0000000	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
Total HpCDD	0.000017	J,DX MB q	0.000048	0.0000001	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
Total HpCDF	0.0000060	J,DX MB q	0.000048	0.0000001	ug/L	-	01/19/23 11:44	01/31/23 18:53	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	74		25 - 164				01/19/23 11:44	01/31/23 18:53	1
13C-2,3,7,8-TCDF	68		24 - 169				01/19/23 11:44	01/31/23 18:53	1
13C-1,2,3,7,8-PeCDD	86		25 - 181				01/19/23 11:44	01/31/23 18:53	1
13C-1,2,3,7,8-PeCDF	85		24 - 185				01/19/23 11:44	01/31/23 18:53	1
13C-2,3,4,7,8-PeCDF	84		21 - 178				01/19/23 11:44	01/31/23 18:53	1
13C-1,2,3,4,7,8-HxCDD	107		32 - 141				01/19/23 11:44	01/31/23 18:53	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall009_20230110_Comp
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 17:55

Lab Sample ID: 570-123393-1
Matrix: Water

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-1,2,3,6,7,8-HxCDD	86		28 - 130	01/19/23 11:44	01/31/23 18:53	1
13C-1,2,3,4,7,8-HxCDF	113		26 - 152	01/19/23 11:44	01/31/23 18:53	1
13C-1,2,3,6,7,8-HxCDF	111		26 - 123	01/19/23 11:44	01/31/23 18:53	1
13C-1,2,3,7,8,9-HxCDF	100		29 - 147	01/19/23 11:44	01/31/23 18:53	1
13C-2,3,4,6,7,8-HxCDF	114		28 - 136	01/19/23 11:44	01/31/23 18:53	1
13C-1,2,3,4,6,7,8-HpCDD	110		23 - 140	01/19/23 11:44	01/31/23 18:53	1
13C-1,2,3,4,6,7,8-HpCDF	100		28 - 143	01/19/23 11:44	01/31/23 18:53	1
13C-1,2,3,4,7,8,9-HpCDF	111		26 - 138	01/19/23 11:44	01/31/23 18:53	1
13C-OCDD	89		17 - 157	01/19/23 11:44	01/31/23 18:53	1
13C-OCDF	108		17 - 157	01/19/23 11:44	01/31/23 18:53	1
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
37Cl4-2,3,7,8-TCDD	85		35 - 197	01/19/23 11:44	01/31/23 18:53	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-123393-1	Outfall009_20230110_Comp	85
MB 320-648057/1-A	Method Blank	85

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-648057/2-A	Lab Control Sample	86
LCSD 320-648057/3-A	Lab Control Sample Dup	89

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-123393-1	Outfall009_20230110_Comp	74	68	86	85	84	107	86	113
MB 320-648057/1-A	Method Blank	63	60	77	72	76	90	76	97

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-123393-1	Outfall009_20230110_Comp	111	100	114	110	100	111	89	108
MB 320-648057/1-A	Method Blank	97	85	98	89	83	90	71	87

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- OCDD = 13C-OCDD
- OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-648057/2-A	Lab Control Sample	61	56	74	74	72	88	73	93
LCSD 320-648057/3-A	Lab Control Sample Dup	67	64	75	75	78	97	77	101

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-648057/2-A	Lab Control Sample	90	87	95	92	83	97	79	98
LCSD 320-648057/3-A	Lab Control Sample Dup	100	91	104	93	88	93	77	92

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-123393-2

Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

HxCDF = 13C-1,2,3,7,8,9-HxCDF

13CHxCDF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-648057/1-A
Matrix: Water
Analysis Batch: 650623

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 648057

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-2,3,4,7,8-PeCDF	76		21 - 178	01/19/23 11:44	01/31/23 12:28	1
13C-1,2,3,4,7,8-HxCDD	90		32 - 141	01/19/23 11:44	01/31/23 12:28	1
13C-1,2,3,6,7,8-HxCDD	76		28 - 130	01/19/23 11:44	01/31/23 12:28	1
13C-1,2,3,4,7,8-HxCDF	97		26 - 152	01/19/23 11:44	01/31/23 12:28	1
13C-1,2,3,6,7,8-HxCDF	97		26 - 123	01/19/23 11:44	01/31/23 12:28	1
13C-1,2,3,7,8,9-HxCDF	85		29 - 147	01/19/23 11:44	01/31/23 12:28	1
13C-2,3,4,6,7,8-HxCDF	98		28 - 136	01/19/23 11:44	01/31/23 12:28	1
13C-1,2,3,4,6,7,8-HpCDD	89		23 - 140	01/19/23 11:44	01/31/23 12:28	1
13C-1,2,3,4,6,7,8-HpCDF	83		28 - 143	01/19/23 11:44	01/31/23 12:28	1
13C-1,2,3,4,7,8,9-HpCDF	90		26 - 138	01/19/23 11:44	01/31/23 12:28	1
13C-OCDD	71		17 - 157	01/19/23 11:44	01/31/23 12:28	1
13C-OCDF	87		17 - 157	01/19/23 11:44	01/31/23 12:28	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	85		35 - 197	01/19/23 11:44	01/31/23 12:28	1

Lab Sample ID: LCS 320-648057/2-A
Matrix: Water
Analysis Batch: 650623

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 648057

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,3,7,8-TCDF	0.000200	0.000235		ug/L		118	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000845		ug/L		84	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000833		ug/L		83	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000854		ug/L		85	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000830	MB	ug/L		83	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00102	MB	ug/L		102	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.000878	MB	ug/L		88	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000871	MB	ug/L		87	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000890	MB	ug/L		89	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000902	MB	ug/L		90	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000895	MB	ug/L		89	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000850	MB	ug/L		85	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.000988	MB	ug/L		99	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000829	MB	ug/L		83	78 - 138
OCDD	0.00200	0.00210	MB	ug/L		105	78 - 144
OCDF	0.00200	0.00182	MB	ug/L		91	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	61		20 - 175
13C-2,3,7,8-TCDF	56		22 - 152
13C-1,2,3,7,8-PeCDD	74		21 - 227
13C-1,2,3,7,8-PeCDF	74		21 - 192
13C-2,3,4,7,8-PeCDF	72		13 - 328
13C-1,2,3,4,7,8-HxCDD	88		21 - 193
13C-1,2,3,6,7,8-HxCDD	73		25 - 163
13C-1,2,3,4,7,8-HxCDF	93		19 - 202

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-648057/2-A
Matrix: Water
Analysis Batch: 650623

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 648057

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,6,7,8-HxCDF	90		21 - 159
13C-1,2,3,7,8,9-HxCDF	87		17 - 205
13C-2,3,4,6,7,8-HxCDF	95		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	92		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	83		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	97		20 - 186
13C-OCDD	79		13 - 199
13C-OCDF	98		13 - 199
LCS LCS			
Surrogate	%Recovery	Qualifier	Limits
37Cl4-2,3,7,8-TCDD	86		31 - 191

Lab Sample ID: LCSD 320-648057/3-A
Matrix: Water
Analysis Batch: 650623

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 648057

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	Limit
		Result	Qualifier				Limits	RPD		
2,3,7,8-TCDD	0.000200	0.000193		ug/L		97	67 - 158	4	50	
2,3,7,8-TCDF	0.000200	0.000222		ug/L		111	75 - 158	6	50	
1,2,3,7,8-PeCDD	0.00100	0.000901		ug/L		90	70 - 142	6	50	
1,2,3,7,8-PeCDF	0.00100	0.000888		ug/L		89	80 - 134	6	50	
2,3,4,7,8-PeCDF	0.00100	0.000825		ug/L		83	68 - 160	3	50	
1,2,3,4,7,8-HxCDD	0.00100	0.000836	MB	ug/L		84	70 - 164	1	50	
1,2,3,6,7,8-HxCDD	0.00100	0.00109	MB	ug/L		109	76 - 134	7	50	
1,2,3,7,8,9-HxCDD	0.00100	0.000911	MB	ug/L		91	64 - 162	4	50	
1,2,3,4,7,8-HxCDF	0.00100	0.000869	MB	ug/L		87	72 - 134	0	50	
1,2,3,6,7,8-HxCDF	0.00100	0.000901	MB	ug/L		90	84 - 130	1	50	
1,2,3,7,8,9-HxCDF	0.00100	0.000910	MB	ug/L		91	78 - 130	1	50	
2,3,4,6,7,8-HxCDF	0.00100	0.000905	MB	ug/L		91	70 - 156	1	50	
1,2,3,4,6,7,8-HpCDD	0.00100	0.000885	MB	ug/L		89	70 - 140	4	50	
1,2,3,4,6,7,8-HpCDF	0.00100	0.00102	MB	ug/L		102	82 - 122	4	50	
1,2,3,4,7,8,9-HpCDF	0.00100	0.000870	MB	ug/L		87	78 - 138	5	50	
OCDD	0.00200	0.00211	MB	ug/L		105	78 - 144	0	50	
OCDF	0.00200	0.00190	MB	ug/L		95	63 - 170	5	50	

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	67		20 - 175
13C-2,3,7,8-TCDF	64		22 - 152
13C-1,2,3,7,8-PeCDD	75		21 - 227
13C-1,2,3,7,8-PeCDF	75		21 - 192
13C-2,3,4,7,8-PeCDF	78		13 - 328
13C-1,2,3,4,7,8-HxCDD	97		21 - 193
13C-1,2,3,6,7,8-HxCDD	77		25 - 163
13C-1,2,3,4,7,8-HxCDF	101		19 - 202
13C-1,2,3,6,7,8-HxCDF	100		21 - 159
13C-1,2,3,7,8,9-HxCDF	91		17 - 205
13C-2,3,4,6,7,8-HxCDF	104		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	93		26 - 166

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-648057/3-A

Matrix: Water

Analysis Batch: 650623

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 648057

<u>Isotope Dilution</u>	<u>LCSD LCSD</u>		<u>Limits</u>
	<u>%Recovery</u>	<u>Qualifier</u>	
13C-1,2,3,4,6,7,8-HpCDF	88		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	93		20 - 186
13C-OCDD	77		13 - 199
13C-OCDF	92		13 - 199

<u>Surrogate</u>	<u>LCSD LCSD</u>		<u>Limits</u>
	<u>%Recovery</u>	<u>Qualifier</u>	
37Cl4-2,3,7,8-TCDD	89		31 - 191

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-2

Specialty Organics

Prep Batch: 648057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-1	Outfall009_20230110_Comp	Total/NA	Water	1613B	
MB 320-648057/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-648057/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-648057/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 650623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-1	Outfall009_20230110_Comp	Total/NA	Water	1613B	648057
MB 320-648057/1-A	Method Blank	Total/NA	Water	1613B	648057
LCS 320-648057/2-A	Lab Control Sample	Total/NA	Water	1613B	648057
LCSD 320-648057/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	648057

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Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-2

Client Sample ID: Outfall009_20230110_Comp

Lab Sample ID: 570-123393-1

Date Collected: 01/10/23 09:30

Matrix: Water

Date Received: 01/10/23 17:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			1050.5 mL	20.0 uL	648057	01/19/23 11:44	CGB	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	650623	01/31/23 18:53	KSS	EET SAC

Instrument ID: DFS 1

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-23
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-23
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-23 *
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
Utah	NELAP	CA000442021-12	02-28-23
Virginia	NELAP	460278	03-14-23
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-123393-1	Outfall009_20230110_Comp	Water	01/10/23 09:30	01/10/23 17:55

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16



Eurofins Calscience Irvine

570-123393 Chain of Custody

CHAIN OF CUSTODY FORM

123393

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Eurofins Calscience Irvine Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel: 949-260-3218

Project:
Boeing-SSFL NPDES
Permit 2023
Routine Outfall 009-007 009 010
Outfall 009
Comp

Project Manager: Katherine Miller
520.289.8906, 520.904.6944 (cell)
Field Manager: Mark Dominick
978.234.5033, 818.599.0702 (cell)

Sample Description	Sample Matrix	Sampling Date/Time	Container Type	Preservative	Botle #	MSMSD
Outfall009_20230110_Comp	WM	1/10/2023 / 10:30	500 mL Poly	HNO ₃	95	No
	WM		1 L Glass Amber	None	110	No
	WM		500 mL Poly	None	145	No
	WM		500 mL Poly	None	155	No
	WM		500 mL Poly	NaOH	220	No
	WM		2.5 Gal Cube	None	225	No
	WM		1 L Glass Amber	None	230	No
	WM		1 Gal Cube	None	235	No
	WM		1 L Poly	None	185	No
	WM		1L Poly	None	205	No
	WM		borosilicate vials	None	320	No
	WM		1 L Glass Amber	None	110	No
	WM		500 mL Poly	None	145	No

Relinquished By: *Mark Dominick* Date/Time: 1-10-2023 1235 HA Company: *HA*

Relinquished By: *[Signature]* Date/Time: 1/10/23 1755 EC Company: *EC*

Relinquished By: *[Signature]* Date/Time: 1/10/23 1755 EC Company: *EC*

Legend EP=Expert Panel, R=Routine

Relinquished By: *[Signature]* Date/Time: 1/10/23 1235 EC Company: *EC*

Relinquished By: *[Signature]* Date/Time: 1/10/23 1755 EC Company: *EC*

Relinquished By: *[Signature]* Date/Time: 1/10/23 1755 EC Company: *EC*

ANALYSIS REQUIRED

Analysis	Result
Total Recoverable Metals: Mercury (E245.1)	X
Cyanide (SM4500-CN-E/E35.2)	X
Chronic Toxicity Selenium (EPA-821-R-02-013) ABC Labs in Ventura, CA	X
40, CS-137 (E901.0 or E901.1)	
Radium 226 (E904.0) Uranium (E908.0), K-Total (E908.0), Sr-90 (E905.0) Total (E908.0), Gross Beta (E900.0)	X
Gross Alpha (E900.0), Gross Beta (E900.0)	
(E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti	
Total Dissolved Metals: (E200.0): Ni, Zn	X
TDS (SM2540C/E160.1)	X
Cl, SO ₄ , NO ₃ -N (300)	
TCDD (and all congeners) (E161B)	
Total Recoverable Metals: (E200.0): Ni, Zn	X
(E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti	
48 hours Holding Time NO ₃ & NO ₂	
Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate. not MSMSD.	
Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA.	
Filter and preserve with 2hrs of receipt at lab	
Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.	
Hold	
Hold	

Turn-around time: (Check)
24 Hour _____ 72 Hour _____ 10 Day _____ X
48 Hour _____ 5 Day _____ Normal: _____

Sample Integrity (Check)
Intact: _____ On Ice: _____
Store samples for 6 months. Data Requirements: (Check)
No Level IV: _____ All Level IV: _____ X

Handl. delivered to ABC Labs with copy of COC
1-3/13 1.9/1.9 5c11



ICOC No
570-203785

Containers
Count

Container Type

Preservative

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Eurofins Calscience

2841 Dow Avenue, Suite 100
Tustin, CA 92780
Phone: 714-895-5494

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)		Client Contact: Shipping/Receiving	Phone:	Lab P/N: Virendra Patel	Carrier Tracking No(s):	COC No: 570-203835_1
Company: Eurofins Environment Testing Northern Ca		Address: 880 Riverside Parkway, West Sacramento, CA 95605	City: West Sacramento	E-Mail: Virendra.Patel@et.eurofins.com	State of Origin: California	Page: Page 1 of 1
Due Date Requested: 1/26/2023		TAT Requested (days):	Project #:	Accreditations Required (See note): State Program - California	Job #:	570-123393-2
State, Zip: CA 95605		PO #:	Project Name: Boeing NPDES SSFL - Outfall 009 Comp	<p>Analysis Requested</p> <p>Preservation Codes:</p> <ul style="list-style-type: none"> A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsHAcO2 P - Na2OAS Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Y - Trizma Z - other (specify) 		
Email: 916-373-5600(Tel) 916-372-1059(Fax)		WO #:	Project #:	<p>Field Filtered Sample (Yes or No)</p> <p>Perform MS/MSD (Yes or No)</p> <p>1613B/1613B_Sox_Sep_P (MOD) Standard List w/ Totals</p>		
Site: Boeing NPDES SSFL - Outfall 009 Comp		SSOW#:	44024446	<p>Total Number of containers</p> <p>2</p> <p>See QAS, Being will to zero. ugl. Use Being glassware.</p>		
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=Water, S=solid, O=over/oli, BT=Blank, A=Air)	Special Instructions/Note:
Outfall009_20230110_Comp (570-123393-1)		1/10/23	17:55 Pacific	Water	Water	
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyze & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/analyte being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>						
Possible Hazard Identification						
Unconfirmed Deliverable Requested: I, II, III, IV, Other (Specify) Primary Deliverable Rank: 2						
Empty Kit Relinquished by:		Date:	Time:			
Relinquished by: <i>[Signature]</i>		Date/Time: 01/11/23 15:03	Company: EC			
Relinquished by: <i>[Signature]</i>		Date/Time:	Company:			
Relinquished by:		Date/Time:	Received by: <i>[Signature]</i>			
Custody Seats Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 21			
Special Instructions/OC Requirements:		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		
Method of Shipment:		Date/Time: 1/12/23 9:20	Company: TFAA			

lot 2 received by [Signature] 1/12/23

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-123393-2

Login Number: 123393

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-123393-2

Login Number: 123393

List Number: 3

Creator: Fisher, Jamyiah L

List Source: Eurofins Sacramento

List Creation: 01/12/23 01:30 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/3/2023 12:36:33 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 009 - COMP

JOB NUMBER

570-123393-3

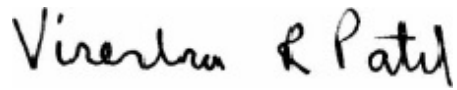
Job Notes

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender and destroy this report immediately. This report shall not be reproduced except in full, without prior express written approval by the laboratory.

The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization

 Generated
2/3/2023 12:36:33 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-3

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-3

Job ID: 570-123393-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-123393-3

Comments

No additional comments.

Receipt

The samples were received on 1/10/2023 5:55 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.3° C and 1.9° C.

Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work

Method Chronic-Selenestrum: This method was subcontracted to Aquatic Bioassay & Consulting. The subcontract laboratory certification is different from that of the facility issuing the final report.



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-3

Method	Method Description	Protocol	Laboratory
Subcontract	Chronic-Selenestrum	None	Aquatic

Protocol References:

None = None

Laboratory References:

Aquatic = Aquatic Bioassay & Consulting, 29 North Olive Street, Ventura, CA 93001



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-123393-1	Outfall009_20230110_Comp	Water	01/10/23 09:30	01/10/23 17:55

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9



January 25, 2023

Mr. Virendra Patel
Eurofins Calscience
7440 Lincoln Way
Garden Grove, CA 92841-1432

Dear Mr. Patel:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA-821-R-02-013*. Results were as follows:

CLIENT: Eurofins Calscience
SAMPLE I.D.: Outfall009_20230110_Comp
DATE RECEIVED: 10 Jan - 2023
ABC LAB. NO.: CSE0123.046

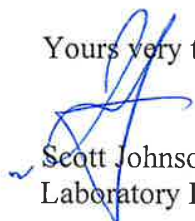
CHRONIC SELENASTRUM ALGAE GROWTH BIOASSAY

IWC = 100.00 %

TST RESULT

GROWTH = PASS % EFFECT = 3.59 %

Yours very truly,



Scott Johnson
Laboratory Director



CETIS Summary Report

Report Date: 20 Jan-23 15:49 (p 1 of 1)
 Test Code/ID: CSE0123.046 / 12-0916-3068

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 10-5608-7611	Test Type: Cell Growth	Analyst:
Start Date: 10 Jan-23 15:51	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 14 Jan-23 14:10	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 94h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 5d
Sample ID: 01-2237-9251	Code: CSE0123.046	Project: Boeing-SSFL NPDES
Sample Date: 10 Jan-23 09:30	Material: Sample Water	Source: Bioassay Report
Receipt Date: 10 Jan-23 14:35	CAS (PC):	Station: Outfall009_20230110_Comp
Sample Age: 6h (5 °C)	Client: Eurofins Calscience	

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
00-5452-3312	Cell Density	TST-Welch's t Test	<1.0E-05	100% passed cell density	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
00-5452-3312	Cell Density	Control CV	0.06411	<<	0.2	Yes	Passes Criteria
00-5452-3312	Cell Density	Control Resp	1.25E+6	1.00E+6	<<	Yes	Passes Criteria

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	8	1.254E+6	1.187E+6	1.321E+6	1.122E+6	1.344E+6	2.843E+4	8.041E+4	6.41%	0.00%
100		8	1.209E+6	1.161E+6	1.257E+6	1.144E+6	1.290E+6	2.015E+4	5.698E+4	4.71%	3.59%

Cell Density Detail

MD5: CF4B88ED7BC107D8DFBDE8C78014E2E4

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.210E+6	1.342E+6	1.344E+6	1.188E+6	1.223E+6	1.122E+6	1.294E+6	1.310E+6
100		1.146E+6	1.144E+6	1.223E+6	1.290E+6	1.206E+6	1.176E+6	1.198E+6	1.290E+6

CETIS Analytical Report

Report Date: 20 Jan-23 15:49 (p 1 of 2)
 Test Code/ID: CSE0123.046 / 12-0916-3068

Selenastrum Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 00-5452-3312	Endpoint: Cell Density	CETIS Version: CETISv2.1.4
Analyzed: 20 Jan-23 15:48	Analysis: Parametric Bioequivalence-Two Sample	Status Level: 1
Edit Date: 20 Jan-23 15:46	MD5 Hash: CF4B88ED7BC107D8DFBDE8C78014E2E	Editor ID: 009-702-627-3
Batch ID: 10-5608-7611	Test Type: Cell Growth	Analyst:
Start Date: 10 Jan-23 15:51	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 14 Jan-23 14:10	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 94h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 5d
Sample ID: 01-2237-9251	Code: CSE0123.046	Project: Boeing-SSFL NPDES
Sample Date: 10 Jan-23 09:30	Material: Sample Water	Source: Bioassay Report
Receipt Date: 10 Jan-23 14:35	CAS (PC):	Station: Outfall009_20230110_Comp
Sample Age: 6h (5 °C)	Client: Eurofins Calscience	

Data Transform	Alt Hyp	TST_b	Comparison Result
Untransformed	C*b < T	0.75	100% passed cell density endpoint

TST-Welch's t Test

Control	vs	Conc-%	df	Test Stat	Critical	P-Type	P-Value	Decision(α:25%)
Negative Control		100*	13	9.154	0.6938	CDF	<1.0E-05	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits		Overlap	Decision
		Lower	Upper		
Control CV	0.06411	<<	0.2	Yes	Passes Criteria
Control Resp	1.25E+6	1.00E+6	<<	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	8.1E+09	8.1E+09	1	1.668	0.2174	Non-Significant Effect
Error	6.799E+10	4.856E+09	14			
Total	7.609E+10		15			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Levene Equality of Variance Test	2.211	8.862	0.1592	Equal Variances
	Mod Levene Equality of Variance Test	2.195	8.862	0.1606	Equal Variances
	Variance Ratio F Test	1.991	8.885	0.3838	Equal Variances
Distribution	Anderson-Darling A2 Test	0.4354	3.878	0.3035	Normal Distribution
	D'Agostino Skewness Test	0.2688	2.576	0.7881	Normal Distribution
	Kolmogorov-Smirnov D Test	0.1352	0.2471	0.6538	Normal Distribution
	Shapiro-Wilk W Normality Test	0.936	0.8408	0.3034	Normal Distribution

Cell Density Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	8	1.254E+6	1.187E+6	1.321E+6	1.258E+6	1.122E+6	1.344E+6	2.843E+4	6.41%	0.00%
100		8	1.209E+6	1.161E+6	1.257E+6	1.202E+6	1.144E+6	1.290E+6	2.015E+4	4.71%	3.59%

Cell Density Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
0	N	1.210E+6	1.342E+6	1.344E+6	1.188E+6	1.223E+6	1.122E+6	1.294E+6	1.310E+6
100		1.146E+6	1.144E+6	1.223E+6	1.290E+6	1.206E+6	1.176E+6	1.198E+6	1.290E+6

CETIS Measurement Report

Report Date: 20 Jan-23 15:49 (p 1 of 1)
 Test Code/ID: CSE0123.046 / 12-0916-3068

Selenastrum Growth Test Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 10-5608-7611	Test Type: Cell Growth	Analyst:
Start Date: 10 Jan-23 15:51	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 14 Jan-23 14:10	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 94h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 5d
Sample ID: 01-2237-9251	Code: CSE0123.046	Project: Boeing-SSFL NPDES
Sample Date: 10 Jan-23 09:30	Material: Sample Water	Source: Bioassay Report
Receipt Date: 10 Jan-23 14:35	CAS (PC):	Station: Outfall009_20230110_Comp
Sample Age: 6h (5 °C)	Client: Eurofins Calscience	

Alkalinity (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	77	---	---	77	77	---	---	---	0
100		1	72	---	---	72	72	---	---	---	0
Overall		2	74.5	42.73	106.3	72	77	2.5	3.536	4.75%	0 (0%)

Conductivity-µmhos

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	484.8	463.6	506	456	500	3.41	17.05	3.52%	0
100		5	196.8	184.5	209.1	184	208	1.977	9.884	5.02%	0
Overall		10	340.8	231.8	449.8	184	500	48.18	152.4	44.71%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	118	---	---	118	118	---	---	---	0
100		1	95	---	---	95	95	---	---	---	0
Overall		2	106.5	-39.62	252.6	95	118	11.5	16.26	15.27%	0 (0%)

pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.86	7.693	8.027	7.7	8	0.02683	0.1342	1.71%	0
100		5	8.24	8.098	8.382	8.1	8.4	0.0228	0.114	1.38%	0
Overall		10	8.05	7.884	8.216	7.7	8.4	0.07341	0.2321	2.88%	0 (0%)

Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	25.56	25.39	25.73	25.5	25.8	0.02683	0.1342	0.52%	0
100		5	25.56	25.39	25.73	25.5	25.8	0.02683	0.1342	0.52%	0
Overall		10	25.56	25.47	25.65	25.5	25.8	0.04	0.1265	0.49%	0 (0%)

Eurofins Calciencia Irvine

CHAIN OF CUSTODY FORM

Temp. deg. C = 5.0 °C
 Chlorine (mg/L) = 60.1

Client Name/Address:
 Haley & Aldrich
 5333 Mission Center Rd Suite 300
 San Diego, CA 92108

Project:
 Boeing-SSFL NPDES
 Permit 2013
 Routine Outfall (003-007, 009, 010)
 Outfall 009
 Camp

Eurofins Calciencia Irvine Contact: Christian Bondoc
 17461 Darden Ave Suite #100
 Irvine CA 92614
 Tel: 949-260-3218

Project Manager: Katherine Miller
 620.288.8606, 620.804.8944 (cell)
Field Manager: Mark Dominick
 679.234.5033, 618.599.0702 (cell)

Sample Description: OUTFALL_20230110_Camp_F

Sample Description	Sample ID	Sampling Date/Time	Container Type	# of Cont.	Preservative	Bottle #	MSMSD	Total Recoverable Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (and all congeners) (E1613B)	Cr, SO ₄ , NO ₃ +NO ₂ -N (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Ti	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E900.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K- 40, Cs-137 (E901.0 or E901.1)	Chronic Toxicity - Selenastrium (EPA-821-R-02-013) ABC Labs in Ventura, CA	Cyanide (SM4500-CNE / E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))	48 hours Holding Time NO ₂ & NO ₃	148 hours Holding Time NO ₂ & NO ₃
OUTFALL_20230110_Camp_F	U102023	1/10/2023	1 L Glass Amber	1	None	66	No	X	X	X	X	X	X	X	X	X	X	X	X	
OUTFALL_20230110_Camp_F	U102023	1/10/2023	1 L Glass Amber	1	None	140	No	X	X	X	X	X	X	X	X	X	X	X	X	
OUTFALL_20230110_Camp_F	U102023	1/10/2023	1 L Glass Amber	2	None	148	No	X	X	X	X	X	X	X	X	X	X	X	X	
OUTFALL_20230110_Camp_F	U102023	1/10/2023	500 mL Poly	1	None	155	No	X	X	X	X	X	X	X	X	X	X	X	X	
OUTFALL_20230110_Camp_F	U102023	1/10/2023	500 mL Poly	1	None	220	No	X	X	X	X	X	X	X	X	X	X	X	X	
OUTFALL_20230110_Camp_F	U102023	1/10/2023	1 L Glass Amber	1	None	220	No	X	X	X	X	X	X	X	X	X	X	X	X	
OUTFALL_20230110_Camp_F	U102023	1/10/2023	1 Gal Cube	5	None	235	No	X	X	X	X	X	X	X	X	X	X	X	X	
OUTFALL_20230110_Camp_F	U102023	1/10/2023	1 L Poly	1	None	185	No	X	X	X	X	X	X	X	X	X	X	X	X	
OUTFALL_20230110_Camp_F	U102023	1/10/2023	1 L Poly	1	None	205	No	X	X	X	X	X	X	X	X	X	X	X	X	
OUTFALL_20230110_Camp_F	U102023	1/10/2023	1 L Glass Amber	1	None	320	No	X	X	X	X	X	X	X	X	X	X	X	X	
OUTFALL_20230110_Camp_F	U102023	1/10/2023	1 L Glass Amber	2	None	110	No	X	X	X	X	X	X	X	X	X	X	X	X	
OUTFALL_20230110_Camp_F	U102023	1/10/2023	500 mL Poly	2	None	145	No	X	X	X	X	X	X	X	X	X	X	X	X	

Turn-around time (Check):
 24 Hour: 72 Hour:
 48 Hour: 5 Day: Normal:

Sample Integrity (Check):
 Intact: On Ice:
 State Requirements: (Check) All Levels IV:

Comments:
 60.1
 v. 60.1

* Handl. returned to ABC Labs with copy of COC



CHRONIC SELENASTRUM GROWTH BIOASSAY


DATE: 12 January - 2023

STANDARD TOXICANT: Cadmium Chloride

NOEC = 20.00 ug/l

IC25 = 53.36 ug/l
IC50 = 102.30 ug/l

Yours very truly,


Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 20 Jan-23 16:52 (p 1 of 1)
 Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test				Aquatic Bioassay & Consulting Labs, Inc.			
Batch ID: 19-4179-0418	Test Type: Cell Growth	Analyst:					
Start Date: 12 Jan-23 13:24	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water					
Ending Date: 16 Jan-23 13:10	Species: Selenastrum capricornutum	Brine: Not Applicable					
Test Length: 96h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO	Age: 7d				
Sample ID: 01-0315-3386	Code: SEL011223	Project: REF TOX					
Sample Date: 12 Jan-23 13:24	Material: Cadmium chloride	Source: Reference Toxicant					
Receipt Date:	CAS (PC):	Station: REF TOX					
Sample Age: ---	Client: Internal Lab						

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓ NOEL	LOEL	TOEL	PMSD	S
02-3719-8182	Cell Density	Dunnett Multiple Comparison Test	20	40	28.28	4.66%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓ Level	µg/L	95% LCL	95% UCL	S
05-1997-3179	Cell Density	Linear Interpolation (ICPIN)	IC15	34.55	31.57	37.91	1
			IC20	39.4	35.65	48.58	
			IC25	53.36	40.71	62.3	
			IC40	88.59	84.67	92.36	
			IC50	102.3	99.22	105.6	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
02-3719-8182	Cell Density	Control CV	0.03087	<<	0.2	Yes	Passes Criteria
05-1997-3179	Cell Density	Control CV	0.03087	<<	0.2	Yes	Passes Criteria
02-3719-8182	Cell Density	Control Resp	1.06E+6	1.00E+6	<<	Yes	Passes Criteria
05-1997-3179	Cell Density	Control Resp	1.06E+6	1.00E+6	<<	Yes	Passes Criteria

Cell Density Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	N	4	1.057E+6	1.005E+6	1.109E+6	1.033E+6	1.105E+6	1.631E+4	3.262E+4	3.09%	0.00%
20		4	1.091E+6	1.026E+6	1.156E+6	1.040E+6	1.131E+6	2.040E+4	4.080E+4	3.74%	-3.26%
40		4	8.525E+5	8.034E+5	9.016E+5	8.250E+5	8.890E+5	1.541E+4	3.083E+4	3.62%	19.33%
80		4	7.118E+5	6.788E+5	7.447E+5	6.940E+5	7.330E+5	1.035E+4	2.069E+4	2.91%	32.65%
140		4	2.412E+5	1.995E+5	2.830E+5	2.190E+5	2.790E+5	1.312E+4	2.623E+4	10.87%	77.17%
180		4	1.472E+5	1.228E+5	1.717E+5	1.320E+5	1.610E+5	7.696E+3	1.539E+4	10.45%	86.07%

Cell Density Detail

MD5: 8002C18F242E2CF77D044A91E3CE4461

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.045E+6	1.033E+6	1.044E+6	1.105E+6
20		1.131E+6	1.078E+6	1.116E+6	1.040E+6
40		8.670E+5	8.290E+5	8.250E+5	8.890E+5
80		6.940E+5	7.330E+5	6.940E+5	7.260E+5
140		2.190E+5	2.370E+5	2.300E+5	2.790E+5
180		1.360E+5	1.610E+5	1.600E+5	1.320E+5

CETIS Analytical Report

Report Date: 20 Jan-23 16:52 (p 1 of 2)
 Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 02-3719-8182	Endpoint: Cell Density	CETIS Version: CETISv2.1.4
Analyzed: 20 Jan-23 16:51	Analysis: Parametric-Control vs Treatments	Status Level: 1
Edit Date: 20 Jan-23 16:48	MD5 Hash: 8002C18F242E2CF77D044A91E3CE4461	Editor ID: 009-702-627-3
Batch ID: 19-4179-0418	Test Type: Cell Growth	Analyst:
Start Date: 12 Jan-23 13:24	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 16 Jan-23 13:10	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 96h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 7d
Sample ID: 01-0315-3386	Code: SEL011223	Project: REF TOX
Sample Date: 12 Jan-23 13:24	Material: Cadmium chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: Internal Lab	

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	Tox Units	MSDu	PMSD
Untransformed	C > T	20	40	28.28	---	49300	4.66%

Dunnett Multiple Comparison Test

Control	vs	Conc-µg/L	df	Test Stat	Critical	MSD	P-Type	P-Value	Decision(α:5%)
Negative Control		20	6	-1.685	2.407	49300	CDF	0.9976	Non-Significant Effect
		40*	6	9.973	2.407	49300	CDF	2.7E-05	Significant Effect
		80*	6	16.85	2.407	49300	CDF	2.7E-05	Significant Effect
		140*	6	39.82	2.407	49300	CDF	2.7E-05	Significant Effect
		180*	6	44.41	2.407	49300	CDF	2.7E-05	Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits			Decision
		Lower	Upper	Overlap	
Control CV	0.03087	<<	0.2	Yes	Passes Criteria
Control Resp	1.06E+6	1.00E+6	<<	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	3.272E+12	6.545E+11	5	780.2	<1.0E-05	Significant Effect
Error	1.51E+10	838820000	18			
Total	3.287E+12		23			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	2.884	15.09	0.7178	Equal Variances
	Levene Equality of Variance Test	1.242	4.248	0.3306	Equal Variances
	Mod Levene Equality of Variance Test	0.6992	4.248	0.6311	Equal Variances
Distribution	Anderson-Darling A2 Test	0.7994	3.878	0.0381	Normal Distribution
	D'Agostino Kurtosis Test	0.7357	2.576	0.4619	Normal Distribution
	D'Agostino Skewness Test	0.6079	2.576	0.5433	Normal Distribution
	D'Agostino-Pearson K2 Omnibus Test	0.9108	9.21	0.6342	Normal Distribution
	Kolmogorov-Smirnov D Test	0.2114	0.2056	0.0070	Non-Normal Distribution
	Shapiro-Wilk W Normality Test	0.9401	0.884	0.1636	Normal Distribution

Cell Density Summary

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	N	4	1.057E+6	1.005E+6	1.109E+6	1.044E+6	1.033E+6	1.105E+6	1.631E+4	3.09%	0.00%
20		4	1.091E+6	1.026E+6	1.156E+6	1.097E+6	1.040E+6	1.131E+6	2.040E+4	3.74%	-3.26%
40		4	8.525E+5	8.034E+5	9.016E+5	8.480E+5	8.250E+5	8.890E+5	1.541E+4	3.62%	19.33%
80		4	7.118E+5	6.788E+5	7.447E+5	7.047E+5	6.940E+5	7.330E+5	1.035E+4	2.91%	32.65%
140		4	2.412E+5	1.995E+5	2.830E+5	2.335E+5	2.190E+5	2.790E+5	1.312E+4	10.87%	77.17%
180		4	1.472E+5	1.228E+5	1.717E+5	1.480E+5	1.320E+5	1.610E+5	7.696E+3	10.45%	86.07%

CETIS Analytical Report

Report Date: 20 Jan-23 16:52 (p 2 of 2)
 Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test

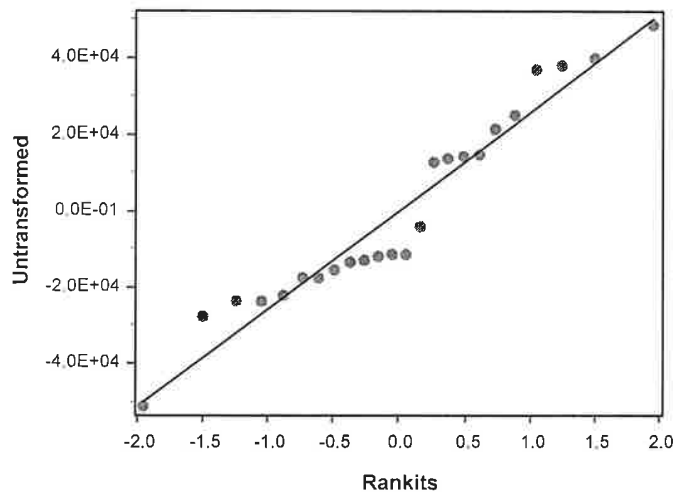
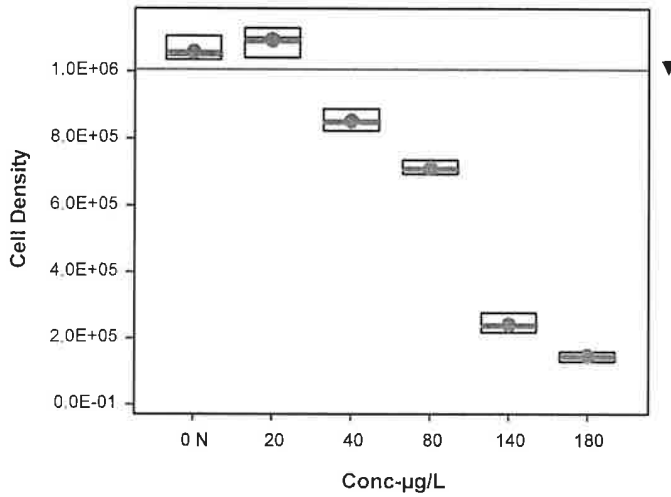
Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 02-3719-8182 Endpoint: Cell Density CETIS Version: CETISv2.1.4
 Analyzed: 20 Jan-23 16:51 Analysis: Parametric-Control vs Treatments Status Level: 1
 Edit Date: 20 Jan-23 16:48 MD5 Hash: 8002C18F242E2CF77D044A91E3CE4461 Editor ID: 009-702-627-3

Cell Density Detail

Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.045E+6	1.033E+6	1.044E+6	1.105E+6
20		1.131E+6	1.078E+6	1.116E+6	1.040E+6
40		8.670E+5	8.290E+5	8.250E+5	8.890E+5
80		6.940E+5	7.330E+5	6.940E+5	7.260E+5
140		2.190E+5	2.370E+5	2.300E+5	2.790E+5
180		1.360E+5	1.610E+5	1.600E+5	1.320E+5

Graphics



CETIS Analytical Report

Report Date: 20 Jan-23 16:52 (p 1 of 2)
 Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test		Aquatic Bioassay & Consulting Labs, Inc.			
Analysis ID: 05-1997-3179	Endpoint: Cell Density	CETIS Version: CETISv2.1.4			
Analyzed: 20 Jan-23 16:51	Analysis: Linear Interpolation (ICPIN)	Status Level: 1			
Edit Date: 20 Jan-23 16:48	MD5 Hash: 8002C18F242E2CF77D044A91E3CE4461	Editor ID: 009-702-627-3			
Batch ID: 19-4179-0418	Test Type: Cell Growth	Analyst:			
Start Date: 12 Jan-23 13:24	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water			
Ending Date: 16 Jan-23 13:10	Species: Selenastrum capricornutum	Brine: Not Applicable			
Test Length: 96h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO	Age: 7d		
Sample ID: 01-0315-3386	Code: SEL011223	Project: REF TOX			
Sample Date: 12 Jan-23 13:24	Material: Cadmium chloride	Source: Reference Toxicant			
Receipt Date:	CAS (PC):	Station: REF TOX			
Sample Age: ---	Client: Internal Lab				

Linear Interpolation Options					
X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria		TAC Limits			
Attribute	Test Stat	Lower	Upper	Overlap	Decision
Control CV	0.03087	<<	0.2	Yes	Passes Criteria
Control Resp	1.06E+6	1.00E+6	<<	Yes	Passes Criteria

Point Estimates			
Level	µg/L	95% LCL	95% UCL
IC15	34.55	31.57	37.91
IC20	39.4	35.65	48.58
IC25	53.36	40.71	62.3
IC40	88.59	84.67	92.36
IC50	102.3	99.22	105.6

Cell Density Summary			Calculated Variate						Isotonic Variate	
Conc-µg/L	Code	Count	Mean	Median	Min	Max	CV%	%Effect	Mean	%Effect
0	N	4	1.057E+6	1.044E+6	1.033E+6	1.105E+6	3.09%	0.00%	1.074E+6	0.00%
20		4	1.091E+6	1.097E+6	1.040E+6	1.131E+6	3.74%	-3.26%	1.074E+6	0.00%
40		4	8.525E+5	8.480E+5	8.250E+5	8.890E+5	3.62%	19.33%	8.525E+5	20.62%
80		4	7.118E+5	7.047E+5	6.940E+5	7.330E+5	2.91%	32.65%	7.118E+5	33.72%
140		4	2.412E+5	2.335E+5	2.190E+5	2.790E+5	10.87%	77.17%	2.412E+5	77.54%
180		4	1.472E+5	1.480E+5	1.320E+5	1.610E+5	10.45%	86.07%	1.472E+5	86.29%

Cell Density Detail					
Conc-µg/L	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	N	1.045E+6	1.033E+6	1.044E+6	1.105E+6
20		1.131E+6	1.078E+6	1.116E+6	1.040E+6
40		8.670E+5	8.290E+5	8.250E+5	8.890E+5
80		6.940E+5	7.330E+5	6.940E+5	7.260E+5
140		2.190E+5	2.370E+5	2.300E+5	2.790E+5
180		1.360E+5	1.610E+5	1.600E+5	1.320E+5

CETIS Analytical Report

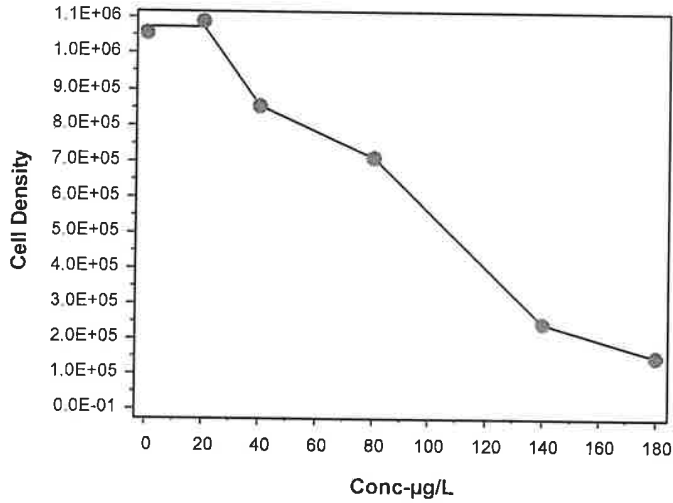
Report Date: 20 Jan-23 16:52 (p 2 of 2)
Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 05-1997-3179	Endpoint: Cell Density	CETIS Version: CETISv2.1.4
Analyzed: 20 Jan-23 16:51	Analysis: Linear Interpolation (ICPIN)	Status Level: 1
Edit Date: 20 Jan-23 16:48	MD5 Hash: 8002C18F242E2CF77D044A91E3CE4461	Editor ID: 009-702-627-3

Graphics



CETIS Measurement Report

Report Date: 20 Jan-23 16:52 (p 1 of 2)
 Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 19-4179-0418	Test Type: Cell Growth	Analyst:
Start Date: 12 Jan-23 13:24	Protocol: EPA/821/R-02-013 (2002)	Diluent: Laboratory Water
Ending Date: 16 Jan-23 13:10	Species: Selenastrum capricornutum	Brine: Not Applicable
Test Length: 96h	Taxon: Chlorophyta	Source: Aquatic Biosystems, CO Age: 7d
Sample ID: 01-0315-3386	Code: SEL011223	Project: REF TOX
Sample Date: 12 Jan-23 13:24	Material: Cadmium chloride	Source: Reference Toxicant
Receipt Date:	CAS (PC):	Station: REF TOX
Sample Age: ---	Client: Internal Lab	

Alkalinity (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	77	---	---	77	77	---	---	---	0
20		1	80	---	---	80	80	---	---	---	0
40		1	77	---	---	77	77	---	---	---	0
80		1	68	---	---	68	68	---	---	---	0
140		1	66	---	---	66	66	---	---	---	0
180		1	65	---	---	65	65	---	---	---	0
Overall		6	72.17	65.29	79.05	65	80	2.676	6.555	9.08%	0 (0%)

Conductivity-µmhos

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	497.6	487.7	507.5	489	510	1.591	7.956	1.60%	0
20		5	489.2	474.1	504.3	468	499	2.439	12.19	2.49%	0
40		5	453.6	434.3	472.9	445	481	3.104	15.52	3.42%	0
80		5	432.4	417.2	447.6	425	454	2.452	12.26	2.84%	0
140		5	407.8	390.9	424.7	400	432	2.722	13.61	3.34%	0
180		5	390.4	369.6	411.2	379	420	3.348	16.74	4.29%	0
Overall		30	445.2	429.5	460.8	379	510	7.646	41.88	9.41%	0 (0%)

Hardness (CaCO3)-mg/L

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	1	118	---	---	118	118	---	---	---	0
20		1	110	---	---	110	110	---	---	---	0
40		1	125	---	---	125	125	---	---	---	0
80		1	95	---	---	95	95	---	---	---	0
140		1	98	---	---	98	98	---	---	---	0
180		1	93	---	---	93	93	---	---	---	0
Overall		6	106.5	92.63	120.4	93	125	5.396	13.22	12.41%	0 (0%)

pH-Units

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	7.96	7.849	8.071	7.8	8	0.01789	0.08944	1.12%	0
20		5	8	8	8	8	8	0	0	0.00%	0
40		5	8	8	8	8	8	0	0	0.00%	0
80		5	8	8	8	8	8	0	0	0.00%	0
140		5	7.98	7.924	8.036	7.9	8	0.008943	0.04472	0.56%	0
180		5	7.98	7.924	8.036	7.9	8	0.008943	0.04472	0.56%	0
Overall		30	7.987	7.97	8.003	7.8	8	0.007927	0.04342	0.54%	0 (0%)

Temperature-°C

Conc-µg/L	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	N	5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
20		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
40		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
80		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
140		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
180		5	25.28	25.01	25.55	25	25.5	0.04336	0.2168	0.86%	0
Overall		30	25.28	25.21	25.35	25	25.5	0.03601	0.1972	0.78%	0 (0%)

CETIS Measurement Report

Report Date: 20 Jan-23 16:52 (p 2 of 2)
Test Code/ID: SEL011223 / 04-7405-9726

Selenastrum Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

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Eurofins Calscience Irvine

570-123393 Chain of Custody

CHAIN OF CUSTODY FORM

123393

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Eurofins Calscience Irvine Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel: 949-260-3218

Project:
Boeing-SSFL NPDES
Permit 2023
Routine Outfall 009-007 009 010
Outfall 009
Comp

Project Manager: Katherine Miller
520.289.8606, 520.904.6944 (cell)
Field Manager: Mark Dominick
978.234.5033, 818.599.0702 (cell)

Sample Description	Sample I.D.	Sample Matrix	Sampling Date/Time	Container Type	Preservative	Botle #	MSMSD
		WM		500 mL Poly	HNO ₃	95	No
		WM		1 L Glass Amber	None	110	No
		WM		500 mL Poly	None	145	No
		WM		500 mL Poly	None	155	No
		WM		500 mL Poly	NaOH	220	No
		WM		2.5 Gal Cube	None	225	No
		WM		1 L Glass Amber	None	230	No
		WM		1 Gal Cube	None	235	No
		WM		1 L Poly	None	185	No
		WM		1 L Poly	None	205	No
		WM		borosilicate vials	None	320	No
		WM		1 L Glass Amber	None	110	No
		WM		500 mL Poly	None	145	No

Outfall009_20230110_Comp

Outfall009_20230110_Comp_F

Outfall009_20230110_Comp_Extra

1/10/2023 1:10:23
1/10/2023 1:10:23
1/10/2023 1:10:23

Relinquished By: *Mark Dominick* Date/Time: 1/10/23 1235 HA Company: *HA*

Relinquished By: *[Signature]* Date/Time: 1/10/23 1755 EC Company: *EC*

Relinquished By: *[Signature]* Date/Time: 1/10/23 1755 EC Company: *EC*

Legend EP=Expert Panel, R=Routine
Received By: *[Signature]* Date/Time: 1/10/23 1235 EC
Received By: *[Signature]* Date/Time: 1/10/23 1755
Received By: *[Signature]* Date/Time: 1/10/23 1755

Handl. delivered to ABC Labs with copy of COC 1-3/13 1-9/19 5c11

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Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel Virendra	Lab Pk: Patel Virendra	Carrier Tracking No(s): 570-203785.1	COC No: 570-203785.1
Client Contact: Virendra.Patel@eurofins.com		Phone: Virendra.Patel@eurofins.com	E-Mail: Virendra.Patel@eurofins.com	State of Origin: California	Page: Page 1 of 1
Shipping/Receiving Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program California		Job #: 570-123393-1	Job #: 570-123393-1
Address: 13715 Rider Trail North,		Due Date Requested: 1/20/2023		Preservation Codes: A HCL M Hexane B NaOH N None C Zn Acetate O ASNaO2 D Nitric Acid P Na2OAS E NaHSO4 Q Na2SO3 F MeOH R Na2S2O3 G Amchlor S H2SO4 H Ascorbic Acid T TSP Dodecahydrate I Ice U Acetone J DI Water V MCAA K EDTA W pH 4-5 L EDA Y Trizma Other Z other (specify)	
City: Earth City		TAT Requested (days):		Analysis Requested	
State, Zip: MO, 63045		FO #:		906.0/SC_Prel_Susp Tritium	
Phone: 314-298-8568(Tel) 314-298-8757(Fax)		WO #:		905.0/PreSep_7 Strontium-90	
Email:		Project #: 44024446		904.0/PreSep_0 Radium-228	
Project Name: Boeing NPDES SSFL Outfall 009		SSOW#:		903.0/PreSep_21 Radium-226	
Site:		Sample Date: 1/10/23		900.0/Evaporation Gross Alpha/Beta	
Sample Identification: Client ID (Lab ID)		Sample Time: 17:55 Pacific		A01R_UreChrom_Actin Total Uranium	
Outfall009_20230110_Comp (570-123393-1)		Preservation Code: Water		901.1_Cs/Pl_Geo_0 K-40 and Csium-137	
Matrix (W=water, S=solid, O=organical, B7=BIOSUB, A=Air)		Sample Type (C=Comp, G=grab)		Perform MS/MSD (Yes or No)	
Sample Date		Sample Time		Field Filtered Sample (Yes or No)	
Sample Date: 1/10/23		Sample Time: 17:55 Pacific		Total Number of Containers: 2	
Special Instructions/Note:		Boeing SSFL, DO NOT FILTER, use prep date from preservation.			

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I II III, IV Other (specify) **Primary Deliverable Rank: 2**

Relinquished by: *[Signature]* Date: **01/11/23 17:39** Company: **Company**

Relinquished by: *[Signature]* Date/Time: **Company**

Relinquished by: *[Signature]* Date/Time: **Company**

Custody Seals Intact: **Custody Seal No.**
 Δ Yes Δ No



ICOC No
570-203785

Containers
Count

Container Type

Preservative

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-123393-3

Login Number: 123393

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/8/2023 2:08:51 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 009 - COMP

JOB NUMBER

570-123393-4

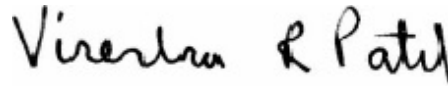
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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2/8/2023 2:08:51 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Qualifiers

Rad

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Job ID: 570-123393-4

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-123393-4

Comments

No additional comments.

Receipt

The samples were received on 1/10/2023 5:55 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.3° C and 1.9° C.

Receipt Exceptions

The reference method requires samples to be preserved to a pH of <2. The following samples were received with insufficient preservation at a pH of 7: Outfall009_20230110_Comp (570-123393-1) and Outfall002_20230110_Comp (570-123414-1). The samples were preserved to the appropriate pH in the laboratory.

sample 1 received 1 of 2 containers broken. Outfall009_20230110_Comp (570-123393-1)

RAD

Methods 900.0, 9310: Gross Alpha and Gross Beta batch 597589

The matrix spike (MS) recoveries for Gross Alpha were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. (570-123414-R-1-G MS)

Methods 900.0, 9310: Gross Alpha and Gross Beta batch 597589

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230110_Comp (570-123393-1), (LCS 160-597589/2-A), (LCSB 160-597589/3-A), (MB 160-597589/1-A), (570-123414-R-1-F), (570-123414-R-1-I DU), (570-123414-R-1-G MS) and (570-123414-R-1-H MSBT)

Method 901.1: Gamma Prep Batch 160-596826

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Job ID: 570-123393-4 (Continued)

Laboratory: Eurofins Calscience (Continued)

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230110_Comp (570-123393-1), (570-123009-T-1-H) and (570-123009-T-1-I DU)

Method 903.0: Radium-226 prep batch 160-596814:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230110_Comp (570-123393-1), (LCS 160-596814/2-A), (MB 160-596814/1-A), (280-171142-A-1-A) and (280-171142-B-1-B DU)

Method 904.0: Radium-228 prep batch 160-596818:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230110_Comp (570-123393-1), (LCS 160-596818/2-A), (MB 160-596818/1-A), (280-171142-A-1-B) and (280-171142-B-1-C DU)

Method 905: Strontium-90 Batch 597060

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230110_Comp (570-123393-1), (LCS 160-597060/2-A), (LCSD 160-597060/3-A) and (MB 160-597060/1-A)

Method 906.0: Tritium 597488

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230110_Comp (570-123393-1), (LCS 160-597488/2-A), (MB 160-597488/1-A), (570-123038-U-2-B), (570-123038-U-2-C DU), (570-123414-Q-1-B) and (570-123414-Q-1-C MS)

Method A-01-R: Isotopic Uranium batch 597259

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230110_Comp (570-123393-1), (LCS 160-597259/2-A), (MB 160-597259/1-A), (570-123038-A-2-B) and (570-123038-A-2-C DU)

Method ExtChrom: Uranium Prep Batch 160-597259

The following sample was prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall009_20230110_Comp (570-123393-1).

Method PrecSep_0:

Method PrecSep-21:

Method PrecSep-7: Strontium-90 Prep Batch 160-597060

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Job ID: 570-123393-4 (Continued)

Laboratory: Eurofins Calscience (Continued)

Insufficient sample volume was available to perform a sample duplicate for the following samples: Outfall009_20230110_Comp (570-123393-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-7: Strontium-90 Prep Batch 160-597060

The following sample was prepared at a reduced aliquot due to Matrix: Outfall009_20230110_Comp (570-123393-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep-7:

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Client Sample ID: Outfall009_20230110_Comp

Lab Sample ID: 570-123393-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall009_20230110_Comp
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 17:55

Lab Sample ID: 570-123393-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.731	U	0.815	0.819	3.00	1.33	pCi/L	01/20/23 09:55	01/24/23 20:35	1
Gross Beta	1.76		0.712	0.733	4.00	1.00	pCi/L	01/20/23 09:55	01/24/23 20:35	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall009_20230110_Comp
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 17:55

Lab Sample ID: 570-123393-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	0.0802	U	5.84	5.84	20.0	7.06	pCi/L	01/13/23 11:41	02/03/23 17:38	1
Potassium-40	-11.4	U	86.1	86.1		89.2	pCi/L	01/13/23 11:41	02/03/23 17:38	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall009_20230110_Comp
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 17:55

Lab Sample ID: 570-123393-1
Matrix: Water

<u>Analyte</u>	<u>Result</u>	<u>Qualifier</u>	<u>Count Uncert. (2σ+/-)</u>	<u>Total Uncert. (2σ+/-)</u>	<u>RL</u>	<u>MDC</u>	<u>Unit</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
Radium-226	0.0802	U	0.0915	0.0918	1.00	0.149	pCi/L	01/13/23 09:48	02/06/23 09:50	1
<u>Carrier</u>	<u>%Yield</u>	<u>Qualifier</u>	<u>Limits</u>					<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
Ba Carrier	93.3		40 - 110					01/13/23 09:48	02/06/23 09:50	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall009_20230110_Comp
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 17:55

Lab Sample ID: 570-123393-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.141	U	0.356	0.356	1.00	0.631	pCi/L	01/13/23 10:13	01/20/23 12:30	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.3		40 - 110					01/13/23 10:13	01/20/23 12:30	1
Y Carrier	89.7		40 - 110					01/13/23 10:13	01/20/23 12:30	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall009_20230110_Comp
 Date Collected: 01/10/23 09:30
 Date Received: 01/10/23 17:55

Lab Sample ID: 570-123393-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.406	U	0.468	0.469	3.00	0.770	pCi/L	01/16/23 10:20	01/26/23 17:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	85.9		40 - 110					01/16/23 10:20	01/26/23 17:29	1
Y Carrier	74.4		40 - 110					01/16/23 10:20	01/26/23 17:29	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall009_20230110_Comp
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 17:55

Lab Sample ID: 570-123393-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-50.9	U	163	164	500	311	pCi/L	01/19/23 12:02	01/21/23 00:22	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall009_20230110_Comp
Date Collected: 01/10/23 09:30
Date Received: 01/10/23 17:55

Lab Sample ID: 570-123393-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.133	U	0.226	0.226	1.00	0.326	pCi/L	01/17/23 16:09	01/25/23 14:42	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	84.9		30 - 110					01/17/23 16:09	01/25/23 14:42	1

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
280-171142-B-1-B DU	Duplicate	89.1	
570-123393-1	Outfall009_20230110_Comp	93.3	
LCS 160-596814/2-A	Lab Control Sample	95.0	
MB 160-596814/1-A	Method Blank	96.6	

Tracer/Carrier Legend
Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
280-171142-B-1-C DU	Duplicate	89.1	86.4
570-123393-1	Outfall009_20230110_Comp	93.3	89.7
LCS 160-596818/2-A	Lab Control Sample	95.0	85.2
MB 160-596818/1-A	Method Blank	96.6	87.1

Tracer/Carrier Legend
Ba = Ba Carrier
Y = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr (40-110)	Y (40-110)
570-123393-1	Outfall009_20230110_Comp	85.9	74.4
LCS 160-597060/2-A	Lab Control Sample	84.7	70.7
LCSD 160-597060/3-A	Lab Control Sample Dup	79.1	74.8
MB 160-597060/1-A	Method Blank	77.0	68.0

Tracer/Carrier Legend
Sr = Sr Carrier
Y = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	U-232 (30-110)	
570-123038-A-2-C DU	Duplicate	86.2	
570-123393-1	Outfall009_20230110_Comp	84.9	
LCS 160-597259/2-A	Lab Control Sample	87.1	
MB 160-597259/1-A	Method Blank	85.3	

Tracer/Carrier Legend
U-232 = Uranium-232

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-597589/1-A
Matrix: Water
Analysis Batch: 598170

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597589

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	-0.2358	U	0.454	0.455	3.00	0.596	pCi/L	01/20/23 09:55	01/25/23 12:20	1
Gross Beta	0.3365	U	0.521	0.522	4.00	0.529	pCi/L	01/20/23 09:55	01/25/23 12:20	1

Lab Sample ID: LCS 160-597589/2-A
Matrix: Water
Analysis Batch: 598147

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597589

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Gross Alpha	50.5	47.39		6.90	3.00	1.40	pCi/L	94	75 - 125

Lab Sample ID: LCSB 160-597589/3-A
Matrix: Water
Analysis Batch: 598147

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597589

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Gross Beta	73.8	67.95		7.33	4.00	0.453	pCi/L	92	75 - 125

Lab Sample ID: 570-123414-R-1-G MS
Matrix: Water
Analysis Batch: 598067

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 597589

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec
						Uncert. (2σ+/-)					Limits
Gross Alpha	0.721	U	50.5	30.29	F1	5.19	3.00	2.67	pCi/L	59	60 - 140

Lab Sample ID: 570-123414-R-1-H MSBT
Matrix: Water
Analysis Batch: 598067

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 597589

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total	RL	MDC	Unit	%Rec	%Rec
						Uncert. (2σ+/-)					Limits
Gross Beta	2.03		73.8	73.84		7.92	4.00	0.978	pCi/L	97	60 - 140

Lab Sample ID: 570-123414-R-1-I DU
Matrix: Water
Analysis Batch: 598067

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 597589

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total	RL	MDC	Unit	RER	RER
					Uncert. (2σ+/-)					Limit
Gross Alpha	0.721	U	-0.5977	U	1.06	3.00	2.23	pCi/L		0.48
Gross Beta	2.03		2.279		0.700	4.00	0.810	pCi/L		0.17

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-596826/1-A
Matrix: Water
Analysis Batch: 599329

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 596826

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Cesium-137	-1.907	U	10.1	10.1	20.0	12.5	pCi/L	01/13/23 11:41	02/03/23 17:39	1
Potassium-40	20.39	U	126	126		145	pCi/L	01/13/23 11:41	02/03/23 17:39	1

Lab Sample ID: LCS 160-596826/2-A
Matrix: Water
Analysis Batch: 599336

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 596826

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Americium-241	135000	137200		16300		297	pCi/L	102	75 - 125
Cesium-137	41000	42260		5030	20.0	72.1	pCi/L	103	75 - 125
Cobalt-60	18200	19050		2270		38.2	pCi/L	105	75 - 125

Lab Sample ID: 570-123009-T-1-I DU
Matrix: Water
Analysis Batch: 599502

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 596826

Analyte	Sample Sample		DU	DU	Total	RL	MDC	Unit	RER	RER
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					Limit
Cesium-137	-1.70	U	3.961	U	9.55	20.0	11.7	pCi/L	0.33	1
Potassium-40	-51.2	U	-72.50	U	166		182	pCi/L	0.08	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-596814/1-A
Matrix: Water
Analysis Batch: 599338

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 596814

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.04849	U	0.0600	0.0602	1.00	0.0992	pCi/L	01/13/23 09:48	02/06/23 09:56	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	96.6		40 - 110	01/13/23 09:48	02/06/23 09:56	1

Lab Sample ID: LCS 160-596814/2-A
Matrix: Water
Analysis Batch: 599338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 596814

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Radium-226	11.3	11.60		1.17	1.00	0.0769	pCi/L	102	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	95.0		40 - 110

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: 280-171142-B-1-B DU
Matrix: Water
Analysis Batch: 599338

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 596814

Analyte	Sample	Sample	DU		Total	RL	MDC	Unit	RER	RER	Limit
	Result	Qual	Result	Qual	Uncert. (2σ+/-)						
Radium-226	0.243		0.2352		0.0928	1.00	0.0938	pCi/L	0.04		1
Carrier	%Yield	DU Qualifier	Limits								
Ba Carrier	89.1		40 - 110								

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-596818/1-A
Matrix: Water
Analysis Batch: 597614

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 596818

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.5270	U	0.399	0.402	1.00	0.623	pCi/L	01/13/23 10:13	01/20/23 12:10	1
Carrier	%Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.6		40 - 110					01/13/23 10:13	01/20/23 12:10	1
Y Carrier	87.1		40 - 110					01/13/23 10:13	01/20/23 12:10	1

Lab Sample ID: LCS 160-596818/2-A
Matrix: Water
Analysis Batch: 597613

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 596818

Analyte	Spike Added	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec	Limits
		Result	Qual	Uncert. (2σ+/-)						
Radium-228	8.26	9.450		1.28	1.00	0.590	pCi/L	114	75 - 125	
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	95.0		40 - 110							
Y Carrier	85.2		40 - 110							

Lab Sample ID: 280-171142-B-1-C DU
Matrix: Water
Analysis Batch: 597613

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 596818

Analyte	Sample	Sample	DU		Total	RL	MDC	Unit	RER	RER	Limit
	Result	Qual	Result	Qual	Uncert. (2σ+/-)						
Radium-228	0.200	U	0.4563	U	0.367	1.00	0.567	pCi/L	0.37		1
Carrier	%Yield	DU Qualifier	Limits								
Ba Carrier	89.1		40 - 110								
Y Carrier	86.4		40 - 110								

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-597060/1-A
Matrix: Water
Analysis Batch: 598291

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597060

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium-90	-0.1985	U	0.247	0.248	3.00	0.478	pCi/L	01/16/23 10:20	01/26/23 17:35	1
Carrier	MB MB		Limits					Prepared	Analyzed	Dil Fac
	%Yield	Qualifier								
Sr Carrier	77.0		40 - 110					01/16/23 10:20	01/26/23 17:35	1
Y Carrier	68.0		40 - 110					01/16/23 10:20	01/26/23 17:35	1

Lab Sample ID: LCS 160-597060/2-A
Matrix: Water
Analysis Batch: 598291

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597060

Analyte		Spike Added	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec	RER	Limit
			Result	Qual	Uncert. (2σ+/-)					Limits		
Strontium-90		7.38	7.381		0.866	3.00	0.408	pCi/L	100	75 - 125		
Carrier	LCS LCS		Limits									
	%Yield	Qualifier										
Sr Carrier	84.7		40 - 110									
Y Carrier	70.7		40 - 110									

Lab Sample ID: LCSD 160-597060/3-A
Matrix: Water
Analysis Batch: 598291

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 597060

Analyte		Spike Added	LCSD	LCSD	Total	RL	MDC	Unit	%Rec	%Rec	RER	Limit
			Result	Qual	Uncert. (2σ+/-)					Limits		
Strontium-90		7.38	6.740		0.814	3.00	0.392	pCi/L	91	75 - 125	0.38	1
Carrier	LCSD LCSD		Limits									
	%Yield	Qualifier										
Sr Carrier	79.1		40 - 110									
Y Carrier	74.8		40 - 110									

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-597488/1-A
Matrix: Water
Analysis Batch: 597784

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597488

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	-84.68	U	164	165	500	326	pCi/L	01/19/23 12:02	01/20/23 20:22	1

Lab Sample ID: LCS 160-597488/2-A
Matrix: Water
Analysis Batch: 597784

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597488

Analyte		Spike Added	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec	RER	Limit
			Result	Qual	Uncert. (2σ+/-)					Limits		
Tritium		2120	1848		381	500	324	pCi/L	87	75 - 125		

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Method: 906.0 - Tritium, Total (LSC) (Continued)

Lab Sample ID: 570-123414-Q-1-C MS
 Matrix: Water
 Analysis Batch: 597784

Client Sample ID: Matrix Spike
 Prep Type: Total/NA
 Prep Batch: 597488

Analyte	Sample	Sample	Spike Added	MS	MS	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
	Result	Qual		Result	Qual						
Tritium	-26.1	U	2120	1947		376	500	297	pCi/L	92	60 - 140

Lab Sample ID: 570-123038-U-2-C DU
 Matrix: Water
 Analysis Batch: 597784

Client Sample ID: Duplicate
 Prep Type: Total/NA
 Prep Batch: 597488

Analyte	Sample	Sample	DU	DU	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
	Result	Qual		Result						
Tritium	-83.3	U	-97.75	U	162	500	324	pCi/L	0.05	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-597259/1-A
 Matrix: Water
 Analysis Batch: 598217

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 597259

Analyte	MB	MB	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Total Uranium	0.05873	U	0.09433	0.09455	1.00	0.172	pCi/L	01/17/23 16:09	01/25/23 14:42	1
Tracer	MB	MB	Limits			Prepared	Analyzed	Dil Fac		
Uranium-232	%Yield	Qualifier		30 - 110						01/17/23 16:09

Lab Sample ID: LCS 160-597259/2-A
 Matrix: Water
 Analysis Batch: 598218

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 597259

Analyte	Spike Added	LCS	LCS	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
		Result	Qual						
Uranium-234	12.7	12.19		1.46	1.00	0.151	pCi/L	96	75 - 125
Uranium-238	13.0	13.33		1.56	1.00	0.135	pCi/L	102	75 - 125
Tracer	LCS	LCS	Limits			Prepared	Analyzed	Dil Fac	
Uranium-232	%Yield	Qualifier		30 - 110					

Lab Sample ID: 570-123038-A-2-C DU
 Matrix: Water
 Analysis Batch: 598230

Client Sample ID: Duplicate
 Prep Type: Total/NA
 Prep Batch: 597259

Analyte	Sample	Sample	DU	DU	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
	Result	Qual		Result						
Total Uranium	0.128		0.07847	U	0.1118	1.00	0.163	pCi/L	0.22	1
Tracer	DU	DU	Limits			Prepared	Analyzed	Dil Fac		
Uranium-232	%Yield	Qualifier		30 - 110						

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

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Prep Batch: 596814

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-1	Outfall009_20230110_Comp	Total/NA	Water	PrecSep-21	
MB 160-596814/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-596814/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
280-171142-B-1-B DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 596818

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-1	Outfall009_20230110_Comp	Total/NA	Water	PrecSep_0	
MB 160-596818/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-596818/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
280-171142-B-1-C DU	Duplicate	Total/NA	Water	PrecSep_0	

Prep Batch: 596826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-1	Outfall009_20230110_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-596826/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-596826/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
570-123009-T-1-I DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Prep Batch: 597060

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-1	Outfall009_20230110_Comp	Total/NA	Water	PrecSep-7	
MB 160-597060/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-597060/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
LCSD 160-597060/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-7	

Prep Batch: 597259

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-1	Outfall009_20230110_Comp	Total/NA	Water	ExtChrom	
MB 160-597259/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-597259/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
570-123038-A-2-C DU	Duplicate	Total/NA	Water	ExtChrom	

Prep Batch: 597488

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-1	Outfall009_20230110_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-597488/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-597488/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
570-123414-Q-1-C MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
570-123038-U-2-C DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 597589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-123393-1	Outfall009_20230110_Comp	Total/NA	Water	Evaporation	
MB 160-597589/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-597589/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-597589/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
570-123414-R-1-G MS	Matrix Spike	Total/NA	Water	Evaporation	
570-123414-R-1-H MSBT	Matrix Spike	Total/NA	Water	Evaporation	
570-123414-R-1-I DU	Duplicate	Total/NA	Water	Evaporation	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Client Sample ID: Outfall009_20230110_Comp

Lab Sample ID: 570-123393-1

Date Collected: 01/10/23 09:30

Matrix: Water

Date Received: 01/10/23 17:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.01 mL	1.0 g	597589	01/20/23 09:55	MST	EET SL
Total/NA	Analysis	900.0		1	1.0 mL	1.0 mL	598067	01/24/23 20:35	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	596826	01/13/23 11:41	JML	EET SL
Total/NA	Analysis	901.1		1			599332	02/03/23 17:38	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			758.74 mL	1.0 g	596814	01/13/23 09:48	DJP	EET SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	599340	02/06/23 09:50	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			758.74 mL	1.0 g	596818	01/13/23 10:13	DJP	EET SL
Total/NA	Analysis	904.0		1			597713	01/20/23 12:30	SCB	EET SL
Instrument ID: GFPCORANGE										
Total/NA	Prep	PrecSep-7			508.94 mL	1.0 g	597060	01/16/23 10:20	DJP	EET SL
Total/NA	Analysis	905		1			598282	01/26/23 17:29	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	LSC_Dist_Susp			100.35 mL	1.0 g	597488	01/19/23 12:02	ZR	EET SL
Total/NA	Analysis	906.0		1			597784	01/21/23 00:22	REV	EET SL
Instrument ID: LSCAQUA										
Total/NA	Prep	ExtChrom			251.39 mL	1.0 mL	597259	01/17/23 16:09	SAC	EET SL
Total/NA	Analysis	A-01-R		1			598236	01/25/23 14:42	FLC	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-4

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-123393-1	Outfall009_20230110_Comp	Water	01/10/23 09:30	01/10/23 17:55

1

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14

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Eurofins Calscience Irvine

570-123393 Chain of Custody

CHAIN OF CUSTODY FORM

123393

Client Name/Address:
Haley & Aldrich
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Eurofins Calscience Irvine Contact: Christian Bondoc
17461 Derian Ave Suite #100
Irvine CA 92614
Tel: 949-260-3218

Project:
Boeing-SSFL NPDES
Permit 2023
Routine Outfall 009-007 009 010
Outfall 009
Comp

Project Manager: Katherine Miller
520.289.8906, 520.904.6944 (cell)
Field Manager: Mark Dominick
978.234.5033, 818.599.0702 (cell)

Sample Description	Sample I.D.	Sample Matrix	Sampling Date/Time	Container Type	# of Cont.	Preservative	MS/MSD	MS/MSD
		WM		500 mL Poly	1	HNO ₃	95	No
		WM		1 L Glass Amber	2	None	110	No
		WM		500 mL Poly	2	None	145	No
		WM		500 mL Poly	1	None	155	No
		WM		500 mL Poly	1	NaOH	220	No
		WM		2.5 Gal Cube	1	None	225	No
		WM		1 L Glass Amber	1	None	230	No
		WM		1 Gal Cube	6	None	235	No
		WM		1 L Poly	1	None	185	No
		WM		1 L Poly	1	None	205	No
		WM		borosilicate vials	1	None	320	No
		WM		1 L Glass Amber	2	None	110	No
		WM		500 mL Poly	2	None	145	No

Outfall 009_20230110_Comp

Outfall 009_20230110_Comp_F

Outfall 009_20230110_Comp_Extra

1/10/2023 1:10:23
1/10/2023 1:10:23
1/10/2023 1:10:23

Relinquished By: *Mark Dominick* Date/Time: 1/10/23 1235 HA Company: *HA*

Relinquished By: *[Signature]* Date/Time: 1/10/23 1755 EC Company: *EC*

Relinquished By: *[Signature]* Date/Time: 1/10/23 1755 EC Company: *EC*

Legend: EP=Expert Panel, R=Routine

Received By: *[Signature]* Date/Time: 1/10/23 1235 EC

Received By: *[Signature]* Date/Time: 1/10/23 1755

Received By: *[Signature]* Date/Time: 1/10/23 1755

Turn-around time: (Check)
24 Hour 72 Hour 10 Day
48 Hour 5 Day Normal:

Sample Integrity (Check)
Intact On Ice
Store samples for 6 months.
Data Requirements: (Check)
No Level IV: All Level IV:

1-3/13 1.9/1.9 5.11

** Handl. delivered to ABC Labs w/ m copy of COC*



ICOC No
570-203785

Containers
Count

Container Type

Preservative

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-123393-4

Login Number: 123393

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-123393-4

Login Number: 123393

List Number: 2

Creator: Worthington, Sierra M

List Source: Eurofins St. Louis

List Creation: 01/12/23 10:15 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	Samples preserved upon arrival
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004
Generated 3/11/2023 4:35:14 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 009 - COMP

JOB NUMBER

570-123393-5

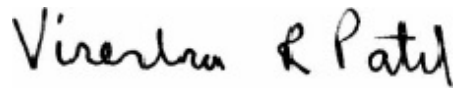
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization

 Generated
3/11/2023 4:35:14 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-5

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-5

Job ID: 570-123393-5

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-123393-5

Comments

No additional comments.

Receipt

The samples were received on 1/10/2023 5:55 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.3° C and 1.9° C.

Lab Admin

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work

Method EPA 608.3 Low Level - Endrin Aldehyde only (ug/L units) - MDL(J): This method was subcontracted to Weck Laboratories, Inc.. The subcontract laboratory certification is different from that of the facility issuing the final report.



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-5

Method	Method Description	Protocol	Laboratory
608	EPA 608 Organochlorine Pesticides/PCBs i	EPA	Weck Lab

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

Weck Lab = Weck Laboratories, Inc., 14859 East Clark Avenue, City of Industry, CA 917451396



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-123393-5

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-123393-3	Outfall009_20230110_Comp_Extra	Water	01/10/23 09:30	01/10/23 17:55

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Work Orders: 3B02105

Project: 570-123393-5

Attn: Virendra Patel

Client: Eurofins Calscience - Tustin
2841 Dow Avenue, Suite 100
Tustin, CA 92780

Report Date: 3/09/2023

Received Date: 2/2/2023

Turnaround Time: Normal

Phones: (949) 261-1022

Fax: (949) 260-3297

P.O. #:

Billing Code:

Dear Virendra Patel,

Enclosed are the results of analyses for samples received 2/02/23 with the Chain-of-Custody document. The samples were received in good condition, at 1.9 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: Outfall009_20230110_Comp_Extra (570-123393-3) Sampled: 01/10/23 9:30 by Client
3B02105-01 (Water)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 608.3			Instr: GC07				
Batch ID: W3B0399		Preparation: EPA 608/L-L SF			Prepared: 02/06/23 08:21		Analyst: RJG
Endrin aldehyde	ND	0.0019	0.0050	ug/l	1	02/15/23	O-09
<i>Surrogate(s)</i>							
Decachlorobiphenyl	38%		33-133	Conc: 0.0360		02/15/23	
Tetrachloro-meta-xylene	54%		32-130	Conc: 0.0512		02/15/23	

Quality Control Results

Chlorinated Pesticides and/or PCBs by GC/ECD

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Blank (W3B0399-BLK1)					Prepared: 02/06/23 Analyzed: 02/15/23						
Endrin aldehyde	ND	0.0019	0.0050	ug/l							
<i>Surrogate(s)</i>											
Decachlorobiphenyl	0.0675			ug/l	0.100		67	33-133			
Tetrachloro-meta-xylene	0.0595			ug/l	0.100		59	32-130			
LCS (W3B0399-BS1)					Prepared: 02/06/23 Analyzed: 02/15/23						
Endrin aldehyde	0.0684	0.0019	0.0050	ug/l	0.100		68	18-130			
<i>Surrogate(s)</i>											
Decachlorobiphenyl	0.0735			ug/l	0.100		74	33-133			
Tetrachloro-meta-xylene	0.0583			ug/l	0.100		58	32-130			
LCS Dup (W3B0399-BSD1)					Prepared: 02/06/23 Analyzed: 02/15/23						
Endrin aldehyde	0.0791	0.0019	0.0050	ug/l	0.100		79	18-130	15	30	
<i>Surrogate(s)</i>											
Decachlorobiphenyl	0.0808			ug/l	0.100		81	33-133			
Tetrachloro-meta-xylene	0.0731			ug/l	0.100		73	32-130			

Notes and Definitions

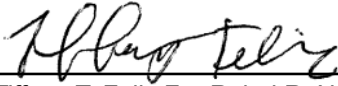
Item	Definition
O-09	This sample was received with the EPA recommended holding time expired.
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Reviewed by:



Tiffany T. Felix For Rahul R. Nair
Project Manager



DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

SPD.

ICOC No:
570-206007

Containers

Count Container Type Preservative
2 Amber Glass 1 liter - unpreserved None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
3	SUBCONTRACT	SUB (EPA 608.3 Low Level - Endrin Aldehyde only (ug/L units) - MDL(J))	Level IV, EQUIS 5C, MDL reporting w/J flag. Pe ug/L



COC	COC matches sample labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Project Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Receipt Information	Sample Temperature	1.9°C		
	Samples received on ice?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Ice Type (Blue/Wet)	WET		
	All samples intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Samples in proper containers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Sufficient sample volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Samples intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Received within holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Project Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample Preservation Verification?	Sample labels checked for correct preservation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	VOC Headspace: (No) none, If Yes (See comment) 524.2, 524.3, 624.1, 8260, 1666 P/T, LUFT	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	pH verified upon receipt?			
	Metals <2; H2SO4 pres tests <2; 522<4; TOC <2; 525.2<2; 6710B<2; 608.3 5-9	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Free Chlorine Tested <0.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	O&G pH <2 verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	pH adjusted for O&G	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Project Manager notified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

08

PM Comments

Sample Receipt Checklist Prepared by:

Signature: Lester Abad

Date: 02/02/23

QAF-006 V1.0 12/16/2021

E:\SC\ Resources\Forms\220509 Sample Receipt Checklist.docx (Type here)



Eurofins Calscience Irvine

570-123393 Chain of Custody

CHAIN OF CUSTODY FORM

123393

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Volume	MSMSD	Comments
Outfall 009	Outfall009_20230110_Comp	1/10/2023 1:03	WM	500 mL Poly	1	HNO ₃	95	No	
			WM	1 L Glass Amber	2	None	110	No	
			WM	500 mL Poly	2	None	145	No	
			WM	500 mL Poly	1	None	155	No	
			WM	500 mL Poly	1	NaOH	220	No	
			WM	2.5 Gal Cube	1	None	225	No	
			WM	1 L Glass Amber	1	None	230	No	
			WM	1 Gal Cube	6	None	235	No	
			WM	1 L Poly	1	None	185	No	
			WM	1 L Poly	1	None	205	No	
			WM	borosilicate vials	1	None	320	No	
			WM	1 L Glass Amber	2	None	110	No	
			WM	500 mL Poly	2	None	145	No	

Analysis	Result	Comments
Total Recoverable Metals: (E245.1)	X	
Cyanide (SM4500-CN-E/E35.2)	X	
Chronic Toxicity Selenium (EPA-821-R-02-013) ABC Labs in Ventura, CA	X	
40, CS-137 (E901.0 or E901.1)		
Radium 226 (E904.0) Uranium (E908.0), K-Total (E903.1) & Tritium (E908.0), Sr-90 (E905.0) Gross Alpha (E900.0), Gross Beta (E900.0)	X	
Total Dissolved Metals: (E200.7) Ni, Zn (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	X	
TDS (SM2540C/E160.1)	X	
TCDD (and all congeners) (E161B)		
CF, SO ₄ , NO ₃ -N (300)	X	
Total Recoverable Metals: (E200.7) Ni, Zn (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	X	
Total Dissolved Metals: (E200.7) Ni, Zn (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	X	
TDS (SM2540C/E160.1)	X	
Total Dissolved Metals: (E200.7) Ni, Zn (E200.8) Ag, Cd, Cu, Pb, Sb, Se, Tl	X	
Chronic Toxicity Selenium (EPA-821-R-02-013) ABC Labs in Ventura, CA	X	
Cyanide (SM4500-CN-E/E35.2)	X	
Total Recoverable Metals: (E245.1)	X	
Total Dissolved Metals: Mercury (E245.1)	X	
TSS (160.2) (SM2540D)		
		48 hours Holding Time NO ₃ & NO ₂
		Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MIMS/MSD.
		Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA.
		Filter and preserve with 2hrs of receipt at lab
		Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.
		Hold
		Hold

Relinquished By: Mark Dominick Date/Time: 1-10-2023 1235 Company: HA

Relinquished By: [Signature] Date/Time: 1/10/23 1755 Company: EC

Relinquished By: [Signature] Date/Time: 1/10/23 1755 Company: EC

Legend: EP=Expert Panel, R=Routine
 Received By: [Signature] Date/Time: 1/10/23 1235
 Received By: [Signature] Date/Time: 1/10/23 1755

* Handl. delivered to ABC Labs with copy of COC 1-3/13 1.9/1.9 5c11



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-123393-5

Login Number: 123393

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/14/2023 1:39:03 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 009 - COMP

JOB NUMBER

570-124239-1

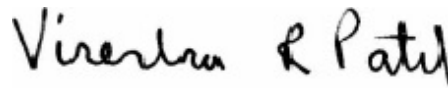
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Job ID: 570-124239-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-124239-1

Comments

No additional comments.

Receipt

The samples were received on 1/16/2023 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.8° C and 1.9° C.

HPLC/IC

Method 300.0: Dilutions were performed for the following samples due to sample matrix properties: Outfall009_20230115_Comp (570-124239-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall009_20230115_Comp_F (570-124239-2). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall009_20230115_Comp_F (570-124239-2). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Client Sample ID: Outfall009_20230115_Comp

Lab Sample ID: 570-124239-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	4.0	J,DX	5.0	1.8	mg/L	5		300.0	Total/NA
Sulfate	3.9	J,DX	5.0	1.2	mg/L	5		300.0	Total/NA
Nitrate Nitrite as N	0.87		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Copper	2.5		2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	1.5		1.0	0.12	ug/L	1		200.8	Total Recoverable
Antimony	1.5	J,DX	2.0	0.36	ug/L	1		200.8	Total Recoverable
Nickel	1.7	J,DX	2.0	0.17	ug/L	1		200.8	Total Recoverable
Zinc	8.3	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Total Dissolved Solids	99		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	6.2		2.0	1.7	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Outfall009_20230115_Comp_F

Lab Sample ID: 570-124239-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	3.1	BU	2.0	0.32	ug/L	1		200.8	Dissolved
Lead	0.46	J,DX BU	1.0	0.12	ug/L	1		200.8	Dissolved
Antimony	1.4	J,DX BU	2.0	0.36	ug/L	1		200.8	Dissolved
Nickel	1.4	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Zinc	6.3	J,DX BU	20	2.8	ug/L	1		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall009_20230115_Comp

Date Collected: 01/15/23 09:15

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124239-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.0	J,DX	5.0	1.8	mg/L			01/16/23 22:29	5
Sulfate	3.9	J,DX	5.0	1.2	mg/L			01/16/23 22:29	5

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall009_20230115_Comp

Date Collected: 01/15/23 09:15

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124239-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.87		0.10	0.020	mg/L			01/27/23 10:21	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall009_20230115_Comp

Date Collected: 01/15/23 09:15

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124239-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.23	ug/L		01/19/23 09:12	01/19/23 13:32	1
Cadmium	ND		1.0	0.13	ug/L		01/19/23 09:12	01/19/23 13:32	1
Copper	2.5		2.0	0.32	ug/L		01/19/23 09:12	01/19/23 13:32	1
Lead	1.5		1.0	0.12	ug/L		01/19/23 09:12	01/19/23 13:32	1
Antimony	1.5	J,DX	2.0	0.36	ug/L		01/19/23 09:12	01/19/23 13:32	1
Selenium	ND		2.0	0.52	ug/L		01/19/23 09:12	01/19/23 13:32	1
Thallium	ND		1.0	0.11	ug/L		01/19/23 09:12	01/19/23 13:32	1
Nickel	1.7	J,DX	2.0	0.17	ug/L		01/19/23 09:12	01/19/23 13:32	1
Zinc	8.3	J,DX	20	2.8	ug/L		01/19/23 09:12	01/19/23 13:32	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall009_20230115_Comp_F

Date Collected: 01/15/23 09:15

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124239-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND	BU	1.0	0.23	ug/L			01/18/23 09:56	1
Cadmium	ND	BU	1.0	0.13	ug/L			01/18/23 09:56	1
Copper	3.1	BU	2.0	0.32	ug/L			01/18/23 09:56	1
Lead	0.46	J,DX BU	1.0	0.12	ug/L			01/18/23 09:56	1
Antimony	1.4	J,DX BU	2.0	0.36	ug/L			01/18/23 09:56	1
Selenium	ND	BU	2.0	0.52	ug/L			01/18/23 09:56	1
Thallium	ND	BU	1.0	0.11	ug/L			01/18/23 09:56	1
Nickel	1.4	J,DX BU	2.0	0.17	ug/L			01/18/23 09:56	1
Zinc	6.3	J,DX BU	20	2.8	ug/L			01/18/23 09:56	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall009_20230115_Comp
Date Collected: 01/15/23 09:15
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124239-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/18/23 18:51	01/19/23 17:23	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall009_20230115_Comp_F
Date Collected: 01/15/23 09:15
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124239-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU	0.20	0.12	ug/L		01/18/23 19:30	01/19/23 18:34	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

General Chemistry

Client Sample ID: Outfall009_20230115_Comp

Date Collected: 01/15/23 09:15

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124239-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			01/17/23 16:21	1
Total Dissolved Solids (SM 2540C)	99		10	8.7	mg/L			01/18/23 15:24	1
Total Suspended Solids (SM 2540D)	6.2		2.0	1.7	mg/L			01/19/23 13:23	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-295973/5
Matrix: Water
Analysis Batch: 295973

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			01/16/23 07:41	1
Sulfate	ND		1.0	0.24	mg/L			01/16/23 07:41	1

Lab Sample ID: LCS 570-295973/6
Matrix: Water
Analysis Batch: 295973

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	50.0		mg/L		100	90 - 110
Sulfate	50.0	50.3		mg/L		101	90 - 110

Lab Sample ID: LCSD 570-295973/7
Matrix: Water
Analysis Batch: 295973

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	49.9		mg/L		100	90 - 110	0	15
Sulfate	50.0	50.0		mg/L		100	90 - 110	0	15

Lab Sample ID: 570-123084-I-3 MS
Matrix: Water
Analysis Batch: 295973

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	6.3		50.0	46.7		mg/L		81	80 - 120
Sulfate	6.4		50.0	52.5		mg/L		92	80 - 120

Lab Sample ID: 570-123084-I-3 MSD
Matrix: Water
Analysis Batch: 295973

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	6.3		50.0	46.1		mg/L		80	80 - 120	1	20
Sulfate	6.4		50.0	51.6		mg/L		90	80 - 120	2	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-297004/1-A
Matrix: Water
Analysis Batch: 297141

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 297004

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.23	ug/L		01/19/23 09:12	01/19/23 13:25	1
Cadmium	ND		1.0	0.13	ug/L		01/19/23 09:12	01/19/23 13:25	1
Copper	ND		2.0	0.32	ug/L		01/19/23 09:12	01/19/23 13:25	1
Lead	ND		1.0	0.12	ug/L		01/19/23 09:12	01/19/23 13:25	1
Antimony	ND		2.0	0.36	ug/L		01/19/23 09:12	01/19/23 13:25	1
Selenium	ND		2.0	0.52	ug/L		01/19/23 09:12	01/19/23 13:25	1
Thallium	ND		1.0	0.11	ug/L		01/19/23 09:12	01/19/23 13:25	1
Nickel	ND		2.0	0.17	ug/L		01/19/23 09:12	01/19/23 13:25	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 570-297004/1-A
Matrix: Water
Analysis Batch: 297141

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 297004

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		20	2.8	ug/L		01/19/23 09:12	01/19/23 13:25	1

Lab Sample ID: LCS 570-297004/2-A
Matrix: Water
Analysis Batch: 297141

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 297004

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	80.0	80.1		ug/L		100	85 - 115
Cadmium	80.0	80.4		ug/L		101	85 - 115
Copper	80.0	80.6		ug/L		101	85 - 115
Lead	80.0	80.0		ug/L		100	85 - 115
Antimony	80.0	82.9		ug/L		104	85 - 115
Selenium	80.0	82.6		ug/L		103	85 - 115
Thallium	80.0	79.9		ug/L		100	85 - 115
Nickel	80.0	79.1		ug/L		99	85 - 115
Zinc	80.0	80.6		ug/L		101	85 - 115

Lab Sample ID: LCSD 570-297004/3-A
Matrix: Water
Analysis Batch: 297141

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 297004

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Silver	80.0	79.2		ug/L		99	85 - 115	1	20
Cadmium	80.0	79.2		ug/L		99	85 - 115	2	20
Copper	80.0	80.9		ug/L		101	85 - 115	0	20
Lead	80.0	79.6		ug/L		100	85 - 115	1	20
Antimony	80.0	82.1		ug/L		103	85 - 115	1	20
Selenium	80.0	78.4		ug/L		98	85 - 115	5	20
Thallium	80.0	79.9		ug/L		100	85 - 115	0	20
Nickel	80.0	80.4		ug/L		101	85 - 115	2	20
Zinc	80.0	80.6		ug/L		101	85 - 115	0	20

Lab Sample ID: 570-124239-1 MS
Matrix: Water
Analysis Batch: 297141

Client Sample ID: Outfall009_20230115_Comp
Prep Type: Total Recoverable
Prep Batch: 297004

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	ND		80.0	78.7		ug/L		98	80 - 120
Cadmium	ND		80.0	79.6		ug/L		99	80 - 120
Copper	2.5		80.0	84.1		ug/L		102	80 - 120
Lead	1.5		80.0	81.9		ug/L		101	80 - 120
Antimony	1.5	J,DX	80.0	84.4		ug/L		104	80 - 120
Selenium	ND		80.0	79.1		ug/L		99	80 - 120
Thallium	ND		80.0	80.3		ug/L		100	80 - 120
Nickel	1.7	J,DX	80.0	81.5		ug/L		100	80 - 120
Zinc	8.3	J,DX	80.0	87.7		ug/L		99	80 - 120

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-124239-1 MSD
Matrix: Water
Analysis Batch: 297141

Client Sample ID: Outfall009_20230115_Comp
Prep Type: Total Recoverable
Prep Batch: 297004

Analyte	Sample	Sample Qualifier	Spike Added	MSD	MSD Qualifier	Unit	D	%Rec	%Rec	RPD	Limit
	Result			Result					Limits		
Silver	ND		80.0	79.3		ug/L		99	80 - 120	1	20
Cadmium	ND		80.0	80.3		ug/L		100	80 - 120	1	20
Copper	2.5		80.0	83.7		ug/L		101	80 - 120	1	20
Lead	1.5		80.0	81.2		ug/L		100	80 - 120	1	20
Antimony	1.5	J,DX	80.0	84.9		ug/L		104	80 - 120	1	20
Selenium	ND		80.0	79.8		ug/L		100	80 - 120	1	20
Thallium	ND		80.0	80.4		ug/L		100	80 - 120	0	20
Nickel	1.7	J,DX	80.0	81.2		ug/L		99	80 - 120	0	20
Zinc	8.3	J,DX	80.0	87.1		ug/L		98	80 - 120	1	20

Lab Sample ID: MB 570-296510/1-A
Matrix: Water
Analysis Batch: 296754

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil	Fac
	Result									
Silver	ND		1.0	0.23	ug/L			01/18/23 10:06		1
Cadmium	ND		1.0	0.13	ug/L			01/18/23 10:06		1
Copper	ND		2.0	0.32	ug/L			01/18/23 10:06		1
Lead	ND		1.0	0.12	ug/L			01/18/23 10:06		1
Antimony	ND		2.0	0.36	ug/L			01/18/23 10:06		1
Selenium	ND		2.0	0.52	ug/L			01/18/23 10:06		1
Thallium	ND		1.0	0.11	ug/L			01/18/23 10:06		1
Nickel	ND		2.0	0.17	ug/L			01/18/23 10:06		1
Zinc	ND		20	2.8	ug/L			01/18/23 10:06		1

Lab Sample ID: LCS 570-296510/2-A
Matrix: Water
Analysis Batch: 296754

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS	LCS Qualifier	Unit	D	%Rec	%Rec	RPD	Limit
		Result					Limits		
Silver	80.0	73.1		ug/L		91	85 - 115		
Cadmium	80.0	73.6		ug/L		92	85 - 115		
Copper	80.0	75.7		ug/L		95	85 - 115		
Lead	80.0	75.5		ug/L		94	85 - 115		
Antimony	80.0	74.4		ug/L		93	85 - 115		
Selenium	80.0	72.7		ug/L		91	85 - 115		
Thallium	80.0	74.6		ug/L		93	85 - 115		
Nickel	80.0	75.3		ug/L		94	85 - 115		
Zinc	80.0	74.3		ug/L		93	85 - 115		

Lab Sample ID: LCSD 570-296510/3-A
Matrix: Water
Analysis Batch: 296754

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD	LCSD Qualifier	Unit	D	%Rec	%Rec	RPD	Limit
		Result					Limits		
Silver	80.0	75.5		ug/L		94	85 - 115	3	20
Cadmium	80.0	75.7		ug/L		95	85 - 115	3	20
Copper	80.0	76.9		ug/L		96	85 - 115	2	20
Lead	80.0	77.0		ug/L		96	85 - 115	2	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 570-296510/3-A
Matrix: Water
Analysis Batch: 296754

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	80.0	76.7		ug/L		96	85 - 115	3	20
Selenium	80.0	73.1		ug/L		91	85 - 115	1	20
Thallium	80.0	76.2		ug/L		95	85 - 115	2	20
Nickel	80.0	76.9		ug/L		96	85 - 115	2	20
Zinc	80.0	74.9		ug/L		94	85 - 115	1	20

Lab Sample ID: 570-123653-C-2-B MS
Matrix: Water
Analysis Batch: 296754

Client Sample ID: Matrix Spike
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	ND		80.0	75.5		ug/L		94	80 - 120
Cadmium	ND		80.0	76.6		ug/L		96	80 - 120
Copper	2.4		80.0	81.1		ug/L		98	80 - 120
Lead	0.27	J,DX	80.0	78.3		ug/L		98	80 - 120
Antimony	0.46	J,DX	80.0	78.4		ug/L		97	80 - 120
Selenium	ND		80.0	77.0		ug/L		96	80 - 120
Thallium	ND		80.0	77.4		ug/L		97	80 - 120
Nickel	1.1	J,DX	80.0	78.8		ug/L		97	80 - 120
Zinc	4.2	J,DX	80.0	80.7		ug/L		96	80 - 120

Lab Sample ID: 570-123653-C-2-C MSD
Matrix: Water
Analysis Batch: 296754

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silver	ND		80.0	75.1		ug/L		94	80 - 120	1	20
Cadmium	ND		80.0	75.6		ug/L		95	80 - 120	1	20
Copper	2.4		80.0	80.8		ug/L		98	80 - 120	0	20
Lead	0.27	J,DX	80.0	78.9		ug/L		98	80 - 120	1	20
Antimony	0.46	J,DX	80.0	77.9		ug/L		97	80 - 120	1	20
Selenium	ND		80.0	77.7		ug/L		97	80 - 120	1	20
Thallium	ND		80.0	77.5		ug/L		97	80 - 120	0	20
Nickel	1.1	J,DX	80.0	77.7		ug/L		96	80 - 120	1	20
Zinc	4.2	J,DX	80.0	79.0		ug/L		93	80 - 120	2	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-296898/1-A
Matrix: Water
Analysis Batch: 297225

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 296898

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/18/23 18:51	01/19/23 16:49	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 570-296898/2-A
Matrix: Water
Analysis Batch: 297225

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 296898

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.50		ug/L		106	85 - 115

Lab Sample ID: LCSD 570-296898/3-A
Matrix: Water
Analysis Batch: 297225

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 296898

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.64		ug/L		108	85 - 115	2	10

Lab Sample ID: 570-124050-A-1-E MS
Matrix: Water
Analysis Batch: 297225

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 296898

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.45		ug/L		106	85 - 115

Lab Sample ID: 570-124050-A-1-F MSD
Matrix: Water
Analysis Batch: 297225

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 296898

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	8.44		ug/L		105	85 - 115	0	10

Lab Sample ID: MB 570-296900/1-B
Matrix: Water
Analysis Batch: 297225

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 296901

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/18/23 19:30	01/19/23 18:20	1

Lab Sample ID: LCS 570-296900/2-B
Matrix: Water
Analysis Batch: 297225

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 296901

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.90		ug/L		111	85 - 115

Lab Sample ID: LCSD 570-296900/3-B
Matrix: Water
Analysis Batch: 297225

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 296901

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.89		ug/L		111	85 - 115	0	10

Lab Sample ID: 570-124243-F-3-E MS
Matrix: Water
Analysis Batch: 297225

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 296901

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.84		ug/L		111	85 - 115

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: 570-124243-F-3-F MSD
 Matrix: Water
 Analysis Batch: 297225

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Dissolved
 Prep Batch: 296901

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	8.81		ug/L		110	85 - 115	0	10

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-296559/11
 Matrix: Water
 Analysis Batch: 296559

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			01/17/23 15:00	1

Lab Sample ID: LCS 570-296559/12
 Matrix: Water
 Analysis Batch: 296559

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	243		ug/L		97	90 - 110

Lab Sample ID: LCSD 570-296559/13
 Matrix: Water
 Analysis Batch: 296559

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	250	229		ug/L		92	90 - 110	6	20

Lab Sample ID: MRL 570-296559/10
 Matrix: Water
 Analysis Batch: 296559

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	5.00	5.17		ug/L		104	50 - 150

Lab Sample ID: 570-123565-A-1 MS
 Matrix: Water
 Analysis Batch: 296559

Client Sample ID: Matrix Spike
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	ND		250	209		ug/L		84	70 - 130

Lab Sample ID: 570-123565-A-1 MSD
 Matrix: Water
 Analysis Batch: 296559

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	ND		250	211		ug/L		84	70 - 130	1	30

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-296842/1
 Matrix: Water
 Analysis Batch: 296842

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			01/18/23 15:24	1

Lab Sample ID: LCS 570-296842/2
 Matrix: Water
 Analysis Batch: 296842

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1040		mg/L		104	84 - 108

Lab Sample ID: LCSD 570-296842/3
 Matrix: Water
 Analysis Batch: 296842

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1040		mg/L		104	84 - 108	1	10

Lab Sample ID: 570-124247-H-1 DU
 Matrix: Water
 Analysis Batch: 296842

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	260		253		mg/L		0.8	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-297110/1
 Matrix: Water
 Analysis Batch: 297110

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			01/19/23 13:23	1

Lab Sample ID: LCS 570-297110/2
 Matrix: Water
 Analysis Batch: 297110

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	97.0		mg/L		97	77 - 116

Lab Sample ID: LCSD 570-297110/3
 Matrix: Water
 Analysis Batch: 297110

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	93.0		mg/L		93	77 - 116	4	10

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: 570-124239-1 DU
Matrix: Water
Analysis Batch: 297110

Client Sample ID: Outfall009_20230115_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	6.2		6.80		mg/L		9	10

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

HPLC/IC

Analysis Batch: 295973

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-1	Outfall009_20230115_Comp	Total/NA	Water	300.0	
MB 570-295973/5	Method Blank	Total/NA	Water	300.0	
LCS 570-295973/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-295973/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-123084-I-3 MS	Matrix Spike	Total/NA	Water	300.0	
570-123084-I-3 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 299126

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-1	Outfall009_20230115_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Filtration Batch: 296510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-2	Outfall009_20230115_Comp_F	Dissolved	Water	Filtration	
MB 570-296510/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-296510/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-296510/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-123653-C-2-B MS	Matrix Spike	Dissolved	Water	Filtration	
570-123653-C-2-C MSD	Matrix Spike Duplicate	Dissolved	Water	Filtration	

Analysis Batch: 296754

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-2	Outfall009_20230115_Comp_F	Dissolved	Water	200.8	296510
MB 570-296510/1-A	Method Blank	Dissolved	Water	200.8	296510
LCS 570-296510/2-A	Lab Control Sample	Dissolved	Water	200.8	296510
LCSD 570-296510/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	296510
570-123653-C-2-B MS	Matrix Spike	Dissolved	Water	200.8	296510
570-123653-C-2-C MSD	Matrix Spike Duplicate	Dissolved	Water	200.8	296510

Prep Batch: 296898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-1	Outfall009_20230115_Comp	Total/NA	Water	245.1	
MB 570-296898/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-296898/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-296898/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-124050-A-1-E MS	Matrix Spike	Total/NA	Water	245.1	
570-124050-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

Filtration Batch: 296900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-2	Outfall009_20230115_Comp_F	Dissolved	Water	Filtration	
MB 570-296900/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-296900/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-296900/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-124243-F-3-E MS	Matrix Spike	Dissolved	Water	Filtration	
570-124243-F-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	Filtration	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Metals

Prep Batch: 296901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-2	Outfall009_20230115_Comp_F	Dissolved	Water	245.1	296900
MB 570-296900/1-B	Method Blank	Dissolved	Water	245.1	296900
LCS 570-296900/2-B	Lab Control Sample	Dissolved	Water	245.1	296900
LCSD 570-296900/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	296900
570-124243-F-3-E MS	Matrix Spike	Dissolved	Water	245.1	296900
570-124243-F-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	296900

Prep Batch: 297004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-1	Outfall009_20230115_Comp	Total Recoverable	Water	200.8	
MB 570-297004/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-297004/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-297004/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-124239-1 MS	Outfall009_20230115_Comp	Total Recoverable	Water	200.8	
570-124239-1 MSD	Outfall009_20230115_Comp	Total Recoverable	Water	200.8	

Analysis Batch: 297141

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-1	Outfall009_20230115_Comp	Total Recoverable	Water	200.8	297004
MB 570-297004/1-A	Method Blank	Total Recoverable	Water	200.8	297004
LCS 570-297004/2-A	Lab Control Sample	Total Recoverable	Water	200.8	297004
LCSD 570-297004/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	297004
570-124239-1 MS	Outfall009_20230115_Comp	Total Recoverable	Water	200.8	297004
570-124239-1 MSD	Outfall009_20230115_Comp	Total Recoverable	Water	200.8	297004

Analysis Batch: 297225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-1	Outfall009_20230115_Comp	Total/NA	Water	245.1	296898
570-124239-2	Outfall009_20230115_Comp_F	Dissolved	Water	245.1	296901
MB 570-296898/1-A	Method Blank	Total/NA	Water	245.1	296898
MB 570-296900/1-B	Method Blank	Dissolved	Water	245.1	296901
LCS 570-296898/2-A	Lab Control Sample	Total/NA	Water	245.1	296898
LCS 570-296900/2-B	Lab Control Sample	Dissolved	Water	245.1	296901
LCSD 570-296898/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	296898
LCSD 570-296900/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	296901
570-124050-A-1-E MS	Matrix Spike	Total/NA	Water	245.1	296898
570-124050-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	296898
570-124243-F-3-E MS	Matrix Spike	Dissolved	Water	245.1	296901
570-124243-F-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	296901

General Chemistry

Analysis Batch: 296559

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-1	Outfall009_20230115_Comp	Total/NA	Water	Kelada 01	
MB 570-296559/11	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-296559/12	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-296559/13	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-296559/10	Lab Control Sample	Total/NA	Water	Kelada 01	
570-123565-A-1 MS	Matrix Spike	Total/NA	Water	Kelada 01	
570-123565-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	Kelada 01	

Eurofins Calscience

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

General Chemistry

Analysis Batch: 296842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-1	Outfall009_20230115_Comp	Total/NA	Water	SM 2540C	
MB 570-296842/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-296842/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-296842/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
570-124247-H-1 DU	Duplicate	Total/NA	Water	SM 2540C	

Analysis Batch: 297110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-1	Outfall009_20230115_Comp	Total/NA	Water	SM 2540D	
MB 570-297110/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-297110/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-297110/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
570-124239-1 DU	Outfall009_20230115_Comp	Total/NA	Water	SM 2540D	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Client Sample ID: Outfall009_20230115_Comp

Lab Sample ID: 570-124239-1

Date Collected: 01/15/23 09:15

Matrix: Water

Date Received: 01/16/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		5	4 mL	4 mL	295973	01/16/23 22:29	PS	EET CAL 4
Instrument ID: IC9										
Total/NA	Analysis	NO2NO3 Calc		1			299126	01/27/23 10:21	WH6J	EET CAL 4
Instrument ID: NOEQUIP										
Total Recoverable	Prep	200.8			50 mL	50 mL	297004	01/19/23 09:12	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			297141	01/19/23 13:32	Y2WS	EET CAL 4
Instrument ID: ICPMS10										
Total/NA	Prep	245.1			25 mL	50 mL	296898	01/18/23 18:51	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			297225	01/19/23 17:23	C0YH	EET CAL 4
Instrument ID: HG8										
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	296559	01/17/23 16:21	GG0B	EET CAL 4
Instrument ID: LACHAT01										
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	296842	01/18/23 15:24	ZL7L	EET CAL 4
Instrument ID: NOEQUIP										
Total/NA	Analysis	SM 2540D		1	500 mL	1000 mL	297110	01/19/23 13:23	BDH9	EET CAL 4
Instrument ID: NOEQUIP										

Client Sample ID: Outfall009_20230115_Comp_F

Lab Sample ID: 570-124239-2

Date Collected: 01/15/23 09:15

Matrix: Water

Date Received: 01/16/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	296510	01/17/23 15:47	W1BQ	EET CAL 4
Dissolved	Analysis	200.8		1			296754	01/18/23 09:56	Y2WS	EET CAL 4
Instrument ID: ICPMS10										
Dissolved	Filtration	Filtration			25 mL	25 mL	296900	01/18/23 18:53	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	296901	01/18/23 19:30	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			297225	01/19/23 18:34	C0YH	EET CAL 4
Instrument ID: HG8										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-23
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-23
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4

Protocol References:

- EPA = US Environmental Protection Agency
- None = None
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

- EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124239-1	Outfall009_20230115_Comp	Water	01/15/23 09:15	01/16/23 17:00
570-124239-2	Outfall009_20230115_Comp_F	Water	01/15/23 09:15	01/16/23 17:00

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124239

Need to log in calc, not report nitrate, nitrite separately

CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

Client Name/Address:
 Haley & Aldrich
 5333 Mission Center Rd Suite 300
 San Diego, CA 92108

Eurofins Calscience Irvine Contact: Christian Bondoc
 17461 Derian Ave Suite #100
 Irvine CA 92614
 Tel: 949-260-3218

Project:
 Boeing-SSFL NPDES
 Permit 2023
 Routine Outfall 003-007 009 010
 Outfall 009
 Comp

Project Manager: Katherine Miller
 520.289.8606 520.904.6944 (cell)
 Field Manager: Mark Dominick
 976.294.5033 818.599.0702 (cell)

TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2018-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.

Sampler

Sample Description	Sample Matrix	Sampling Date/Time	Sample I.D.	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Comments
①	WM	1/15/2023	Outfall009_20230115_Comp	500 mL Poly	1	HNO ₃	95	No	
②	WM	1/15/2023	Outfall09_20230115_Comp_F	1 L Glass Amber	2	None	110	No	
③	WM	1/15/2023	Outfall009_20230115_Comp_Ecra	500 mL Poly	2	None	145	No	
	WM	1/15/2023		500 mL Poly	2	None	145	No	
	WM	1/15/2023		500 mL Poly	1	None	155	No	
	WM	1/15/2023		500 mL Poly	1	NaOH	220	No	
	WM	1/15/2023		2.5 Gal Cube	1	None	225	No	
	WM	1/15/2023		1 L Glass Amber	1	None	230	No	
	WM	1/15/2023		1 Gal Cube	6	None	235	No	
	WM	1/15/2023		1 L Poly	1	None	185	No	
	WM	1/15/2023		1 L Poly	1	None	205	No	
	WM	1/15/2023		borosilicate vials	1	None	320	No	
	WM	1/15/2023		1 L Glass Amber	2	None	110	No	
	WM	1/15/2023		500 mL Poly	2	None	145	No	

ANALYSIS REQUIRED

Parameter	Result	Unit
Total Recoverable Metals: Mercury (E245.1)	X	µg/L
Cyanide (SM4500-CN-E / E395.2)	X	µg/L
Chronic Toxicity: Selenium (EPA-821-R-02-013) ABC Labs in Ventura, CA	X	µg/L
Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E905.0), Sr-90 (E905.0), Total Combined Radium 226 (E905.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	X	dpm/100 mL
Total Dissolved Metals: (E200.7)-Ni, Zn (E200.8)-Ag, Cd, Cu, Pb, Sb, Se, Tl	X	µg/L
TDS (SM2540C/E160.1)	X	mg/L
TCDD (and all congeners) (E1413B)	X	pg/L
Cr, SO ₄ , NO ₃ , NO ₂ , N (300)	X	mg/L

48 hours Holding Time NO₂ & NO₃

Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.

Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA.

Filter and preserve within 24hrs of receipt at lab.

Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.

Hold

Hold

Chronic toxicity not collected and not submitted. Removed from COC (MD 2/1/2023)

Turn-around time: (Check)
 24 Hour: ___ 72 Hour: ___ 10 Day: ___ X
 48 Hour: ___ 5 Day: ___ Normal: ___

Sample Integrity: (Check)
 Intact: ___ On Ice: ___
 Store samples for 6 months.
 Data Requirements: (Check)
 No Level IV: ___ All Level IV: ___ X

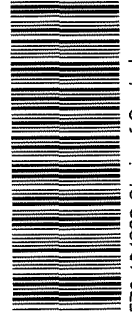
Legend: EP=Expert Panel, R=Routine

Relinquished By: [Signature] Date/Time: 1-16-2023 14:30 Company: EC

Relinquished By: [Signature] Date/Time: 1-16-23 17:00 Company: EC

Relinquished By: [Signature] Date/Time: 1-16-23 17:00 Company: EC

18/18 1.9/1.9 SC11



570-124239 Chain of Custody

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124239

CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

<p>Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p>		<p>Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall 003-007 009 010 Outfall 009 Comp</p>		<p>Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)</p>	
<p>Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218</p>		<p>Sample ID: Outfall09_20230115_Comp</p>		<p>Sampling Date/Time: 1/15/2023 10:15</p>	
<p>Sample Description: ① Outfall 009</p>		<p>Sample Matrix: WM</p>		<p>Container Type: 500 mL Poly</p>	
<p>② Outfall09_20230115_Comp_F</p>		<p>Sample Matrix: WM</p>		<p>Container Type: borosilicate Vials</p>	
<p>③ Outfall09_20230115_Comp_Edta</p>		<p>Sample Matrix: WM</p>		<p>Container Type: 500 mL Poly</p>	
<p>ANALYSIS REQUIRED</p>		<p>TCDD (and all congeners) (E1613B) (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl</p>		<p>Total Recoverable Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl</p>	
<p>TDS (SM2540C/E160.1)</p>		<p>Total Dissolved Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl</p>		<p>Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E908.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0) & Radium 228 (E903.0), Uranium (E908.0), K-40, Cs-137 (E901.0 or E901.1)</p>	
<p>Chronic Toxicity: Selenium (EPA-821-R-02-013) ABC Labs in Ventura, CA</p>		<p>Cyanide (SM4500-CN-E / E935.2)</p>		<p>Total Recoverable Metals: Mercury (E245.1)</p>	
<p>TSS (160.2) (SM2540D)</p>		<p>Total Dissolved Metals: Mercury (E245.1)</p>		<p>48 hours Holding Time NO₂ & NO₃</p>	
<p>Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD. Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA.</p>		<p>Filter and preserve within 24hrs of receipt at lab.</p>		<p>Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.</p>	
<p>Hold</p>		<p>Hold</p>		<p>Turn-around time: (Check) 24 Hour: ___ 72 Hour: ___ 10 Day: ___ X 48 Hour: ___ 5 Day: ___ Normal: ___</p>	

Legend: EP=Expert Panel, R=Routine
 Received by: [Signature] Date/Time: 1-16-23 14:30
 Company: H.A.
 Received by: [Signature] Date/Time: 1-16-23 17:00
 Company: EC
 Received by: [Signature] Date/Time: 1-16-23 17:00
 Company: EC

1/8/18 1.9/1.9 SC11



570-124239 Chain of Custody

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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124239-1

Login Number: 124239

List Source: Eurofins Calscience

List Number: 1

Creator: Patel, Virendra

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 009 - COMP

JOB NUMBER

570-124239-2

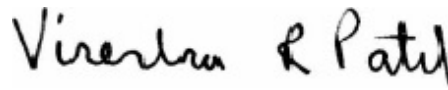
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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2/14/2023 1:39:29 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
♠	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-2

Job ID: 570-124239-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-124239-2

Comments

No additional comments.

Receipt

The samples were received on 1/16/2023 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.8° C and 1.9° C.

Dioxin

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument 11D2 exceeded this criteria: Outfall009_20230115_Comp (570-124239-1), (CCV 320-652285/2) and (MB 320-650862/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-2

Client Sample ID: Outfall009_20230115_Comp

Lab Sample ID: 570-124239-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,7,8-PeCDD	0.0000028	J,DX MB q	0.000048	0.000002	ug/L	1		1613B	Total/NA
				5					
1,2,3,4,7,8-HxCDD	0.0000034	J,DX MB	0.000048	0.000010	ug/L	1		1613B	Total/NA
1,2,3,6,7,8-HxCDD	0.0000011	J,DX MB q	0.000048	0.000010	ug/L	1		1613B	Total/NA
1,2,3,4,6,7,8-HpCDD	0.000017	J,DX MB	0.000048	0.000004	ug/L	1		1613B	Total/NA
				4					
1,2,3,4,6,7,8-HpCDF	0.0000039	J,DX MB	0.000048	0.000003	ug/L	1		1613B	Total/NA
				4					
OCDD	0.00017	MB	0.000095	0.000011	ug/L	1		1613B	Total/NA
OCDF	0.0000093	J,DX MB	0.000095	0.000002	ug/L	1		1613B	Total/NA
				3					
Total TCDD	0.0000087	J,DX MB q	0.000095	0.000002	ug/L	1		1613B	Total/NA
				9					
Total TCDF	0.0000071	J,DX MB q	0.000095	0.000001	ug/L	1		1613B	Total/NA
				2					
Total PeCDD	0.0000013	J,DX MB q	0.000048	0.000002	ug/L	1		1613B	Total/NA
				5					
Total PeCDF	0.0000018	J,DX MB q	0.000048	0.000001	ug/L	1		1613B	Total/NA
				6					
Total HxCDD	0.0000067	J,DX MB q	0.000048	0.000008	ug/L	1		1613B	Total/NA
				9					
Total HxCDF	0.0000024	J,DX MB q	0.000048	0.000006	ug/L	1		1613B	Total/NA
				4					
Total HpCDD	0.000034	J,DX MB	0.000048	0.000004	ug/L	1		1613B	Total/NA
				4					
Total HpCDF	0.0000081	J,DX MB	0.000048	0.000003	ug/L	1		1613B	Total/NA
				4					

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall009_20230115_Comp

Date Collected: 01/15/23 09:15

Date Received: 01/16/23 17:00

Lab Sample ID: 570-124239-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000095	0.0000002	ug/L		02/01/23 06:04	02/06/23 18:15	1
1,2,3,7,8-PeCDD	0.00000028	J,DX MB q	0.000048	0.0000002	ug/L		02/01/23 06:04	02/06/23 18:15	1
1,2,3,7,8-PeCDF	ND		0.000048	0.0000001	ug/L		02/01/23 06:04	02/06/23 18:15	1
2,3,4,7,8-PeCDF	ND		0.000048	0.0000002	ug/L		02/01/23 06:04	02/06/23 18:15	1
1,2,3,4,7,8-HxCDD	0.00000034	J,DX MB	0.000048	0.0000010	ug/L		02/01/23 06:04	02/06/23 18:15	1
1,2,3,6,7,8-HxCDD	0.00000011	J,DX MB q	0.000048	0.0000010	ug/L		02/01/23 06:04	02/06/23 18:15	1
1,2,3,7,8,9-HxCDD	ND		0.000048	0.0000008	ug/L		02/01/23 06:04	02/06/23 18:15	1
1,2,3,4,7,8-HxCDF	ND		0.000048	0.0000008	ug/L		02/01/23 06:04	02/06/23 18:15	1
1,2,3,6,7,8-HxCDF	ND		0.000048	0.0000007	ug/L		02/01/23 06:04	02/06/23 18:15	1
1,2,3,7,8,9-HxCDF	ND		0.000048	0.0000007	ug/L		02/01/23 06:04	02/06/23 18:15	1
2,3,4,6,7,8-HxCDF	ND		0.000048	0.0000006	ug/L		02/01/23 06:04	02/06/23 18:15	1
1,2,3,4,6,7,8-HpCDD	0.00000017	J,DX MB	0.000048	0.0000004	ug/L		02/01/23 06:04	02/06/23 18:15	1
1,2,3,4,6,7,8-HpCDF	0.00000039	J,DX MB	0.000048	0.0000003	ug/L		02/01/23 06:04	02/06/23 18:15	1
1,2,3,4,7,8,9-HpCDF	ND		0.000048	0.0000003	ug/L		02/01/23 06:04	02/06/23 18:15	1
OCDD	0.000017	MB	0.000095	0.0000011	ug/L		02/01/23 06:04	02/06/23 18:15	1
OCDF	0.00000093	J,DX MB	0.000095	0.0000002	ug/L		02/01/23 06:04	02/06/23 18:15	1
Total TCDD	0.00000087	J,DX MB q	0.0000095	0.0000002	ug/L		02/01/23 06:04	02/06/23 18:15	1
Total TCDF	0.00000071	J,DX MB q	0.0000095	0.0000001	ug/L		02/01/23 06:04	02/06/23 18:15	1
Total PeCDD	0.00000013	J,DX MB q	0.000048	0.0000002	ug/L		02/01/23 06:04	02/06/23 18:15	1
Total PeCDF	0.00000018	J,DX MB q	0.000048	0.0000001	ug/L		02/01/23 06:04	02/06/23 18:15	1
Total HxCDD	0.00000067	J,DX MB q	0.000048	0.0000008	ug/L		02/01/23 06:04	02/06/23 18:15	1
Total HxCDF	0.00000024	J,DX MB q	0.000048	0.0000006	ug/L		02/01/23 06:04	02/06/23 18:15	1
Total HpCDD	0.00000034	J,DX MB	0.000048	0.0000004	ug/L		02/01/23 06:04	02/06/23 18:15	1
Total HpCDF	0.00000081	J,DX MB	0.000048	0.0000003	ug/L		02/01/23 06:04	02/06/23 18:15	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	63		25 - 164				02/01/23 06:04	02/06/23 18:15	1
13C-2,3,7,8-TCDF	63		24 - 169				02/01/23 06:04	02/06/23 18:15	1
13C-1,2,3,7,8-PeCDD	63		25 - 181				02/01/23 06:04	02/06/23 18:15	1
13C-1,2,3,7,8-PeCDF	64		24 - 185				02/01/23 06:04	02/06/23 18:15	1
13C-2,3,4,7,8-PeCDF	59		21 - 178				02/01/23 06:04	02/06/23 18:15	1
13C-1,2,3,4,7,8-HxCDD	56		32 - 141				02/01/23 06:04	02/06/23 18:15	1
13C-1,2,3,6,7,8-HxCDD	61		28 - 130				02/01/23 06:04	02/06/23 18:15	1
13C-1,2,3,4,7,8-HxCDF	53		26 - 152				02/01/23 06:04	02/06/23 18:15	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall009_20230115_Comp
Date Collected: 01/15/23 09:15
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124239-1
Matrix: Water

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-1,2,3,6,7,8-HxCDF	61		26 - 123	02/01/23 06:04	02/06/23 18:15	1
13C-1,2,3,7,8,9-HxCDF	71		29 - 147	02/01/23 06:04	02/06/23 18:15	1
13C-2,3,4,6,7,8-HxCDF	70		28 - 136	02/01/23 06:04	02/06/23 18:15	1
13C-1,2,3,4,6,7,8-HpCDD	66		23 - 140	02/01/23 06:04	02/06/23 18:15	1
13C-1,2,3,4,6,7,8-HpCDF	59		28 - 143	02/01/23 06:04	02/06/23 18:15	1
13C-1,2,3,4,7,8,9-HpCDF	67		26 - 138	02/01/23 06:04	02/06/23 18:15	1
13C-OCDD	65		17 - 157	02/01/23 06:04	02/06/23 18:15	1
13C-OCDF	64		17 - 157	02/01/23 06:04	02/06/23 18:15	1
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
37Cl4-2,3,7,8-TCDD	80		35 - 197	02/01/23 06:04	02/06/23 18:15	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Client Sample ID: Outfall009_20230115_Comp
Date Collected: 01/15/23 09:15
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124239-1
Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	ND		0.0000095	0.0000004	ug/L		02/01/23 06:04	02/07/23 15:04	1
				1					
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	61		24 - 169				02/01/23 06:04	02/07/23 15:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	93		35 - 197				02/01/23 06:04	02/07/23 15:04	1

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Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-124239-1	Outfall009_20230115_Comp	80
570-124239-1 - RA	Outfall009_20230115_Comp	93
MB 320-650862/1-A	Method Blank	82
MB 320-650862/1-A - RA	Method Blank	95

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-650862/2-A	Lab Control Sample	83
LCSD 320-650862/3-A	Lab Control Sample Dup	79

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-124239-1	Outfall009_20230115_Comp	63	63	63	64	59	56	61	53
570-124239-1 - RA	Outfall009_20230115_Comp		61						
MB 320-650862/1-A	Method Blank	61	60	63	63	64	62	66	57
MB 320-650862/1-A - RA	Method Blank		59						

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	¹³ CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-124239-1	Outfall009_20230115_Comp	61	71	70	66	59	67	65	64
570-124239-1 - RA	Outfall009_20230115_Comp								
MB 320-650862/1-A	Method Blank	66	66	67	62	59	62	61	60
MB 320-650862/1-A - RA	Method Blank								

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- ¹³CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- OCDD = 13C-OCDD
- OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-650862/2-A	Lab Control Sample	60	59	60	61	55	54	57	49
LCSD 320-650862/3-A	Lab Control Sample Dup	62	60	64	65	62	62	64	58

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	¹³ CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-650862/2-A	Lab Control Sample	57	66	65	62	55	63	62	62
LCSD 320-650862/3-A	Lab Control Sample Dup	65	69	70	65	62	67	65	64

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF

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Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-124239-2

Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

HxCDD = 13C-1,2,3,4,7,8-HxCDD

HxDD = 13C-1,2,3,6,7,8-HxCDD

HxCDF = 13C-1,2,3,4,7,8-HxCDF

HxDF = 13C-1,2,3,6,7,8-HxCDF

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-650862/1-A
Matrix: Water
Analysis Batch: 652038

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 650862

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8-PeCDF	63		24 - 185	02/01/23 06:04	02/06/23 14:23	1
13C-2,3,4,7,8-PeCDF	64		21 - 178	02/01/23 06:04	02/06/23 14:23	1
13C-1,2,3,4,7,8-HxCDD	62		32 - 141	02/01/23 06:04	02/06/23 14:23	1
13C-1,2,3,6,7,8-HxCDD	66		28 - 130	02/01/23 06:04	02/06/23 14:23	1
13C-1,2,3,4,7,8-HxCDF	57		26 - 152	02/01/23 06:04	02/06/23 14:23	1
13C-1,2,3,6,7,8-HxCDF	66		26 - 123	02/01/23 06:04	02/06/23 14:23	1
13C-1,2,3,7,8,9-HxCDF	66		29 - 147	02/01/23 06:04	02/06/23 14:23	1
13C-2,3,4,6,7,8-HxCDF	67		28 - 136	02/01/23 06:04	02/06/23 14:23	1
13C-1,2,3,4,6,7,8-HpCDD	62		23 - 140	02/01/23 06:04	02/06/23 14:23	1
13C-1,2,3,4,6,7,8-HpCDF	59		28 - 143	02/01/23 06:04	02/06/23 14:23	1
13C-1,2,3,4,7,8,9-HpCDF	62		26 - 138	02/01/23 06:04	02/06/23 14:23	1
13C-OCDD	61		17 - 157	02/01/23 06:04	02/06/23 14:23	1
13C-OCDF	60		17 - 157	02/01/23 06:04	02/06/23 14:23	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	82		35 - 197	02/01/23 06:04	02/06/23 14:23	1

Lab Sample ID: LCS 320-650862/2-A
Matrix: Water
Analysis Batch: 652038

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 650862

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,3,7,8-TCDF	0.000200	0.000228		ug/L		114	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00103		ug/L		103	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00104		ug/L		104	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.00104		ug/L		104	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.00102		ug/L		102	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00105		ug/L		105	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00116		ug/L		116	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.00104		ug/L		104	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00105		ug/L		105	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.00103		ug/L		103	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00104		ug/L		104	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.00104		ug/L		104	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00105		ug/L		105	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.00104		ug/L		104	78 - 138
OCDD	0.00200	0.00205		ug/L		103	78 - 144
OCDF	0.00200	0.00216		ug/L		108	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	60		20 - 175
13C-2,3,7,8-TCDF	59		22 - 152
13C-1,2,3,7,8-PeCDD	60		21 - 227
13C-1,2,3,7,8-PeCDF	61		21 - 192
13C-2,3,4,7,8-PeCDF	55		13 - 328
13C-1,2,3,4,7,8-HxCDD	54		21 - 193
13C-1,2,3,6,7,8-HxCDD	57		25 - 163

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-650862/2-A
Matrix: Water
Analysis Batch: 652038

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 650862

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,4,7,8-HxCDF	49		19 - 202
13C-1,2,3,6,7,8-HxCDF	57		21 - 159
13C-1,2,3,7,8,9-HxCDF	66		17 - 205
13C-2,3,4,6,7,8-HxCDF	65		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	62		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	55		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	63		20 - 186
13C-OCDD	62		13 - 199
13C-OCDF	62		13 - 199

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	83		31 - 191

Lab Sample ID: LCSD 320-650862/3-A
Matrix: Water
Analysis Batch: 652038

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 650862

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
2,3,7,8-TCDD	0.000200	0.000213		ug/L		106	67 - 158	2	50	
2,3,7,8-TCDF	0.000200	0.000223		ug/L		112	75 - 158	2	50	
1,2,3,7,8-PeCDD	0.00100	0.00102		ug/L		102	70 - 142	1	50	
1,2,3,7,8-PeCDF	0.00100	0.00102		ug/L		102	80 - 134	2	50	
2,3,4,7,8-PeCDF	0.00100	0.00104		ug/L		104	68 - 160	0	50	
1,2,3,4,7,8-HxCDD	0.00100	0.000996		ug/L		100	70 - 164	2	50	
1,2,3,6,7,8-HxCDD	0.00100	0.00105		ug/L		105	76 - 134	0	50	
1,2,3,7,8,9-HxCDD	0.00100	0.00105		ug/L		105	64 - 162	9	50	
1,2,3,4,7,8-HxCDF	0.00100	0.00101		ug/L		101	72 - 134	3	50	
1,2,3,6,7,8-HxCDF	0.00100	0.00104		ug/L		104	84 - 130	1	50	
1,2,3,7,8,9-HxCDF	0.00100	0.00102		ug/L		102	78 - 130	2	50	
2,3,4,6,7,8-HxCDF	0.00100	0.00102		ug/L		102	70 - 156	2	50	
1,2,3,4,6,7,8-HpCDD	0.00100	0.00103		ug/L		103	70 - 140	0	50	
1,2,3,4,6,7,8-HpCDF	0.00100	0.00104		ug/L		104	82 - 122	1	50	
1,2,3,4,7,8,9-HpCDF	0.00100	0.00103		ug/L		103	78 - 138	1	50	
OCDD	0.00200	0.00205		ug/L		102	78 - 144	0	50	
OCDF	0.00200	0.00213		ug/L		106	63 - 170	1	50	

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	62		20 - 175
13C-2,3,7,8-TCDF	60		22 - 152
13C-1,2,3,7,8-PeCDD	64		21 - 227
13C-1,2,3,7,8-PeCDF	65		21 - 192
13C-2,3,4,7,8-PeCDF	62		13 - 328
13C-1,2,3,4,7,8-HxCDD	62		21 - 193
13C-1,2,3,6,7,8-HxCDD	64		25 - 163
13C-1,2,3,4,7,8-HxCDF	58		19 - 202
13C-1,2,3,6,7,8-HxCDF	65		21 - 159
13C-1,2,3,7,8,9-HxCDF	69		17 - 205
13C-2,3,4,6,7,8-HxCDF	70		22 - 176

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-650862/3-A
Matrix: Water
Analysis Batch: 652038

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 650862

<u>Isotope Dilution</u>	<u>LCSD LCSD</u>		<u>Limits</u>
	<u>%Recovery</u>	<u>Qualifier</u>	
13C-1,2,3,4,6,7,8-HpCDD	65		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	62		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	67		20 - 186
13C-OCDD	65		13 - 199
13C-OCDF	64		13 - 199

<u>Surrogate</u>	<u>LCSD LCSD</u>		<u>Limits</u>
	<u>%Recovery</u>	<u>Qualifier</u>	
37Cl4-2,3,7,8-TCDD	79		31 - 191

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Lab Sample ID: MB 320-650862/1-A
Matrix: Water
Analysis Batch: 652285

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 650862

<u>Analyte</u>	<u>MB Result</u>	<u>MB Qualifier</u>	<u>RL</u>	<u>EDL</u>	<u>Unit</u>	<u>D</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
2,3,7,8-TCDF - RA	ND		0.000010	0.0000005	ug/L		02/01/23 06:04	02/07/23 13:23	1

<u>Isotope Dilution</u>	<u>MB MB</u>		<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
	<u>%Recovery</u>	<u>Qualifier</u>				
13C-2,3,7,8-TCDF - RA	59		24 - 169	02/01/23 06:04	02/07/23 13:23	1

<u>Surrogate</u>	<u>MB MB</u>		<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
	<u>%Recovery</u>	<u>Qualifier</u>				
37Cl4-2,3,7,8-TCDD - RA	95		35 - 197	02/01/23 06:04	02/07/23 13:23	1

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-2

Specialty Organics

Prep Batch: 650862

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-1 - RA	Outfall009_20230115_Comp	Total/NA	Water	1613B	
570-124239-1	Outfall009_20230115_Comp	Total/NA	Water	1613B	
MB 320-650862/1-A - RA	Method Blank	Total/NA	Water	1613B	
MB 320-650862/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-650862/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-650862/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 652038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-1	Outfall009_20230115_Comp	Total/NA	Water	1613B	650862
MB 320-650862/1-A	Method Blank	Total/NA	Water	1613B	650862
LCS 320-650862/2-A	Lab Control Sample	Total/NA	Water	1613B	650862
LCSD 320-650862/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	650862

Analysis Batch: 652285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-1 - RA	Outfall009_20230115_Comp	Total/NA	Water	1613B	650862
MB 320-650862/1-A - RA	Method Blank	Total/NA	Water	1613B	650862

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-2

Client Sample ID: Outfall009_20230115_Comp

Lab Sample ID: 570-124239-1

Date Collected: 01/15/23 09:15

Matrix: Water

Date Received: 01/16/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B	RA		1049.3 mL	20 uL	650862	02/01/23 06:04	FC	EET SAC
Total/NA	Analysis	1613B	RA	1	1 uL	1 uL	652285	02/07/23 15:04	DB	EET SAC
Instrument ID: 11D2										
Total/NA	Prep	1613B			1049.3 mL	20 uL	650862	02/01/23 06:04	FC	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	652038	02/06/23 18:15	GRB	EET SAC
Instrument ID: 12D5										

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-23 *
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-23
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-23 *
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
Utah	NELAP	CA000442021-12	02-28-23
Virginia	NELAP	460278	03-14-23
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-2

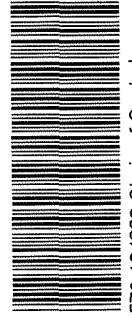
Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124239-1	Outfall009_20230115_Comp	Water	01/15/23 09:15	01/16/23 17:00

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

<p>Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p>		<p>Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall 003-007 009 010 Outfall 009 Comp</p>		<p>Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)</p>		<p>ANALYSIS REQUIRED</p>		<p>Comments</p>																																									
<p>Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218</p>		<p>Sample ID: Outfall09_20230115_Comp</p>		<p>Sampling Date/Time: 1/15/2023 10:15</p>		<p>Sample Matrix: WM</p>		<p>Container Type: 500 mL Poly</p>		<p>Preservative: HNC3</p>		<p>MS/MSD: No</p>		<p>Boyle #: 95</p>		<p>Total Dissolved Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl</p>		<p>TCDD (and all congeners): (E139)</p>		<p>Cr, SO_4, NO_3+NO_2-N (300)</p>		<p>TDS (SM2540C/E160.1)</p>		<p>Total Dissolved Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl</p>		<p>Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E908.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0) & Radium 228 (E903.0), Uranium (E908.0), K-40, Cs-137 (E901.0 or E901.1)</p>		<p>Chronic Toxicity: Selenium (EPA-821-R-02-013) ABC Labs in Ventura, CA</p>		<p>Cyanide (SM4500-CN-E / E935.2)</p>		<p>Total Recoverable Metals: Mercury (E245.1)</p>		<p>Total Dissolved Metals: Mercury (E245.1)</p>		<p>TSS (60.2) (SM2540D)</p>		<p>48 hours Holding Time NO_2 & NO_3</p>		<p>Unfiltered and unpreserved analysis. Separate RAD onto another work order. Analyze duplicate, not MS/MSD. Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA.</p>		<p>Filter and preserve within 24hrs of receipt at lab.</p>		<p>Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.</p>		<p>Hold</p>		<p>Hold</p>	
<p>Requisitioned By: [Signature]</p>		<p>Date/Time: 1-16-2023 14:30</p>		<p>Company: H.A</p>		<p>Received By: [Signature]</p>		<p>Date/Time: 1-16-23 14:30</p>		<p>Turn-around time: (Check) 24 Hour ___ 72 Hour ___ 10 Day ___ X 48 Hour ___ 5 Day ___ Normal: ___</p>		<p>Sample Integrity: (Check) Intact ___ On Ice ___</p>		<p>Store samples for 6 months. Data Requirements: (Check) No Level IV ___ All Level IV ___ X</p>																																			
<p>Requisitioned By: [Signature]</p>		<p>Date/Time: 1-16-23 17:00</p>		<p>Company: EC</p>		<p>Received By: [Signature]</p>		<p>Date/Time: 1-16-23 17:00</p>		<p>Legend: EP=Expert Panel, R=Routine</p>		<p>Received By: [Signature]</p>		<p>Date/Time: 1/8/18 1:9/1:9 SC11</p>																																			



570-124239 Chain of Custody



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124239-2

Login Number: 124239

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124239-2

Login Number: 124239

List Number: 3

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 01/18/23 12:00 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.3c 3.2c 1.9c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 009 - COMP

JOB NUMBER

570-124239-4

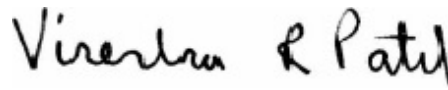
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Job ID: 570-124239-4

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-124239-4

Comments

No additional comments.

Receipt

The samples were received on 1/16/2023 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.8° C and 1.9° C.

Receipt Exceptions

The reference method requires samples to have a pH of 2. The following samples were received with a pH of 6: <Affected Samples>. The samples were adjusted to the appropriate pH in the laboratory.

Job #: 570-124247 R-1
Job #: 570-124230 R-1,
Job #: 570-124243 AP-1 and AR-1
Job #: 570-124233 K-1
Job #: 570-124239 J-1
Job #: 570-123901 T-1, T-2, U-1, U-2
Job #: 570-123902 J-1, J-2, K-1, K-2

RAD

Method 900.0: Gross Alpha and Gross Beta batch 598185

The detection goal was not met for the following samples due to a reduction of the sample size attributed to high residual mass: (400-231975-E-8-A) and (400-231975-E-8-F DU). Analytical results are reported with the detection limit achieved.

Method 900.0: Gross Alpha and Gross Beta batch 598185

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230115_Comp (570-124239-1), (LCS 160-598185/2-A), (LCSB 160-598185/3-A), (MB 160-598185/1-A), (400-231975-E-8-A), (400-231975-E-8-F DU), (400-231975-E-8-B MS), (400-231975-E-8-D MSBT), (400-231975-E-8-E MSBTD) and (400-231975-E-8-C MSD)

Method 901.1: Gamma Prep Batch 160-597551

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Job ID: 570-124239-4 (Continued)

Laboratory: Eurofins Calscience (Continued)

Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230115_Comp (570-124239-1), (570-124230-R-1-E) and (570-124230-R-1-F DU)

Method 903.0: Radium-226 prep batch 160-597480:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230115_Comp (570-124239-1), (LCS 160-597480/2-A), (LCSD 160-597480/3-A) and (MB 160-597480/1-A)

Method 904.0: Radium-228 batch 597487

The LCS/LCSD recovered at (LCS 142% / LCSD 135%). The limits in our LIMS system at 75-125 reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of (62-148%) per method requirements. The LCS passes, no further action is required

(LCS 160-597487/2-A) and (LCSD 160-597487/3-A)

Method 904.0: Radium-228 batch 597487

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230115_Comp (570-124239-1), (LCS 160-597487/2-A), (LCSD 160-597487/3-A) and (MB 160-597487/1-A)

Method 905: Strontium-90 prep batch 160-597465:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230115_Comp (570-124239-1), (LCS 160-597465/2-A), (LCSD 160-597465/3-A) and (MB 160-597465/1-A)

Method 906.0: Tritium 598269

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230115_Comp (570-124239-1), (LCS 160-598269/2-A), (MB 160-598269/1-A), (160-48571-B-3-A), (160-48571-B-3-B DU), (160-48571-B-5-A) and (160-48571-B-5-B MS)

Methods A-01-R, U-02-RC: Isotopic Uranium batch 597538

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230115_Comp (570-124239-1), (LCS 160-597538/2-A), (MB 160-597538/1-A), (570-123671-T-2-E) and (570-123671-T-2-F DU)

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Job ID: 570-124239-4 (Continued)

Laboratory: Eurofins Calscience (Continued)

Method ExtChrom: Uranium Prep Batch 160-597538

The following sample was prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall009_20230115_Comp (570-124239-1).

Method PrecSep_0: Radium-228 Prep Batch 160-597487

The following sample was prepared at a reduced aliquot due to Matrix: Outfall009_20230115_Comp (570-124239-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep-21: Radium-226 Prep Batch 160-597480

The following sample was prepared at a reduced aliquot due to Matrix: Outfall009_20230115_Comp (570-124239-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep-7: Strontium-90 Prep Batch 160-597465

The following sample was prepared at a reduced aliquot due to Matrix: Outfall009_20230115_Comp (570-124239-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Client Sample ID: Outfall009_20230115_Comp

Lab Sample ID: 570-124239-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall009_20230115_Comp
Date Collected: 01/15/23 09:15
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124239-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2 σ +/-)	Total Uncert. (2 σ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.440	U	0.823	0.824	3.00	1.42	pCi/L	01/25/23 14:57	02/10/23 14:51	1
Gross Beta	2.04		0.689	0.719	4.00	0.921	pCi/L	01/25/23 14:57	02/10/23 14:51	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall009_20230115_Comp
Date Collected: 01/15/23 09:15
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124239-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	2.99	U	5.77	5.78	20.0	7.23	pCi/L	01/19/23 15:59	02/16/23 20:49	1
Potassium-40	62.5	U	109	109		122	pCi/L	01/19/23 15:59	02/16/23 20:49	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall009_20230115_Comp
 Date Collected: 01/15/23 09:15
 Date Received: 01/16/23 17:00

Lab Sample ID: 570-124239-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0177	U	0.0748	0.0748	1.00	0.153	pCi/L	01/19/23 11:31	02/10/23 07:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.6		40 - 110					01/19/23 11:31	02/10/23 07:37	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall009_20230115_Comp
 Date Collected: 01/15/23 09:15
 Date Received: 01/16/23 17:00

Lab Sample ID: 570-124239-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.27		0.705	0.715	1.00	0.990	pCi/L	01/19/23 12:00	01/25/23 12:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.6		40 - 110					01/19/23 12:00	01/25/23 12:06	1
Y Carrier	83.4		40 - 110					01/19/23 12:00	01/25/23 12:06	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall009_20230115_Comp
 Date Collected: 01/15/23 09:15
 Date Received: 01/16/23 17:00

Lab Sample ID: 570-124239-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.336	U	0.335	0.336	3.00	0.542	pCi/L	01/19/23 09:10	01/27/23 18:27	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	85.0		40 - 110					01/19/23 09:10	01/27/23 18:27	1
Y Carrier	84.9		40 - 110					01/19/23 09:10	01/27/23 18:27	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall009_20230115_Comp
Date Collected: 01/15/23 09:15
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124239-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	541		200	205	500	259	pCi/L	01/26/23 08:47	02/01/23 17:14	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall009_20230115_Comp
Date Collected: 01/15/23 09:15
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124239-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.289	U	0.341	0.342	1.00	0.475	pCi/L	01/19/23 14:12	01/30/23 21:43	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	56.4		30 - 110					01/19/23 14:12	01/30/23 21:43	1

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	
570-124239-1	Outfall009_20230115_Comp	86.6	
LCS 160-597480/2-A	Lab Control Sample	84.6	
LCSD 160-597480/3-A	Lab Control Sample Dup	85.1	
MB 160-597480/1-A	Method Blank	86.9	

Tracer/Carrier Legend
Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (40-110)	Y (40-110)
570-124239-1	Outfall009_20230115_Comp	86.6	83.4
LCS 160-597487/2-A	Lab Control Sample	84.6	86.4
LCSD 160-597487/3-A	Lab Control Sample Dup	85.1	84.9
MB 160-597487/1-A	Method Blank	86.9	91.2

Tracer/Carrier Legend
Ba = Ba Carrier
Y = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr (40-110)	Y (40-110)
570-124239-1	Outfall009_20230115_Comp	85.0	84.9
LCS 160-597465/2-A	Lab Control Sample	88.8	74.0
LCSD 160-597465/3-A	Lab Control Sample Dup	89.3	69.5
MB 160-597465/1-A	Method Blank	85.4	84.9

Tracer/Carrier Legend
Sr = Sr Carrier
Y = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	U-232 (30-110)	
570-123671-T-2-F DU	Duplicate	92.9	
570-124239-1	Outfall009_20230115_Comp	56.4	
LCS 160-597538/2-A	Lab Control Sample	80.5	
MB 160-597538/1-A	Method Blank	80.4	

Tracer/Carrier Legend
U-232 = Uranium-232

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-598185/1-A
Matrix: Water
Analysis Batch: 600017

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 598185

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	-0.1914	U	0.499	0.499	3.00	1.02	pCi/L	01/25/23 14:57	02/10/23 07:53	1
Gross Beta	-0.2171	U	0.469	0.470	4.00	0.883	pCi/L	01/25/23 14:57	02/10/23 07:53	1

Lab Sample ID: LCS 160-598185/2-A
Matrix: Water
Analysis Batch: 600017

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598185

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits

Lab Sample ID: LCSB 160-598185/3-A
Matrix: Water
Analysis Batch: 600017

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598185

Analyte	Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits

Lab Sample ID: 400-231975-E-8-B MS
Matrix: Water
Analysis Batch: 600016

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 598185

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits

Lab Sample ID: 400-231975-E-8-C MSD
Matrix: Water
Analysis Batch: 600016

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 598185

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	Limit

Lab Sample ID: 400-231975-E-8-D MSBT
Matrix: Water
Analysis Batch: 600016

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 598185

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: 400-231975-E-8-E MSBTD
Matrix: Water
Analysis Batch: 600016

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 598185

Analyte	Sample Result	Sample Qual	Spike Added	MSBTD Result	MSBTD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
												RER	Limit
Gross Beta	11.3		264	282.7		30.2	4.00	3.30	pCi/L	103	60 - 140	0.07	1

Lab Sample ID: 400-231975-E-8-F DU
Matrix: Water
Analysis Batch: 600016

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 598185

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
										RER
Gross Alpha	6.14	U G	0.2921	U G	4.76	3.00	9.19	pCi/L	0.56	1
Gross Beta	11.3		12.57		3.02	4.00	2.98	pCi/L	0.21	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-597551/1-A
Matrix: Water
Analysis Batch: 600521

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597551

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
										Dil Fac
Cesium-137	-4.559	U	10.2	10.2	20.0	12.1	pCi/L	01/19/23 15:59	02/15/23 20:28	1
Potassium-40	-34.61	U	91.2	91.3		128	pCi/L	01/19/23 15:59	02/15/23 20:28	1

Lab Sample ID: LCS 160-597551/2-A
Matrix: Water
Analysis Batch: 600544

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597551

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
									%Rec Limits
Americium-241	135000	137500		16400		299	pCi/L	102	75 - 125
Cesium-137	40900	42210		5030	20.0	78.5	pCi/L	103	75 - 125
Cobalt-60	18100	18870		2250		40.6	pCi/L	104	75 - 125

Lab Sample ID: 570-124230-R-1-F DU
Matrix: Water
Analysis Batch: 600538

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 597551

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
									RER	Limit
Cesium-137	2.49	U	4.234	U	7.98	20.0	9.73	pCi/L	0.12	1
Potassium-40	-15.0	U	44.22	U	79.5		91.6	pCi/L	0.38	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-597480/1-A
Matrix: Water
Analysis Batch: 600015

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597480

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.06048	U	0.0554	0.0557	1.00	0.0831	pCi/L	01/19/23 11:31	02/10/23 07:35	1
Carrier	MB	MB	Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier								
Ba Carrier	86.9		40 - 110			01/19/23 11:31	02/10/23 07:35	1		

Lab Sample ID: LCS 160-597480/2-A
Matrix: Water
Analysis Batch: 600015

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597480

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	11.76		1.20	1.00	0.0976	pCi/L	104	75 - 125
Carrier	LCS	LCS	Limits			Prepared	Analyzed	Dil Fac	
	%Yield	Qualifier							
Ba Carrier	84.6		40 - 110						

Lab Sample ID: LCSD 160-597480/3-A
Matrix: Water
Analysis Batch: 600015

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 597480

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
				Uncert. (2σ+/-)							
Radium-226	11.3	11.34		1.16	1.00	0.0982	pCi/L	100	75 - 125	0.18	1
Carrier	LCSD	LCSD	Limits			Prepared	Analyzed	Dil Fac			
	%Yield	Qualifier									
Ba Carrier	85.1		40 - 110								

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-597487/1-A
Matrix: Water
Analysis Batch: 598170

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597487

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	-0.2403	U	0.449	0.450	1.00	0.921	pCi/L	01/19/23 12:00	01/25/23 17:30	1
Carrier	MB	MB	Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier								
Ba Carrier	86.9		40 - 110			01/19/23 12:00	01/25/23 17:30	1		
Y Carrier	91.2		40 - 110			01/19/23 12:00	01/25/23 17:30	1		

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-597487/2-A
Matrix: Water
Analysis Batch: 598170

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597487

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-228	8.25	11.73		1.52	1.00	0.521	pCi/L	142	75 - 125	
Carrier		LCS %Yield	LCS Qualifier	Limits						
Ba Carrier		84.6		40 - 110						
Y Carrier		86.4		40 - 110						

Lab Sample ID: LCSD 160-597487/3-A
Matrix: Water
Analysis Batch: 598170

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 597487

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		RER	RER Limit
Radium-228	8.25	11.12		1.47	1.00	0.576	pCi/L	135	75 - 125	0.20	1	
Carrier		LCSD %Yield	LCSD Qualifier	Limits								
Ba Carrier		85.1		40 - 110								
Y Carrier		84.9		40 - 110								

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-597465/1-A
Matrix: Water
Analysis Batch: 598536

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 597465

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Carrier		MB %Yield	MB Qualifier	Limits	Prepared		Analyzed		Dil Fac	
Sr Carrier		85.4		40 - 110	01/19/23 09:10		01/27/23 18:27		1	
Y Carrier		84.9		40 - 110	01/19/23 09:10		01/27/23 18:27		1	

Lab Sample ID: LCS 160-597465/2-A
Matrix: Water
Analysis Batch: 598536

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597465

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Strontium-90	7.38	7.362		0.845	3.00	0.369	pCi/L	100	75 - 125	
Carrier		LCS %Yield	LCS Qualifier	Limits						
Sr Carrier		88.8		40 - 110						
Y Carrier		74.0		40 - 110						

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: LCSD 160-597465/3-A
 Matrix: Water
 Analysis Batch: 598536

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 597465

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		RER	RER Limit
									75 - 125	0.45	1	
Strontium-90	7.38	8.158		0.921	3.00	0.366	pCi/L	111	75 - 125	0.45		1
LCS/LCSD												
Carrier	%Yield	LCS/LCSD Qualifier	Limits									
Sr Carrier	89.3		40 - 110									
Y Carrier	69.5		40 - 110									

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-598269/1-A
 Matrix: Water
 Analysis Batch: 599474

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 598269

Analyte	MB MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Tritium	137.8	U	159	159	500	261	pCi/L	01/26/23 08:47	02/01/23 10:49	1

Lab Sample ID: LCS 160-598269/2-A
 Matrix: Water
 Analysis Batch: 599474

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 598269

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
									75 - 125	
Tritium	2110	2226		377	500	263	pCi/L	105	75 - 125	

Lab Sample ID: 160-48571-B-5-B MS
 Matrix: Water
 Analysis Batch: 599474

Client Sample ID: Matrix Spike
 Prep Type: Total/NA
 Prep Batch: 598269

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
											60 - 140	
Tritium	153	U	2140	2086		358	500	253	pCi/L	90	60 - 140	

Lab Sample ID: 160-48571-B-3-B DU
 Matrix: Water
 Analysis Batch: 599474

Client Sample ID: Duplicate
 Prep Type: Total/NA
 Prep Batch: 598269

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
										0.14
Tritium	102	U	145.0	U	161	500	263	pCi/L	0.14	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-597538/1-A
 Matrix: Water
 Analysis Batch: 598766

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 597538

Analyte	MB MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Total Uranium	0.08454	U	0.1204	0.1205	1.00	0.175	pCi/L	01/19/23 14:12	01/30/23 21:45	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

<i>Tracer</i>	<i>MB</i> <i>%Yield</i>	<i>MB</i> <i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Uranium-232	80.4		30 - 110	01/19/23 14:12	01/30/23 21:45	1

Lab Sample ID: LCS 160-597538/2-A
Matrix: Water
Analysis Batch: 598767

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 597538

<i>Analyte</i>	<i>Spike</i> <i>Added</i>	<i>LCS</i> <i>Result</i>	<i>LCS</i> <i>Qual</i>	<i>Total</i> <i>Uncert.</i> <i>(2σ+/-)</i>	<i>RL</i>	<i>MDC</i>	<i>Unit</i>	<i>%Rec</i>	<i>%Rec</i> <i>Limits</i>
Uranium-234	12.7	12.89		1.52	1.00	0.204	pCi/L	101	75 - 125
Uranium-238	13.0	12.29		1.47	1.00	0.135	pCi/L	94	75 - 125

<i>Tracer</i>	<i>LCS</i> <i>%Yield</i>	<i>LCS</i> <i>Qualifier</i>	<i>Limits</i>
Uranium-232	80.5		30 - 110

Lab Sample ID: 570-123671-T-2-F DU
Matrix: Water
Analysis Batch: 598726

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 597538

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qual</i>	<i>DU</i> <i>Result</i>	<i>DU</i> <i>Qual</i>	<i>Total</i> <i>Uncert.</i> <i>(2σ+/-)</i>	<i>RL</i>	<i>MDC</i>	<i>Unit</i>	<i>RER</i>	<i>RER</i> <i>Limit</i>
Total Uranium	1.09		1.050		0.326	1.00	0.143	pCi/L	0.06	1

<i>Tracer</i>	<i>DU</i> <i>%Yield</i>	<i>DU</i> <i>Qualifier</i>	<i>Limits</i>
Uranium-232	92.9		30 - 110

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Rad

Prep Batch: 597465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-1	Outfall009_20230115_Comp	Total/NA	Water	PrecSep-7	
MB 160-597465/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-597465/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
LCSD 160-597465/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-7	

Prep Batch: 597480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-1	Outfall009_20230115_Comp	Total/NA	Water	PrecSep-21	
MB 160-597480/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-597480/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-597480/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 597487

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-1	Outfall009_20230115_Comp	Total/NA	Water	PrecSep_0	
MB 160-597487/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-597487/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-597487/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 597538

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-1	Outfall009_20230115_Comp	Total/NA	Water	ExtChrom	
MB 160-597538/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-597538/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
570-123671-T-2-F DU	Duplicate	Total/NA	Water	ExtChrom	

Prep Batch: 597551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-1	Outfall009_20230115_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-597551/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-597551/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
570-124230-R-1-F DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Prep Batch: 598185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-1	Outfall009_20230115_Comp	Total/NA	Water	Evaporation	
MB 160-598185/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-598185/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-598185/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
400-231975-E-8-B MS	Matrix Spike	Total/NA	Water	Evaporation	
400-231975-E-8-C MSD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
400-231975-E-8-D MSBT	Matrix Spike	Total/NA	Water	Evaporation	
400-231975-E-8-E MSBTD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
400-231975-E-8-F DU	Duplicate	Total/NA	Water	Evaporation	

Prep Batch: 598269

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124239-1	Outfall009_20230115_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-598269/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-598269/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
160-48571-B-5-B MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Rad (Continued)

Prep Batch: 598269 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-48571-B-3-B DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

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Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Client Sample ID: Outfall009_20230115_Comp

Lab Sample ID: 570-124239-1

Date Collected: 01/15/23 09:15

Matrix: Water

Date Received: 01/16/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.00 mL	1.0 g	598185	01/25/23 14:57	MST	EET SL
Total/NA	Analysis	900.0		1			600017	02/10/23 14:51	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	597551	01/19/23 15:59	JML	EET SL
Total/NA	Analysis	901.1		1			600538	02/16/23 20:49	SCB	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			507.96 mL	1.0 g	597480	01/19/23 11:31	DJP	EET SL
Total/NA	Analysis	903.0		1			600015	02/10/23 07:37	SCB	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			507.96 mL	1.0 g	597487	01/19/23 12:00	DJP	EET SL
Total/NA	Analysis	904.0		1	1.0 mL	1.0 mL	598172	01/25/23 12:06	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep-7			507.76 mL	1.0 g	597465	01/19/23 09:10	DJP	EET SL
Total/NA	Analysis	905		1			598536	01/27/23 18:27	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	LSC_Dist_Susp			97.37 mL	1.0 g	598269	01/26/23 08:47	SEH	EET SL
Total/NA	Analysis	906.0		1			599474	02/01/23 17:14	REV	EET SL
Instrument ID: LSCBROWN										
Total/NA	Prep	ExtChrom			250.87 mL	1.0 mL	597538	01/19/23 14:12	SAC	EET SL
Total/NA	Analysis	A-01-R		1			598730	01/30/23 21:43	FLC	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124239-4

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124239-1	Outfall009_20230115_Comp	Water	01/15/23 09:15	01/16/23 17:00

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CHAIN OF CUSTODY FORM

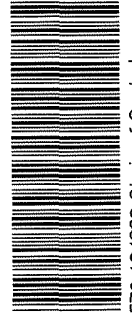
Eurofins Calscience Irvine

<p>Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108</p>		<p>Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall 003-007 009 010 Outfall 009 Comp</p>		<p>Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)</p>		<p>ANALYSIS REQUIRED</p>		<p>Comments</p>																																					
<p>Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218</p>		<p>Sample I.D. Outfall009_20230115_Comp</p>		<p>Sampling Date/Time 1/15/2023 10:15</p>		<p>Sample Matrix WM</p>		<p>Container Type 500 mL Poly</p>		<p>Preservative HNC3</p>		<p>MS/MSD No</p>		<p>Total Recoverable Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl</p>		<p>Total Dissolved Metals: (E200.7): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl</p>		<p>TCDD (and all congeners) (E1613B) X</p>		<p>CF, SO₄, NO₃+NO₂-N (300) X</p>		<p>TDS (SM2540C/E160.1) X</p>		<p>Gross Alpha(E900), Gross Beta(E900), Tritium (H-3) (E908.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0) & Radium 228 (E903.0) Uranium (E908.0), K-40, Cs-137 (E901.0 or E901.1)</p>		<p>Chronic Toxicity: Selenium (EPA-821-R-02-013) ABC Labs in Ventura, CA</p>		<p>Cyanide (SM4500-CN-E / E935.2) X</p>		<p>Total Recoverable Metals: Mercury (E245.1) X</p>		<p>Total Dissolved Metals: Mercury (E245.1) TSS (60.2) (SM2540D)</p>		<p>48 hours Holding Time NO₂ & NO₃</p>		<p>Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD. Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA.</p>		<p>Filter and preserve within 24hrs of receipt at lab</p>		<p>Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.</p>		<p>Hold</p>		<p>Hold</p>	
<p>Outfall009_20230115_Comp_F</p>		<p>1/15/2023 10:15</p>		<p>WM</p>		<p>borosilicate Vials</p>		<p>None</p>		<p>None</p>		<p>No</p>		<p>X</p>		<p>X</p>		<p>X</p>		<p>X</p>		<p>X</p>		<p>X</p>		<p>X</p>		<p>X</p>																	
<p>Outfall009_20230115_Comp_Edtra</p>		<p>1/15/2023 10:15</p>		<p>WM</p>		<p>500 mL Poly</p>		<p>None</p>		<p>None</p>		<p>No</p>		<p>H</p>		<p>H</p>		<p>H</p>		<p>H</p>		<p>H</p>		<p>H</p>		<p>H</p>		<p>H</p>		<p>H</p>															

Legend: EP=Expert Panel, R=Routine

Relinquished By: *[Signature]* Date/Time: 1-16-2023 14:30 Company: H.A.
 Relinquished By: *[Signature]* Date/Time: 1-16-23 17:00 Company: EC
 Relinquished By: *[Signature]* Date/Time: 1-16-23 17:00 Company: EC

1/8/18 1.9/1.9 SC11



570-124239 Chain of Custody



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel, Virendra		Lab PM: Patel, Virendra		Carrier Tracking No(s): 570-204388-1	
Client Contact: Shipping/Receiving		Phone:		E-Mail: Virendra.Patel@et.eurofins.com		Page: Page 1 of 1	
Company: TestAmerica Laboratories, Inc.		Address: 13715 Rider Trail North,		Accreditations Required (See note): State Program - California		Job #: 570-124239-4	
City: Earth City		State, Zip: MO, 63045		Due Date Requested: 2/20/2023		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		Email:		TAT Requested (days):		Analysis Requested:	
Project Name: Boeing NPDES SSFL - Outfall 009 Comp		Project #: 44024446		PO #:		Total Number of Containers: 2	
Site:		SSOW#:		WO #:		Special Instructions/Note: Boeing SSFL; DO NOT FILTER; use prep date from preservation	
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)	
Outfall009_20230115_Comp (570-124239-1)		1/15/23		09:15 Pacific		Water	
Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		901_1 Ca/Fill_Geo_0 K-40 and Cesium-137		900_0/Evaporation Gross Alpha/Beta	
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
903_0/PrecSep_21 Radium-226		<input checked="" type="checkbox"/>		904_0/PrecSep_0 Radium-228		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
905_590/PrecSep_7 Strontium-90		<input checked="" type="checkbox"/>		906_0/SC_Dist_Susp Tritium		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
909_0/SC_Dist_Susp Tritium		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
910_0/SC_Dist_Susp Tritium		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
911_0/SC_Dist_Susp Tritium		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
912_0/SC_Dist_Susp Tritium		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
913_0/SC_Dist_Susp Tritium		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
914_0/SC_Dist_Susp Tritium		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
915_0/SC_Dist_Susp Tritium		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
916_0/SC_Dist_Susp Tritium		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
917_0/SC_Dist_Susp Tritium		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
918_0/SC_Dist_Susp Tritium		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
919_0/SC_Dist_Susp Tritium		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
920_0/SC_Dist_Susp Tritium		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124239-4

Login Number: 124239

List Source: Eurofins Calscience

List Number: 1

Creator: Patel, Virendra

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124239-4

Login Number: 124239

List Number: 2

Creator: Sharkey-Gonzalez, Briana L

List Source: Eurofins St. Louis

List Creation: 01/18/23 12:01 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 1/23/2023 4:09:21 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 009 Grab

JOB NUMBER

570-124241-1

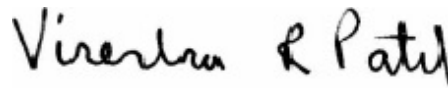
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



Generated
1/23/2023 4:09:21 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-124241-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-124241-1

Job ID: 570-124241-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-124241-1

Comments

No additional comments.

Receipt

The samples were received on 1/16/2023 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.2° C.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 1664A: The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-296702.

Method: 1664.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-124241-1

Client Sample ID: Outfall009_20230114_Grab

Lab Sample ID: 570-124241-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
HEM (Oil & Grease)	0.69	J,DX	0.98	0.50	mg/L	1		1664A	Total/NA

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-124241-1

General Chemistry

Client Sample ID: Outfall009_20230114_Grab
Date Collected: 01/14/23 11:10
Date Received: 01/16/23 17:00

Lab Sample ID: 570-124241-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	0.69	J,DX	0.98	0.50	mg/L		01/18/23 10:11	01/18/23 19:27	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-124241-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-296702/1-A
Matrix: Water
Analysis Batch: 296912

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 296702

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		1.0	0.51	mg/L		01/18/23 10:11	01/18/23 19:27	1

Lab Sample ID: LCS 570-296702/2-A
Matrix: Water
Analysis Batch: 296912

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 296702

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	37.1		mg/L		93	78 - 114

Lab Sample ID: LCSD 570-296702/3-A
Matrix: Water
Analysis Batch: 296912

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 296702

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	38.7		mg/L		97	78 - 114	4	18

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-124241-1

General Chemistry

Prep Batch: 296702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124241-1	Outfall009_20230114_Grab	Total/NA	Water	1664A	
MB 570-296702/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-296702/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-296702/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 296912

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124241-1	Outfall009_20230114_Grab	Total/NA	Water	1664A	296702
MB 570-296702/1-A	Method Blank	Total/NA	Water	1664A	296702
LCS 570-296702/2-A	Lab Control Sample	Total/NA	Water	1664A	296702
LCSD 570-296702/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	296702

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-124241-1

Client Sample ID: Outfall009_20230114_Grab

Lab Sample ID: 570-124241-1

Date Collected: 01/14/23 11:10

Matrix: Water

Date Received: 01/16/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1664A			1021 mL	1000 mL	296702	01/18/23 10:11	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			296912	01/18/23 19:27	L6IE	EET CAL 4

Instrument ID: NO EQUIQ

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

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Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-124241-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	State	3082	07-31-23
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-23
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-12-22 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-124241-1

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-124241-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124241-1	Outfall009_20230114_Grab	Water	01/14/23 11:10	01/16/23 17:00

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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124241-1

Login Number: 124241

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/3/2023 3:42:42 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 009 - GRAB

JOB NUMBER

570-124871-1

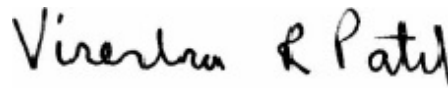
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization

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2/3/2023 3:42:42 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Method Summary	12
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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - GRAB

Job ID: 570-124871-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - GRAB

Job ID: 570-124871-1

Job ID: 570-124871-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-124871-1

Comments

No additional comments.

Receipt

The sample was received on 1/20/2023 6:30 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.1° C.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 1664A: The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-298543.

Method: 1664.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - GRAB

Job ID: 570-124871-1

Client Sample ID: Outfall009_20230120_Grab

Lab Sample ID: 570-124871-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - GRAB

Job ID: 570-124871-1

General Chemistry

Client Sample ID: Outfall009_20230120_Grab
Date Collected: 01/20/23 10:00
Date Received: 01/20/23 18:30

Lab Sample ID: 570-124871-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	ND		0.97	0.50	mg/L		01/25/23 13:07	01/25/23 20:05	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - GRAB

Job ID: 570-124871-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-298543/1-A
Matrix: Water
Analysis Batch: 298672

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 298543

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		1.0	0.51	mg/L		01/25/23 13:07	01/25/23 20:05	1

Lab Sample ID: LCS 570-298543/2-A
Matrix: Water
Analysis Batch: 298672

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 298543

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	38.1		mg/L		95	78 - 114

Lab Sample ID: LCSD 570-298543/3-A
Matrix: Water
Analysis Batch: 298672

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 298543

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	38.6		mg/L		97	78 - 114	1	18

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - GRAB

Job ID: 570-124871-1

General Chemistry

Prep Batch: 298543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124871-1	Outfall009_20230120_Grab	Total/NA	Water	1664A	
MB 570-298543/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-298543/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-298543/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 298672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124871-1	Outfall009_20230120_Grab	Total/NA	Water	1664A	298543
MB 570-298543/1-A	Method Blank	Total/NA	Water	1664A	298543
LCS 570-298543/2-A	Lab Control Sample	Total/NA	Water	1664A	298543
LCSD 570-298543/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	298543

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - GRAB

Job ID: 570-124871-1

Client Sample ID: Outfall009_20230120_Grab

Lab Sample ID: 570-124871-1

Date Collected: 01/20/23 10:00

Matrix: Water

Date Received: 01/20/23 18:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1664A			1029 mL	1000 mL	298543	01/25/23 13:07	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			298672	01/25/23 20:05	L6IE	EET CAL 4

Instrument ID: NO EQUIQ

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

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Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - GRAB

Job ID: 570-124871-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-23
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-23
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - GRAB

Job ID: 570-124871-1

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - GRAB

Job ID: 570-124871-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124871-1	Outfall009_20230120_Grab	Water	01/20/23 10:00	01/20/23 18:30

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- 2
- 3
- 4
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- 14

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124871-1

Login Number: 124871

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/26/2023 9:12:07 AM Revision 1

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 009 - COMP

JOB NUMBER

570-124891-1

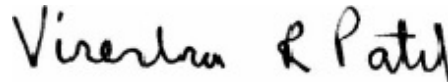
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Authorization



Generated
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Revision 1

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Qualifiers

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
IB	CCV recovery above limit; analyte not detected
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)
MB	Analyte present in the method blank

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Job ID: 570-124891-1

Laboratory: Eurofins Calscience

Narrative

**Job Narrative
570-124891-1**

Comments

No additional comments.

Revision

The report being provided is a revision of the original report sent on 2/14/2023. The report (revision 1) is being revised due to: The Level 2 report was revised to correct the following; 245.1 dissolved mercury: missing QC for sample -2 in Filtration, prep, analytical batch 2298285, 298287, 298644..

Receipt

The samples were received on 1/21/2023 11:40 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.1° C and 1.2° C.

HPLC/IC

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

Method 200.7 Rev 4.4: The method blank for preparation batch 570-298060 and analytical batch 570-298305 contained Nickel above the method detection limit. This target analyte concentration was less than the reporting limit (RL) or greater than 10X the value found in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

Method 200.8: The method blank for preparation batch 570-298096 and analytical batch 570-298201 contained Lead above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 200.8: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-298550 and analytical batch 570-298597 were outside control limits for Antimony. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 200.8: The method blank for preparation batch 570-298550 and analytical batch 570-298597 contained Nickel above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 245.1: The continuing calibration verification (CCV) associated with batch 570-298644 recovered above the upper control limit for Mercury. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 570-298459/9-A).

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall009_20230121_Comp_F (570-124891-2). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Client Sample ID: Outfall009_20230121_Comp

Lab Sample ID: 570-124891-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.7		1.0	0.36	mg/L	1		300.0	Total/NA
Sulfate	7.8		1.0	0.24	mg/L	1		300.0	Total/NA
Nitrate Nitrite as N	1.5		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Copper	3.0		2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	0.14	J,DX MB	1.0	0.12	ug/L	1		200.8	Total Recoverable
Antimony	1.8	J,DX	2.0	0.36	ug/L	1		200.8	Total Recoverable
Nickel	1.8	J,DX	2.0	0.17	ug/L	1		200.8	Total Recoverable
Zinc	3.5	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Total Dissolved Solids	130		10	8.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: Outfall009_20230121_Comp_F

Lab Sample ID: 570-124891-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	2.8	BU	2.0	0.32	ug/L	1		200.8	Dissolved
Antimony	1.9	J,DX BU	2.0	0.36	ug/L	1		200.8	Dissolved
Nickel	1.7	J,DX BU MB	2.0	0.17	ug/L	1		200.8	Dissolved
Zinc	3.6	J,DX BU	20	2.8	ug/L	1		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall009_20230121_Comp

Date Collected: 01/21/23 08:30

Date Received: 01/21/23 11:40

Lab Sample ID: 570-124891-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.7		1.0	0.36	mg/L			01/21/23 12:59	1
Sulfate	7.8		1.0	0.24	mg/L			01/21/23 12:59	1

- 1
- 2
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- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall009_20230121_Comp

Lab Sample ID: 570-124891-1

Date Collected: 01/21/23 08:30

Matrix: Water

Date Received: 01/21/23 11:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	1.5		0.10	0.020	mg/L			01/30/23 10:05	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall009_20230121_Comp

Date Collected: 01/21/23 08:30

Date Received: 01/21/23 11:40

Lab Sample ID: 570-124891-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.23	ug/L		01/24/23 09:53	01/24/23 13:32	1
Cadmium	ND		1.0	0.13	ug/L		01/24/23 09:53	01/24/23 13:32	1
Copper	3.0		2.0	0.32	ug/L		01/24/23 09:53	01/24/23 13:32	1
Lead	0.14	J,DX MB	1.0	0.12	ug/L		01/24/23 09:53	01/24/23 13:32	1
Antimony	1.8	J,DX	2.0	0.36	ug/L		01/24/23 09:53	01/24/23 13:32	1
Selenium	ND		2.0	0.52	ug/L		01/24/23 09:53	01/24/23 13:32	1
Thallium	ND		1.0	0.11	ug/L		01/24/23 09:53	01/24/23 13:32	1
Nickel	1.8	J,DX	2.0	0.17	ug/L		01/24/23 09:53	01/24/23 13:32	1
Zinc	3.5	J,DX	20	2.8	ug/L		01/24/23 09:53	01/24/23 13:32	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall009_20230121_Comp_F

Date Collected: 01/21/23 08:30

Date Received: 01/21/23 11:40

Lab Sample ID: 570-124891-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND	BU	1.0	0.23	ug/L			01/25/23 14:58	1
Cadmium	ND	BU	1.0	0.13	ug/L			01/25/23 14:58	1
Copper	2.8	BU	2.0	0.32	ug/L			01/25/23 14:58	1
Lead	ND	BU	1.0	0.12	ug/L			01/25/23 14:58	1
Antimony	1.9	J,DX BU	2.0	0.36	ug/L			01/25/23 14:58	1
Selenium	ND	BU	2.0	0.52	ug/L			01/25/23 14:58	1
Thallium	ND	BU	1.0	0.11	ug/L			01/25/23 14:58	1
Nickel	1.7	J,DX BU MB	2.0	0.17	ug/L			01/25/23 14:58	1
Zinc	3.6	J,DX BU	20	2.8	ug/L			01/25/23 14:58	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall009_20230121_Comp
Date Collected: 01/21/23 08:30
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124891-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	IB	0.20	0.12	ug/L		01/24/23 17:46	01/25/23 15:58	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall009_20230121_Comp_F
Date Collected: 01/21/23 08:30
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124891-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU	0.20	0.12	ug/L		01/24/23 18:15	01/25/23 15:34	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

General Chemistry

Client Sample ID: Outfall009_20230121_Comp

Date Collected: 01/21/23 08:30

Date Received: 01/21/23 11:40

Lab Sample ID: 570-124891-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			01/23/23 15:32	1
Total Dissolved Solids (SM 2540C)	130		10	8.7	mg/L			01/24/23 18:23	1
Total Suspended Solids (SM 2540D)	ND		1.0	0.83	mg/L			01/23/23 16:51	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-297606/5
Matrix: Water
Analysis Batch: 297606

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			01/21/23 10:44	1
Sulfate	ND		1.0	0.24	mg/L			01/21/23 10:44	1

Lab Sample ID: LCS 570-297606/6
Matrix: Water
Analysis Batch: 297606

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	49.9		mg/L		100	90 - 110
Sulfate	50.0	50.2		mg/L		100	90 - 110

Lab Sample ID: LCSD 570-297606/7
Matrix: Water
Analysis Batch: 297606

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	50.0		mg/L		100	90 - 110	0	15
Sulfate	50.0	50.1		mg/L		100	90 - 110	0	15

Lab Sample ID: 570-124967-A-1 MS
Matrix: Water
Analysis Batch: 297606

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	3.6		50.0	55.3		mg/L		103	80 - 120
Sulfate	10		50.0	63.2		mg/L		106	80 - 120

Lab Sample ID: 570-124967-A-1 MSD
Matrix: Water
Analysis Batch: 297606

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	3.6		50.0	55.2		mg/L		103	80 - 120	0	20
Sulfate	10		50.0	63.2		mg/L		106	80 - 120	0	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-298096/1-A
Matrix: Water
Analysis Batch: 298201

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 298096

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.23	ug/L		01/24/23 09:53	01/24/23 13:19	1
Cadmium	ND		1.0	0.13	ug/L		01/24/23 09:53	01/24/23 13:19	1
Copper	ND		2.0	0.32	ug/L		01/24/23 09:53	01/24/23 13:19	1
Lead	0.142	J,DX	1.0	0.12	ug/L		01/24/23 09:53	01/24/23 13:19	1
Antimony	ND		2.0	0.36	ug/L		01/24/23 09:53	01/24/23 13:19	1
Selenium	ND		2.0	0.52	ug/L		01/24/23 09:53	01/24/23 13:19	1
Thallium	ND		1.0	0.11	ug/L		01/24/23 09:53	01/24/23 13:19	1
Nickel	ND		2.0	0.17	ug/L		01/24/23 09:53	01/24/23 13:19	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 570-298096/1-A
Matrix: Water
Analysis Batch: 298201

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 298096

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		20	2.8	ug/L		01/24/23 09:53	01/24/23 13:19	1

Lab Sample ID: LCS 570-298096/2-A
Matrix: Water
Analysis Batch: 298201

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 298096

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	80.0	80.3		ug/L		100	85 - 115
Cadmium	80.0	81.9		ug/L		102	85 - 115
Copper	80.0	79.1		ug/L		99	85 - 115
Lead	80.0	80.5		ug/L		101	85 - 115
Antimony	80.0	73.8		ug/L		92	85 - 115
Selenium	80.0	80.1		ug/L		100	85 - 115
Thallium	80.0	80.7		ug/L		101	85 - 115
Nickel	80.0	79.3		ug/L		99	85 - 115
Zinc	80.0	79.8		ug/L		100	85 - 115

Lab Sample ID: LCSD 570-298096/3-A
Matrix: Water
Analysis Batch: 298201

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 298096

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Silver	80.0	80.3		ug/L		100	85 - 115	0	20
Cadmium	80.0	80.8		ug/L		101	85 - 115	1	20
Copper	80.0	78.9		ug/L		99	85 - 115	0	20
Lead	80.0	81.6		ug/L		102	85 - 115	1	20
Antimony	80.0	74.1		ug/L		93	85 - 115	0	20
Selenium	80.0	77.8		ug/L		97	85 - 115	3	20
Thallium	80.0	81.1		ug/L		101	85 - 115	1	20
Nickel	80.0	79.1		ug/L		99	85 - 115	0	20
Zinc	80.0	79.8		ug/L		100	85 - 115	0	20

Lab Sample ID: 570-124891-1 MS
Matrix: Water
Analysis Batch: 298201

Client Sample ID: Outfall009_20230121_Comp
Prep Type: Total Recoverable
Prep Batch: 298096

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	ND		80.0	79.5		ug/L		99	80 - 120
Cadmium	ND		80.0	80.6		ug/L		101	80 - 120
Copper	3.0		80.0	83.2		ug/L		100	80 - 120
Lead	0.14	J,DX MB	80.0	81.7		ug/L		102	80 - 120
Antimony	1.8	J,DX	80.0	90.0		ug/L		110	80 - 120
Selenium	ND		80.0	78.2		ug/L		98	80 - 120
Thallium	ND		80.0	82.2		ug/L		103	80 - 120
Nickel	1.8	J,DX	80.0	81.9		ug/L		100	80 - 120
Zinc	3.5	J,DX	80.0	81.4		ug/L		97	80 - 120

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-124891-1 MSD

Matrix: Water

Analysis Batch: 298201

Client Sample ID: Outfall009_20230121_Comp

Prep Type: Total Recoverable

Prep Batch: 298096

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits		
Silver	ND		80.0	80.8		ug/L		101	80 - 120	2	20
Cadmium	ND		80.0	81.3		ug/L		102	80 - 120	1	20
Copper	3.0		80.0	83.7		ug/L		101	80 - 120	1	20
Lead	0.14	J,DX MB	80.0	82.3		ug/L		103	80 - 120	1	20
Antimony	1.8	J,DX	80.0	91.1		ug/L		112	80 - 120	1	20
Selenium	ND		80.0	81.4		ug/L		102	80 - 120	4	20
Thallium	ND		80.0	82.0		ug/L		103	80 - 120	0	20
Nickel	1.8	J,DX	80.0	81.6		ug/L		100	80 - 120	0	20
Zinc	3.5	J,DX	80.0	83.4		ug/L		100	80 - 120	2	20

Lab Sample ID: MB 570-298550/1-A

Matrix: Water

Analysis Batch: 298597

Client Sample ID: Method Blank

Prep Type: Dissolved

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil	Fac
	Result	Qualifier								
Silver	ND		1.0	0.23	ug/L			01/25/23 14:41		1
Cadmium	ND		1.0	0.13	ug/L			01/25/23 14:41		1
Copper	ND		2.0	0.32	ug/L			01/25/23 14:41		1
Lead	ND		1.0	0.12	ug/L			01/25/23 14:41		1
Antimony	ND		2.0	0.36	ug/L			01/25/23 14:41		1
Selenium	ND		2.0	0.52	ug/L			01/25/23 14:41		1
Thallium	ND		1.0	0.11	ug/L			01/25/23 14:41		1
Nickel	0.339	J,DX	2.0	0.17	ug/L			01/25/23 14:41		1
Zinc	ND		20	2.8	ug/L			01/25/23 14:41		1

Lab Sample ID: LCS 570-298550/2-A

Matrix: Water

Analysis Batch: 298597

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec	RPD	Limit
		Added	Result				Qualifier		
Silver	80.0		77.7	ug/L		97	85 - 115		
Cadmium	80.0		77.8	ug/L		97	85 - 115		
Copper	80.0		72.8	ug/L		91	85 - 115		
Lead	80.0		78.4	ug/L		98	85 - 115		
Antimony	80.0		86.6	ug/L		108	85 - 115		
Selenium	80.0		77.7	ug/L		97	85 - 115		
Thallium	80.0		77.7	ug/L		97	85 - 115		
Nickel	80.0		73.3	ug/L		92	85 - 115		
Zinc	80.0		74.9	ug/L		94	85 - 115		

Lab Sample ID: LCSD 570-298550/3-A

Matrix: Water

Analysis Batch: 298597

Client Sample ID: Lab Control Sample Dup

Prep Type: Dissolved

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec	RPD	Limit
		Added	Result				Qualifier		
Silver	80.0		78.0	ug/L		98	85 - 115	0	20
Cadmium	80.0		77.6	ug/L		97	85 - 115	0	20
Copper	80.0		73.5	ug/L		92	85 - 115	1	20
Lead	80.0		78.0	ug/L		97	85 - 115	1	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 570-298550/3-A
Matrix: Water
Analysis Batch: 298597

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	80.0	91.3		ug/L		114	85 - 115	5	20
Selenium	80.0	74.9		ug/L		94	85 - 115	4	20
Thallium	80.0	77.2		ug/L		97	85 - 115	1	20
Nickel	80.0	74.0		ug/L		92	85 - 115	1	20
Zinc	80.0	75.4		ug/L		94	85 - 115	1	20

Lab Sample ID: 570-124890-C-2-E MS
Matrix: Water
Analysis Batch: 298597

Client Sample ID: Matrix Spike
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	ND		80.0	73.7		ug/L		92	80 - 120
Cadmium	ND		80.0	75.5		ug/L		94	80 - 120
Copper	1.3	J,DX	80.0	74.2		ug/L		91	80 - 120
Lead	ND		80.0	75.5		ug/L		94	80 - 120
Antimony	0.91	J,DX	80.0	62.5	LN	ug/L		77	80 - 120
Selenium	ND		80.0	82.0		ug/L		103	80 - 120
Thallium	ND		80.0	74.9		ug/L		94	80 - 120
Nickel	1.2	J,DX MB	80.0	73.1		ug/L		90	80 - 120
Zinc	ND		80.0	77.0		ug/L		96	80 - 120

Lab Sample ID: 570-124890-C-2-F MSD
Matrix: Water
Analysis Batch: 298597

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silver	ND		80.0	72.2		ug/L		90	80 - 120	2	20
Cadmium	ND		80.0	74.2		ug/L		93	80 - 120	2	20
Copper	1.3	J,DX	80.0	73.3		ug/L		90	80 - 120	1	20
Lead	ND		80.0	75.3		ug/L		94	80 - 120	0	20
Antimony	0.91	J,DX	80.0	63.5	LN	ug/L		78	80 - 120	2	20
Selenium	ND		80.0	78.7		ug/L		98	80 - 120	4	20
Thallium	ND		80.0	74.8		ug/L		93	80 - 120	0	20
Nickel	1.2	J,DX MB	80.0	72.6		ug/L		89	80 - 120	1	20
Zinc	ND		80.0	74.7		ug/L		93	80 - 120	3	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-298289/1-A
Matrix: Water
Analysis Batch: 298644

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 298289

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/24/23 17:46	01/25/23 15:38	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 570-298289/2-A
Matrix: Water
Analysis Batch: 298644

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 298289

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.65		ug/L		108	85 - 115

Lab Sample ID: LCSD 570-298289/3-A
Matrix: Water
Analysis Batch: 298644

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 298289

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.61		ug/L		108	85 - 115	0	10

Lab Sample ID: MB 570-298285/1-B
Matrix: Water
Analysis Batch: 298644

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 298287

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		01/24/23 18:15	01/25/23 15:14	1

Lab Sample ID: LCS 570-298285/2-B
Matrix: Water
Analysis Batch: 298644

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 298287

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.38		ug/L		105	85 - 115

Lab Sample ID: LCSD 570-298285/3-B
Matrix: Water
Analysis Batch: 298644

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 298287

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.19		ug/L		102	85 - 115	2	10

Lab Sample ID: 570-124873-A-3-E MS
Matrix: Water
Analysis Batch: 298644

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 298287

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.36		ug/L		105	85 - 115

Lab Sample ID: 570-124873-A-3-F MSD
Matrix: Water
Analysis Batch: 298644

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 298287

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	8.47		ug/L		106	85 - 115	1	10

Lab Sample ID: 570-124653-L-2-D MS
Matrix: Water
Analysis Batch: 298644

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 298289

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.55		ug/L		107	85 - 115

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: 570-124653-L-2-E MSD
 Matrix: Water
 Analysis Batch: 298644

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Dissolved
 Prep Batch: 298289

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	8.52	IB	ug/L		106	85 - 115	0	10

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-297946/11
 Matrix: Water
 Analysis Batch: 297946

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			01/23/23 13:11	1

Lab Sample ID: LCS 570-297946/14
 Matrix: Water
 Analysis Batch: 297946

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	267		ug/L		107	90 - 110

Lab Sample ID: LCSD 570-297946/13
 Matrix: Water
 Analysis Batch: 297946

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	250	248		ug/L		99	90 - 110	7	20

Lab Sample ID: MRL 570-297946/10
 Matrix: Water
 Analysis Batch: 297946

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	5.00	4.66	J,DX	ug/L		93	50 - 150

Lab Sample ID: 570-124243-S-1 MS
 Matrix: Water
 Analysis Batch: 297946

Client Sample ID: Matrix Spike
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	ND		250	216		ug/L		86	70 - 130

Lab Sample ID: 570-124243-S-1 MSD
 Matrix: Water
 Analysis Batch: 297946

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	ND		250	227		ug/L		91	70 - 130	5	30

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-298303/1
 Matrix: Water
 Analysis Batch: 298303

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			01/24/23 18:23	1

Lab Sample ID: LCS 570-298303/2
 Matrix: Water
 Analysis Batch: 298303

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1000		mg/L		100	84 - 108

Lab Sample ID: LCSD 570-298303/3
 Matrix: Water
 Analysis Batch: 298303

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1020		mg/L		102	84 - 108	2	10

Lab Sample ID: 570-124934-C-2 DU
 Matrix: Water
 Analysis Batch: 298303

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	100000		101000		mg/L		3	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-297947/1
 Matrix: Water
 Analysis Batch: 297947

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			01/23/23 16:51	1

Lab Sample ID: LCS 570-297947/2
 Matrix: Water
 Analysis Batch: 297947

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	92.0		mg/L		92	77 - 116

Lab Sample ID: LCSD 570-297947/3
 Matrix: Water
 Analysis Batch: 297947

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	93.0		mg/L		93	77 - 116	1	10

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: 590-19662-B-1 DU
Matrix: Water
Analysis Batch: 297947

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	2300		2060		mg/L		10	10

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

HPLC/IC

Analysis Batch: 297606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-1	Outfall009_20230121_Comp	Total/NA	Water	300.0	
MB 570-297606/5	Method Blank	Total/NA	Water	300.0	
LCS 570-297606/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-297606/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-124967-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
570-124967-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 299521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-1	Outfall009_20230121_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Prep Batch: 298096

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-1	Outfall009_20230121_Comp	Total Recoverable	Water	200.8	
MB 570-298096/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-298096/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-298096/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-124891-1 MS	Outfall009_20230121_Comp	Total Recoverable	Water	200.8	
570-124891-1 MSD	Outfall009_20230121_Comp	Total Recoverable	Water	200.8	

Analysis Batch: 298201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-1	Outfall009_20230121_Comp	Total Recoverable	Water	200.8	298096
MB 570-298096/1-A	Method Blank	Total Recoverable	Water	200.8	298096
LCS 570-298096/2-A	Lab Control Sample	Total Recoverable	Water	200.8	298096
LCSD 570-298096/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	298096
570-124891-1 MS	Outfall009_20230121_Comp	Total Recoverable	Water	200.8	298096
570-124891-1 MSD	Outfall009_20230121_Comp	Total Recoverable	Water	200.8	298096

Filtration Batch: 298285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-2	Outfall009_20230121_Comp_F	Dissolved	Water	Filtration	
MB 570-298285/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-298285/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-298285/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-124873-A-3-E MS	Matrix Spike	Dissolved	Water	Filtration	
570-124873-A-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	Filtration	

Prep Batch: 298287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-2	Outfall009_20230121_Comp_F	Dissolved	Water	245.1	298285
MB 570-298285/1-B	Method Blank	Dissolved	Water	245.1	298285
LCS 570-298285/2-B	Lab Control Sample	Dissolved	Water	245.1	298285
LCSD 570-298285/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	298285
570-124873-A-3-E MS	Matrix Spike	Dissolved	Water	245.1	298285
570-124873-A-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	298285

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Metals

Prep Batch: 298289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-1	Outfall009_20230121_Comp	Total/NA	Water	245.1	
MB 570-298289/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-298289/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-298289/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-124653-L-2-D MS	Matrix Spike	Dissolved	Water	245.1	
570-124653-L-2-E MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	

Filtration Batch: 298550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-2	Outfall009_20230121_Comp_F	Dissolved	Water	Filtration	
MB 570-298550/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-298550/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-298550/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-124890-C-2-E MS	Matrix Spike	Dissolved	Water	Filtration	
570-124890-C-2-F MSD	Matrix Spike Duplicate	Dissolved	Water	Filtration	

Analysis Batch: 298597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-2	Outfall009_20230121_Comp_F	Dissolved	Water	200.8	298550
MB 570-298550/1-A	Method Blank	Dissolved	Water	200.8	298550
LCS 570-298550/2-A	Lab Control Sample	Dissolved	Water	200.8	298550
LCSD 570-298550/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	298550
570-124890-C-2-E MS	Matrix Spike	Dissolved	Water	200.8	298550
570-124890-C-2-F MSD	Matrix Spike Duplicate	Dissolved	Water	200.8	298550

Analysis Batch: 298644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-1	Outfall009_20230121_Comp	Total/NA	Water	245.1	298289
570-124891-2	Outfall009_20230121_Comp_F	Dissolved	Water	245.1	298287
MB 570-298285/1-B	Method Blank	Dissolved	Water	245.1	298287
MB 570-298289/1-A	Method Blank	Total/NA	Water	245.1	298289
LCS 570-298285/2-B	Lab Control Sample	Dissolved	Water	245.1	298287
LCS 570-298289/2-A	Lab Control Sample	Total/NA	Water	245.1	298289
LCSD 570-298285/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	298287
LCSD 570-298289/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	298289
570-124653-L-2-D MS	Matrix Spike	Dissolved	Water	245.1	298289
570-124653-L-2-E MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	298289
570-124873-A-3-E MS	Matrix Spike	Dissolved	Water	245.1	298287
570-124873-A-3-F MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	298287

General Chemistry

Analysis Batch: 297946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-1	Outfall009_20230121_Comp	Total/NA	Water	Kelada 01	
MB 570-297946/11	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-297946/14	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-297946/13	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-297946/10	Lab Control Sample	Total/NA	Water	Kelada 01	
570-124243-S-1 MS	Matrix Spike	Total/NA	Water	Kelada 01	
570-124243-S-1 MSD	Matrix Spike Duplicate	Total/NA	Water	Kelada 01	

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

General Chemistry

Analysis Batch: 297947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-1	Outfall009_20230121_Comp	Total/NA	Water	SM 2540D	
MB 570-297947/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-297947/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-297947/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
590-19662-B-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Analysis Batch: 298303

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-1	Outfall009_20230121_Comp	Total/NA	Water	SM 2540C	
MB 570-298303/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-298303/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-298303/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
570-124934-C-2 DU	Duplicate	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Client Sample ID: Outfall009_20230121_Comp

Lab Sample ID: 570-124891-1

Date Collected: 01/21/23 08:30

Matrix: Water

Date Received: 01/21/23 11:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	4 mL	4 mL	297606	01/21/23 12:59	PS	EET CAL 4
Instrument ID: IC9										
Total/NA	Analysis	NO2NO3 Calc		1			299521	01/30/23 10:05	UWCT	EET CAL 4
Instrument ID: IC9										
Total Recoverable	Prep	200.8			50 mL	50 mL	298096	01/24/23 09:53	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			298201	01/24/23 13:32	Y2WS	EET CAL 4
Instrument ID: ICPMS10										
Total/NA	Prep	245.1			25 mL	50 mL	298289	01/24/23 17:46	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			298644	01/25/23 15:58	COYH	EET CAL 4
Instrument ID: HG8										
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	297946	01/23/23 15:32	GG0B	EET CAL 4
Instrument ID: LACHAT01										
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	298303	01/24/23 18:23	ZL7L	EET CAL 4
Instrument ID: NOEQUIP										
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	297947	01/23/23 16:51	UWCT	EET CAL 4
Instrument ID: NOEQUIP										

Client Sample ID: Outfall009_20230121_Comp_F

Lab Sample ID: 570-124891-2

Date Collected: 01/21/23 08:30

Matrix: Water

Date Received: 01/21/23 11:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	298550	01/25/23 13:28	JP8N	EET CAL 4
Dissolved	Analysis	200.8		1			298597	01/25/23 14:58	Y2WS	EET CAL 4
Instrument ID: ICPMS10										
Dissolved	Filtration	Filtration			25 mL	25 mL	298285	01/24/23 17:42	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	298287	01/24/23 18:15	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			298644	01/25/23 15:34	COYH	EET CAL 4
Instrument ID: HG8										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-23
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4

Protocol References:

- EPA = US Environmental Protection Agency
- None = None
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

- EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124891-1	Outfall009_20230121_Comp	Water	01/21/23 08:30	01/21/23 11:40
570-124891-2	Outfall009_20230121_Comp_F	Water	01/21/23 08:30	01/21/23 11:40

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

126/89/1

CHAIN OF CUSTODY FORM

Client Name/Address:
 Haley & Aldrich
 5333 Mission Center Rd Suite 300
 San Diego, CA 92106

Eurofins Calscience Irvine Contact: Christian Bondoc
 17481 DeJian Ave Suite #100
 Irvine CA 92614
 Tel: 949-260-3218

Project:
 Boeing-SSFL NPDES
 Permit 2023
 Routine Outfall 003-007 009 010
 Outfall 009
 Comp

Project Manager: Katherine Miller
 520.289.8606; 520.904.6944 (cell)
Field Manager: Mark Dominick
 978.234.5033; 818.589.0702 (cell)

Sample Matrix: WM

Sample ID: Outfall009_20230121_Comp

Sampling Date/Time: 12/1/2023 / 10:30

Container Type: 500 mL Poly

of Cont.: 1

Preservative: HNO₃

Bottle #: 96

MS/MSD: No

Sample Description: Outfall 009

Sample Matrix: WM

Sampling Date/Time: 12/1/2023 / 10:30

Container Type: 1 L Glass Amber

of Cont.: 2

Preservative: None

Bottle #: 110

MS/MSD: No

Sample Description: Outfall009_20230121_Comp_F

Sample Matrix: WM

Sampling Date/Time: 12/1/2023 / 10:30

Container Type: borosilicate vials

of Cont.: 1

Preservative: None

Bottle #: 320

MS/MSD: No

Sample Description: Outfall009_20230121_Comp_Extra

Sample Matrix: WM

Sampling Date/Time: 12/1/2023 / 10:30

Container Type: 1 L Glass Amber

of Cont.: 2

Preservative: None

Bottle #: 110

MS/MSD: No

Sample Matrix: WM

Sampling Date/Time: 12/1/2023 / 10:30

Container Type: 500 mL Poly

of Cont.: 2

Preservative: None

Bottle #: 145

MS/MSD: No

ANALYSIS REQUIRED

Chronic Toxicity: Selenium (EPA 814.F.03.019), ABC Lake in Ventura, CA

Cyanide (SM4500-CN-E / E335.2)

Total Dissolved Metals: Mercury (E245.1)

TSS (160.2 (SM2540D))

48 hours Holding Time NO₂ & NO₃

Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (4-3) (E908.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)

Total Dissolved Metals: (E200.7)- Ni, Zn

TCDD (and all congeners) (E13B)

CT, SO₄, NO₃-N (300)

TDS (SM2540C/E160.1)

Total Dissolved Metals: (E200.7)- Ag, Cd, Cu, Pb, Sb, Se, Ti

Total Dissolved Metals: (E200.7)- Ni, Zn

Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MS/MSD. Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA.

Filter and preserve within 24hrs of receipt at lab

Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.

Hold

Hold

Turn-around time: (Check)
 24 Hour _____ 72 Hour _____ 10 Day _____ X
 48 Hour _____ 5 Day _____ Normal _____

Sample integrity: (Check)
 Intact: _____ On Ice: _____
 Data Requirements: (Check)
 No Level IV _____ All Level IV: _____ X

Received By: [Signature] **Date/Time:** 12-21-23 11:40

Relinquished By: STEVEN SCHUBER **Date/Time:** 1-21-23 / 1140

Company: HALEY ALDRICH

Relinquished By: [Signature] **Date/Time:** 1-11-1 12/1.2 5C11

Company:



570-124891 Chain of Custody



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124891-1

Login Number: 124891

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



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ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004
Generated 2/14/2023 3:46:20 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 009 - COMP

JOB NUMBER

570-124891-2

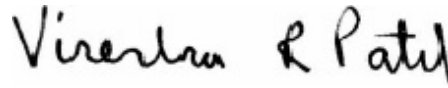
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
♠	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-2

Job ID: 570-124891-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-124891-2

Comments

No additional comments.

Receipt

The samples were received on 1/21/2023 11:40 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.1° C and 1.2° C.

Dioxin

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument 11D2 exceeded this criteria: Outfall009_20230121_Comp (570-124891-1) and (CCV 320-652595/2). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-2

Client Sample ID: Outfall009_20230121_Comp

Lab Sample ID: 570-124891-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,7,8-PeCDF	0.0000035	J,DX MB	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				5					
2,3,4,7,8-PeCDF	0.0000047	J,DX q	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				7					
1,2,3,4,7,8-HxCDD	0.0000018	J,DX MB	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				0					
1,2,3,6,7,8-HxCDD	0.0000058	J,DX MB q	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				0					
1,2,3,7,8,9-HxCDD	0.0000029	J,DX MB	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				8					
1,2,3,4,7,8-HxCDF	0.0000010	J,DX MB	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				4					
1,2,3,6,7,8-HxCDF	0.0000036	J,DX MB q	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				2					
1,2,3,7,8,9-HxCDF	0.0000051	J,DX MB	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				2					
2,3,4,6,7,8-HxCDF	0.0000057	J,DX MB	0.000047	0.00000011	ug/L	1		1613B	Total/NA
1,2,3,4,6,7,8-HpCDD	0.0000017	J,DX MB	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				2					
1,2,3,4,6,7,8-HpCDF	0.0000015	J,DX MB q	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				5					
1,2,3,4,7,8,9-HpCDF	0.0000030	J,DX MB q	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				6					
OCDD	0.0000077	J,DX MB	0.000095	0.0000003	ug/L	1		1613B	Total/NA
				0					
OCDF	0.0000015	J,DX MB	0.000095	0.0000002	ug/L	1		1613B	Total/NA
				5					
Total TCDF	0.0000014	J,DX q	0.0000095	0.0000002	ug/L	1		1613B	Total/NA
				0					
Total PeCDF	0.0000016	J,DX MB q	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				5					
Total HxCDD	0.0000045	J,DX MB q	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				8					
Total HxCDF	0.0000030	J,DX MB q	0.000047	0.00000011	ug/L	1		1613B	Total/NA
Total HpCDD	0.0000039	J,DX MB	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				2					
Total HpCDF	0.0000020	J,DX MB q	0.000047	0.0000001	ug/L	1		1613B	Total/NA
				5					

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall009_20230121_Comp

Date Collected: 01/21/23 08:30

Date Received: 01/21/23 11:40

Lab Sample ID: 570-124891-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000095	0.0000006	ug/L		02/03/23 10:06	02/07/23 22:24	1
1,2,3,7,8-PeCDD	ND		0.000047	0.0000002	ug/L		02/03/23 10:06	02/07/23 22:24	1
1,2,3,7,8-PeCDF	0.00000035	J,DX MB	0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 22:24	1
2,3,4,7,8-PeCDF	0.00000047	J,DX q	0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 22:24	1
1,2,3,4,7,8-HxCDD	0.0000018	J,DX MB	0.000047	0.0000002	ug/L		02/03/23 10:06	02/07/23 22:24	1
1,2,3,6,7,8-HxCDD	0.00000058	J,DX MB q	0.000047	0.0000002	ug/L		02/03/23 10:06	02/07/23 22:24	1
1,2,3,7,8,9-HxCDD	0.00000029	J,DX MB	0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 22:24	1
1,2,3,4,7,8-HxCDF	0.0000010	J,DX MB	0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 22:24	1
1,2,3,6,7,8-HxCDF	0.00000036	J,DX MB q	0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 22:24	1
1,2,3,7,8,9-HxCDF	0.00000051	J,DX MB	0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 22:24	1
2,3,4,6,7,8-HxCDF	0.00000057	J,DX MB	0.000047	0.00000011	ug/L		02/03/23 10:06	02/07/23 22:24	1
1,2,3,4,6,7,8-HpCDD	0.0000017	J,DX MB	0.000047	0.0000002	ug/L		02/03/23 10:06	02/07/23 22:24	1
1,2,3,4,6,7,8-HpCDF	0.0000015	J,DX MB q	0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 22:24	1
1,2,3,4,7,8,9-HpCDF	0.00000030	J,DX MB q	0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 22:24	1
OCDD	0.0000077	J,DX MB	0.000095	0.0000003	ug/L		02/03/23 10:06	02/07/23 22:24	1
OCDF	0.0000015	J,DX MB	0.000095	0.0000002	ug/L		02/03/23 10:06	02/07/23 22:24	1
Total TCDD	ND		0.0000095	0.0000006	ug/L		02/03/23 10:06	02/07/23 22:24	1
Total TCDF	0.0000014	J,DX q	0.0000095	0.0000002	ug/L		02/03/23 10:06	02/07/23 22:24	1
Total PeCDD	ND		0.000047	0.0000002	ug/L		02/03/23 10:06	02/07/23 22:24	1
Total PeCDF	0.0000016	J,DX MB q	0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 22:24	1
Total HxCDD	0.0000045	J,DX MB q	0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 22:24	1
Total HxCDF	0.0000030	J,DX MB q	0.000047	0.00000011	ug/L		02/03/23 10:06	02/07/23 22:24	1
Total HpCDD	0.0000039	J,DX MB	0.000047	0.0000002	ug/L		02/03/23 10:06	02/07/23 22:24	1
Total HpCDF	0.0000020	J,DX MB q	0.000047	0.0000001	ug/L		02/03/23 10:06	02/07/23 22:24	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	76		25 - 164				02/03/23 10:06	02/07/23 22:24	1
13C-2,3,7,8-TCDF	74		24 - 169				02/03/23 10:06	02/07/23 22:24	1
13C-1,2,3,7,8-PeCDD	79		25 - 181				02/03/23 10:06	02/07/23 22:24	1
13C-1,2,3,7,8-PeCDF	77		24 - 185				02/03/23 10:06	02/07/23 22:24	1
13C-2,3,4,7,8-PeCDF	73		21 - 178				02/03/23 10:06	02/07/23 22:24	1
13C-1,2,3,4,7,8-HxCDD	71		32 - 141				02/03/23 10:06	02/07/23 22:24	1
13C-1,2,3,6,7,8-HxCDD	77		28 - 130				02/03/23 10:06	02/07/23 22:24	1
13C-1,2,3,4,7,8-HxCDF	65		26 - 152				02/03/23 10:06	02/07/23 22:24	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall009_20230121_Comp
Date Collected: 01/21/23 08:30
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124891-1
Matrix: Water

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-1,2,3,6,7,8-HxCDF	76		26 - 123	02/03/23 10:06	02/07/23 22:24	1
13C-1,2,3,7,8,9-HxCDF	81		29 - 147	02/03/23 10:06	02/07/23 22:24	1
13C-2,3,4,6,7,8-HxCDF	82		28 - 136	02/03/23 10:06	02/07/23 22:24	1
13C-1,2,3,4,6,7,8-HpCDD	77		23 - 140	02/03/23 10:06	02/07/23 22:24	1
13C-1,2,3,4,6,7,8-HpCDF	70		28 - 143	02/03/23 10:06	02/07/23 22:24	1
13C-1,2,3,4,7,8,9-HpCDF	78		26 - 138	02/03/23 10:06	02/07/23 22:24	1
13C-OCDD	79		17 - 157	02/03/23 10:06	02/07/23 22:24	1
13C-OCDF	77		17 - 157	02/03/23 10:06	02/07/23 22:24	1
Surrogate						
37Cl4-2,3,7,8-TCDD	90		35 - 197	02/03/23 10:06	02/07/23 22:24	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Client Sample ID: Outfall009_20230121_Comp

Date Collected: 01/21/23 08:30

Date Received: 01/21/23 11:40

Lab Sample ID: 570-124891-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	ND		0.0000095	0.0000003	ug/L		02/03/23 10:06	02/08/23 22:24	1
				0					
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF	72		24 - 169				02/03/23 10:06	02/08/23 22:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	102		35 - 197				02/03/23 10:06	02/08/23 22:24	1

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Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-124891-1	Outfall009_20230121_Comp	90
570-124891-1 - RA	Outfall009_20230121_Comp	102
MB 320-651610/1-A	Method Blank	91

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-651610/2-A	Lab Control Sample	89
LCSD 320-651610/3-A	Lab Control Sample Dup	91

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-124891-1	Outfall009_20230121_Comp	76	74	79	77	73	71	77	65
570-124891-1 - RA	Outfall009_20230121_Comp		72						
MB 320-651610/1-A	Method Blank	71	69	72	72	65	65	69	58

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-124891-1	Outfall009_20230121_Comp	76	81	82	77	70	78	79	77
570-124891-1 - RA	Outfall009_20230121_Comp								
MB 320-651610/1-A	Method Blank	70	78	78	71	64	72	71	70

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- OCDD = 13C-OCDD
- OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-651610/2-A	Lab Control Sample	67	66	70	69	68	67	72	62
LCSD 320-651610/3-A	Lab Control Sample Dup	71	69	74	73	69	65	74	62

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-651610/2-A	Lab Control Sample	71	75	74	69	66	70	71	70
LCSD 320-651610/3-A	Lab Control Sample Dup	73	78	78	73	67	74	76	74

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD

Eurofins Calscience

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-124891-2

Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

HxCDF = 13C-1,2,3,4,7,8-HxCDF

HxDF = 13C-1,2,3,6,7,8-HxCDF

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-651610/1-A
Matrix: Water
Analysis Batch: 652417

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 651610

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-2,3,4,7,8-PeCDF	65		21 - 178	02/03/23 10:06	02/07/23 14:39	1
13C-1,2,3,4,7,8-HxCDD	65		32 - 141	02/03/23 10:06	02/07/23 14:39	1
13C-1,2,3,6,7,8-HxCDD	69		28 - 130	02/03/23 10:06	02/07/23 14:39	1
13C-1,2,3,4,7,8-HxCDF	58		26 - 152	02/03/23 10:06	02/07/23 14:39	1
13C-1,2,3,6,7,8-HxCDF	70		26 - 123	02/03/23 10:06	02/07/23 14:39	1
13C-1,2,3,7,8,9-HxCDF	78		29 - 147	02/03/23 10:06	02/07/23 14:39	1
13C-2,3,4,6,7,8-HxCDF	78		28 - 136	02/03/23 10:06	02/07/23 14:39	1
13C-1,2,3,4,6,7,8-HpCDD	71		23 - 140	02/03/23 10:06	02/07/23 14:39	1
13C-1,2,3,4,6,7,8-HpCDF	64		28 - 143	02/03/23 10:06	02/07/23 14:39	1
13C-1,2,3,4,7,8,9-HpCDF	72		26 - 138	02/03/23 10:06	02/07/23 14:39	1
13C-OCDD	71		17 - 157	02/03/23 10:06	02/07/23 14:39	1
13C-OCDF	70		17 - 157	02/03/23 10:06	02/07/23 14:39	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	91		35 - 197	02/03/23 10:06	02/07/23 14:39	1

Lab Sample ID: LCS 320-651610/2-A
Matrix: Water
Analysis Batch: 652417

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 651610

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,3,7,8-TCDF	0.000200	0.000226		ug/L		113	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00106		ug/L		106	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00107	MB	ug/L		107	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.00107		ug/L		107	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.00104	MB	ug/L		104	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00110	MB	ug/L		110	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00109	MB	ug/L		109	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.00107	MB	ug/L		107	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00109	MB	ug/L		109	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.00108	MB	ug/L		108	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00109	MB	ug/L		109	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.00108	MB	ug/L		108	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00110	MB	ug/L		110	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.00109	MB	ug/L		109	78 - 138
OCDD	0.00200	0.00214	MB	ug/L		107	78 - 144
OCDF	0.00200	0.00227	MB	ug/L		113	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	67		20 - 175
13C-2,3,7,8-TCDF	66		22 - 152
13C-1,2,3,7,8-PeCDD	70		21 - 227
13C-1,2,3,7,8-PeCDF	69		21 - 192
13C-2,3,4,7,8-PeCDF	68		13 - 328
13C-1,2,3,4,7,8-HxCDD	67		21 - 193
13C-1,2,3,6,7,8-HxCDD	72		25 - 163
13C-1,2,3,4,7,8-HxCDF	62		19 - 202

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-651610/2-A
Matrix: Water
Analysis Batch: 652417

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 651610

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,6,7,8-HxCDF	71		21 - 159
13C-1,2,3,7,8,9-HxCDF	75		17 - 205
13C-2,3,4,6,7,8-HxCDF	74		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	69		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	66		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	70		20 - 186
13C-OCDD	71		13 - 199
13C-OCDF	70		13 - 199
LCS LCS			
Surrogate	%Recovery	Qualifier	Limits
37Cl4-2,3,7,8-TCDD	89		31 - 191

Lab Sample ID: LCSD 320-651610/3-A
Matrix: Water
Analysis Batch: 652417

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 651610

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	Limit
		Result	Qualifier				Limits	RPD		
2,3,7,8-TCDD	0.000200	0.000220		ug/L		110	67 - 158	1	50	
2,3,7,8-TCDF	0.000200	0.000235		ug/L		117	75 - 158	4	50	
1,2,3,7,8-PeCDD	0.00100	0.00109		ug/L		109	70 - 142	3	50	
1,2,3,7,8-PeCDF	0.00100	0.00111	MB	ug/L		111	80 - 134	4	50	
2,3,4,7,8-PeCDF	0.00100	0.00111		ug/L		111	68 - 160	3	50	
1,2,3,4,7,8-HxCDD	0.00100	0.00115	MB	ug/L		115	70 - 164	10	50	
1,2,3,6,7,8-HxCDD	0.00100	0.00108	MB	ug/L		108	76 - 134	1	50	
1,2,3,7,8,9-HxCDD	0.00100	0.00118	MB	ug/L		118	64 - 162	8	50	
1,2,3,4,7,8-HxCDF	0.00100	0.00114	MB	ug/L		114	72 - 134	6	50	
1,2,3,6,7,8-HxCDF	0.00100	0.00111	MB	ug/L		111	84 - 130	1	50	
1,2,3,7,8,9-HxCDF	0.00100	0.00111	MB	ug/L		111	78 - 130	3	50	
2,3,4,6,7,8-HxCDF	0.00100	0.00112	MB	ug/L		112	70 - 156	3	50	
1,2,3,4,6,7,8-HpCDD	0.00100	0.00112	MB	ug/L		112	70 - 140	4	50	
1,2,3,4,6,7,8-HpCDF	0.00100	0.00114	MB	ug/L		114	82 - 122	3	50	
1,2,3,4,7,8,9-HpCDF	0.00100	0.00112	MB	ug/L		112	78 - 138	3	50	
OCDD	0.00200	0.00221	MB	ug/L		111	78 - 144	3	50	
OCDF	0.00200	0.00234	MB	ug/L		117	63 - 170	3	50	

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	71		20 - 175
13C-2,3,7,8-TCDF	69		22 - 152
13C-1,2,3,7,8-PeCDD	74		21 - 227
13C-1,2,3,7,8-PeCDF	73		21 - 192
13C-2,3,4,7,8-PeCDF	69		13 - 328
13C-1,2,3,4,7,8-HxCDD	65		21 - 193
13C-1,2,3,6,7,8-HxCDD	74		25 - 163
13C-1,2,3,4,7,8-HxCDF	62		19 - 202
13C-1,2,3,6,7,8-HxCDF	73		21 - 159
13C-1,2,3,7,8,9-HxCDF	78		17 - 205
13C-2,3,4,6,7,8-HxCDF	78		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	73		26 - 166

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-651610/3-A

Matrix: Water

Analysis Batch: 652417

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 651610

<u>Isotope Dilution</u>	<i>LCSD LCSD</i>		<u>Limits</u>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C-1,2,3,4,6,7,8-HpCDF	67		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	74		20 - 186
13C-OCDD	76		13 - 199
13C-OCDF	74		13 - 199

<u>Surrogate</u>	<i>LCSD LCSD</i>		<u>Limits</u>
	<i>%Recovery</i>	<i>Qualifier</i>	
37Cl4-2,3,7,8-TCDD	91		31 - 191

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-2

Specialty Organics

Prep Batch: 651610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-1 - RA	Outfall009_20230121_Comp	Total/NA	Water	1613B	
570-124891-1	Outfall009_20230121_Comp	Total/NA	Water	1613B	
MB 320-651610/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-651610/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-651610/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 652417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-1	Outfall009_20230121_Comp	Total/NA	Water	1613B	651610
MB 320-651610/1-A	Method Blank	Total/NA	Water	1613B	651610
LCS 320-651610/2-A	Lab Control Sample	Total/NA	Water	1613B	651610
LCSD 320-651610/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	651610

Analysis Batch: 652595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-1 - RA	Outfall009_20230121_Comp	Total/NA	Water	1613B	651610

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-2

Client Sample ID: Outfall009_20230121_Comp

Lab Sample ID: 570-124891-1

Date Collected: 01/21/23 08:30

Matrix: Water

Date Received: 01/21/23 11:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B	RA		1057.8 mL	20.0 uL	651610	02/03/23 10:06	CGB	EET SAC
Total/NA	Analysis	1613B	RA	1	1 uL	1 uL	652595	02/08/23 22:24	DB	EET SAC
Instrument ID: 11D2										
Total/NA	Prep	1613B			1057.8 mL	20.0 uL	651610	02/03/23 10:06	CGB	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	652417	02/07/23 22:24	GRB	EET SAC
Instrument ID: 12D5										

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-23 *
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-23
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-23 *
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
Utah	NELAP	CA000442021-12	02-28-23
Virginia	NELAP	460278	03-14-23
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124891-1	Outfall009_20230121_Comp	Water	01/21/23 08:30	01/21/23 11:40

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126/89/1

CHAIN OF CUSTODY FORM

Client Name/Address:
 Haley & Aldrich
 5333 Mission Center Rd Suite 300
 San Diego, CA 92106
 Eurofins Calscience Irvine Contact: Christian Bondoc
 17481 DeJain Ave Suite #100
 Irvine CA 92614
 Tel: 949-260-3218

Project:
 Boeing-SSFL NPDES
 Permit 2023
 Routine Outfall 003-007 009 010
 Outfall 009
 Comp

Project Manager: Katherine Miller
 520.289.8606; 520.904.6944 (cell)
 Field Manager: Mark Dominick
 978.234.5033; 818.589.0702 (cell)

Sample Matrix: WM

Sample ID: 1 Outfall009_20230121_Comp

Sampling Date/Time: 12/1/2023 / 10:30

Container Type: 500 mL Poly

Preservative: HNO₃

Bottle #: 96

MS/MSD: No

Sample Description: 1 Outfall009_20230121_Comp

Sampling Date/Time: 12/1/2023 / 10:30

Container Type: 1 L Glass Amber

Preservative: None

Bottle #: 110

MS/MSD: No

Sample Description: 2 Outfall009_20230121_Comp_F

Sampling Date/Time: 12/1/2023 / 10:30

Container Type: 500 mL Poly

Preservative: None

Bottle #: 145

MS/MSD: No

Sample Description: 3 Outfall009_20230121_Comp_Extra

Sampling Date/Time: 12/1/2023 / 10:30

Container Type: 500 mL Poly

Preservative: None

Bottle #: 145

MS/MSD: No

ANALYSIS REQUIRED

Chronic Toxicity: Selenium (EPA 814, 819, 823, 819, ABC Lake in Ventura, CA)

Cyanide (SM4500-CN-E / E335.2)

Total Dissolved Metals: Mercury (E245.1)

TSS (160.2 (SM2540D))

48 hours Holding Time NO₂ & NO₃

Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MS/MSD. Only test if first or second rain events of the year. Deliver to ABC Labs in Ventura, CA.

Filter and preserve within 24hrs of receipt at lab

Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.

Hold

Hold

Turn-around time: (Check)
 24 Hour _____ 72 Hour _____ 10 Day _____ X
 48 Hour _____ 5 Day _____ Normal _____

Sample integrity: (Check)
 Intact: _____ On Ice: _____
 Data Requirements: (Check)
 No Level IV _____ All Level IV: _____ X

Relinquished By: STEVEN SCHUBER 1-21-23 / 1140 Date/Time: Company: HALEY ALDRICH

Relinquished By: 1.1/1.1 12/1.2 SC11 Date/Time: Company:

Relinquished By: Date/Time: Company:

Relinquished By: Date/Time: Company:

Legend EP=Expert Panel, R=Routine
 Received By: Date/Time: BC 1-21-23 11:40
 Received By: Date/Time: BC 1-21-23 11:40
 Received By: Date/Time: BC 1-21-23 11:40



570-124891 Chain of Custody



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124891-2

Login Number: 124891

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124891-2

Login Number: 124891

List Number: 3

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 01/24/23 11:32 AM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.8c 1.6c 2.0c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 009 - COMP

JOB NUMBER

570-124891-3

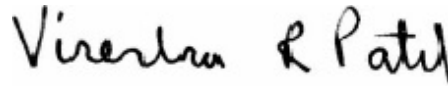
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Qualifiers

Rad

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Job ID: 570-124891-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-124891-3

Comments

No additional comments.

Receipt

The samples were received on 1/21/2023 11:40 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.1° C and 1.2° C.

Receipt Exceptions

The reference method requires samples to have a pH of 2. The following samples were received with a pH of 6. The samples were adjusted to the appropriate pH in the laboratory.

Job#: 570-124887 R-1
Job#: 570-124898 R-1
Job #: 570-124868 R-1
Job #: 570-124873 R-1
Job #: 570-124890 K-1
Job #: 570-124891 J-1

RAD

Method 900.0: Gross Alpha and Gross Beta batch 598963

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230121_Comp (570-124891-1), (LCS 160-598963/2-A), (LCSB 160-598963/3-A), (MB 160-598963/1-A), (570-124887-R-1-G), (570-124887-R-1-J DU), (570-124887-R-1-H MS) and (570-124887-R-1-I MSBT)

Method 900.0: Gross Alpha Beta prep batch 160-598963:

The matrix spike (MS) recoveries for preparation batch 160-598963 and analytical batch 160-600333 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.(570-124887-R-1-H MS)

Method 901.1: Gamma Prep Batch 160-598560

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Job ID: 570-124891-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230121_Comp (570-124891-1), (570-124868-R-1-E) and (570-124868-R-1-F DU)

Methods 903.0, 9315: Radium-226 prep batch 160-598272:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230121_Comp (570-124891-1), (LCS 160-598272/2-A), (LCSD 160-598272/3-A) and (MB 160-598272/1-A)

Methods 904.0, 9320: Radium-228 batch 598275

The LCS/LCSD recovered at (LCS 131% / LCSD 129%). The limits in our LIMS system at 75-125 reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of (62-148%) per method requirements. The LCS passes, no further action is required

(LCS 160-598275/2-A) and (LCSD 160-598275/3-A)

Methods 904.0, 9320: Gamma prep batch 160-598275:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230121_Comp (570-124891-1), (LCS 160-598275/2-A), (LCSD 160-598275/3-A) and (MB 160-598275/1-A)

Method 905: Strontium-90 prep batch 160-598546:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230121_Comp (570-124891-1)

Methods 900.0, 905: Gross Alpha Beta prep batch 160-598892:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. (LCS 160-598546/2-A), (LCSD 160-598546/3-A) and (MB 160-598546/1-A)

Method 906.0: Tritium 598717

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Job ID: 570-124891-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

applied as the Activity Reference Date. Outfall009_20230121_Comp (570-124891-1), (LCS 160-598717/2-A), (MB 160-598717/1-A), (570-124392-Q-1-A), (570-124392-Q-1-B DU), (570-124868-Q-1-A) and (570-124868-Q-1-B MS)

Method A-01-R: Isotopic Uranium batch 598317

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230121_Comp (570-124891-1), (LCS 160-598317/2-A), (MB 160-598317/1-A), (570-124898-R-1-C) and (570-124898-R-1-D DU)

Method ExtChrom: Uranium Prep Batch 160-598317:

The following sample was prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall009_20230121_Comp (570-124891-1).

Method PrecSep_0: Radium-228 Prep Batch 160-598275

The following sample was prepared at a reduced aliquot due to Matrix: Outfall009_20230121_Comp (570-124891-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep_0: Radium-228 Prep Batch 160-598275

Insufficient sample volume was available to perform a sample duplicate for the following samples: Outfall009_20230121_Comp (570-124891-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium-226 Prep Batch 160-598272

The following sample was prepared at a reduced aliquot due to Matrix: Outfall009_20230121_Comp (570-124891-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep-21: Radium-226 Prep Batch 160-598272

Insufficient sample volume was available to perform a sample duplicate for the following samples: Outfall009_20230121_Comp (570-124891-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-7: Strontium-90 Prep Batch 160-598546

Insufficient sample volume was available to perform a sample duplicate for the following samples: Outfall009_20230121_Comp (570-124891-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-7: Strontium-90 Prep Batch 160-598546

The following sample was prepared at a reduced aliquot due to Matrix: Outfall009_20230121_Comp (570-124891-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Client Sample ID: Outfall009_20230121_Comp

Lab Sample ID: 570-124891-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall009_20230121_Comp
 Date Collected: 01/21/23 08:30
 Date Received: 01/21/23 11:40

Lab Sample ID: 570-124891-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	-0.193	U	1.12	1.12	3.00	2.10	pCi/L	02/02/23 12:38	02/14/23 20:02	1
Gross Beta	0.984		0.606	0.614	4.00	0.926	pCi/L	02/02/23 12:38	02/14/23 20:02	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall009_20230121_Comp
Date Collected: 01/21/23 08:30
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124891-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	2.46	U	4.48	4.49	20.0	5.51	pCi/L	01/27/23 16:27	02/22/23 13:47	1
Potassium-40	30.0	U	81.0	81.1		105	pCi/L	01/27/23 16:27	02/22/23 13:47	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall009_20230121_Comp
 Date Collected: 01/21/23 08:30
 Date Received: 01/21/23 11:40

Lab Sample ID: 570-124891-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.100	U	0.0899	0.0904	1.00	0.137	pCi/L	01/26/23 09:36	02/21/23 17:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.0		30 - 110					01/26/23 09:36	02/21/23 17:55	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall009_20230121_Comp
Date Collected: 01/21/23 08:30
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124891-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.200	U	0.413	0.413	1.00	0.822	pCi/L	01/26/23 09:50	02/01/23 12:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.0		30 - 110					01/26/23 09:50	02/01/23 12:13	1
Y Carrier	85.6		30 - 110					01/26/23 09:50	02/01/23 12:13	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall009_20230121_Comp
Date Collected: 01/21/23 08:30
Date Received: 01/21/23 11:40

Lab Sample ID: 570-124891-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.330	U	0.321	0.323	3.00	0.640	pCi/L	01/27/23 12:54	02/08/23 16:03	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	89.4		30 - 110					01/27/23 12:54	02/08/23 16:03	1
Y Carrier	83.4		30 - 110					01/27/23 12:54	02/08/23 16:03	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall009_20230121_Comp
 Date Collected: 01/21/23 08:30
 Date Received: 01/21/23 11:40

Lab Sample ID: 570-124891-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	92.3	U	159	160	500	268	pCi/L	01/31/23 12:11	02/02/23 03:33	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall009_20230121_Comp
 Date Collected: 01/21/23 08:30
 Date Received: 01/21/23 11:40

Lab Sample ID: 570-124891-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.179	U	0.168	0.169	1.00	0.204	pCi/L	01/26/23 16:02	02/13/23 13:57	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	83.4		30 - 110					01/26/23 16:02	02/13/23 13:57	1

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

			Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)		
570-124891-1	Outfall009_20230121_Comp	82.0		
LCS 160-598272/2-A	Lab Control Sample	101		
LCSD 160-598272/3-A	Lab Control Sample Dup	105		
MB 160-598272/1-A	Method Blank	96.9		

Tracer/Carrier Legend
Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

			Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)	
570-124891-1	Outfall009_20230121_Comp	82.0	85.6	
LCS 160-598275/2-A	Lab Control Sample	101	85.6	
LCSD 160-598275/3-A	Lab Control Sample Dup	105	86.4	
MB 160-598275/1-A	Method Blank	96.9	85.6	

Tracer/Carrier Legend
Ba = Ba Carrier
Y = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

			Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr (30-110)	Y (30-110)	
570-124891-1	Outfall009_20230121_Comp	89.4	83.4	
LCS 160-598546/2-A	Lab Control Sample	85.4	87.5	
LCSD 160-598546/3-A	Lab Control Sample Dup	88.3	86.4	
MB 160-598546/1-A	Method Blank	87.1	87.1	

Tracer/Carrier Legend
Sr = Sr Carrier
Y = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

			Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	U-232 (30-110)		
570-124891-1	Outfall009_20230121_Comp	83.4		
570-124898-R-1-D DU	Duplicate	83.0		
LCS 160-598317/2-A	Lab Control Sample	82.4		
MB 160-598317/1-A	Method Blank	86.3		

Tracer/Carrier Legend
U-232 = Uranium-232

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-598963/1-A
Matrix: Water
Analysis Batch: 600139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 598963

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	0.09917	U	0.402	0.402	3.00	0.768	pCi/L	02/02/23 12:38	02/13/23 20:06	1
Gross Beta	-0.06316	U	0.387	0.387	4.00	0.721	pCi/L	02/02/23 12:38	02/13/23 20:06	1

Lab Sample ID: LCS 160-598963/2-A
Matrix: Water
Analysis Batch: 600139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598963

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Alpha	50.5	47.32		7.04	3.00	1.92	pCi/L	94	75 - 125

Lab Sample ID: LCSB 160-598963/3-A
Matrix: Water
Analysis Batch: 600139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598963

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Beta	73.7	69.87		7.52	4.00	0.802	pCi/L	95	75 - 125

Lab Sample ID: 570-124887-R-1-H MS
Matrix: Water
Analysis Batch: 600333

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 598963

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
						Uncert. (2σ+/-)					
Gross Alpha	0.648	U	50.5	21.15	F1	4.07	3.00	2.28	pCi/L	41	60 - 140

Lab Sample ID: 570-124887-R-1-I MSBT
Matrix: Water
Analysis Batch: 600333

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 598963

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
						Uncert. (2σ+/-)					
Gross Beta	1.93		73.7	72.66		7.82	4.00	0.963	pCi/L	96	60 - 140

Lab Sample ID: 570-124887-R-1-J DU
Matrix: Water
Analysis Batch: 600334

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 598963

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total	RL	MDC	Unit	RER	RER Limit
					Uncert. (2σ+/-)					
Gross Alpha	0.648	U	0.1221	U	0.967	3.00	1.85	pCi/L	0.22	1
Gross Beta	1.93		1.198		0.572	4.00	0.785	pCi/L	0.57	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-598560/1-A
Matrix: Water
Analysis Batch: 601380

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 598560

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Cesium-137	2.540	U	4.68	4.69	20.0	5.50	pCi/L	01/27/23 16:27	02/22/23 04:55	1
Potassium-40	29.54	U	87.5	87.6		89.2	pCi/L	01/27/23 16:27	02/22/23 04:55	1

Lab Sample ID: LCS 160-598560/2-A
Matrix: Water
Analysis Batch: 601377

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598560

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Americium-241	135000	145200		17300		291	pCi/L	107	75 - 125
Cesium-137	40900	41940		5000	20.0	80.3	pCi/L	102	75 - 125
Cobalt-60	18000	18820		2240		41.1	pCi/L	104	75 - 125

Lab Sample ID: 570-124868-R-1-F DU
Matrix: Water
Analysis Batch: 601377

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 598560

Analyte	Sample Sample		DU	DU	Total	RL	MDC	Unit	RER	RER	
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					Limit	
Cesium-137	-1.28	U	-4.041	U	9.43	20.0	11.3	pCi/L		0.16	1
Potassium-40	35.2	U	-70.31	U	114		149	pCi/L		0.59	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-598272/1-A
Matrix: Water
Analysis Batch: 601085

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 598272

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-0.02830	U	0.0410	0.0411	1.00	0.0968	pCi/L	01/26/23 09:36	02/21/23 17:54	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	96.9		30 - 110	01/26/23 09:36	02/21/23 17:54	1

Lab Sample ID: LCS 160-598272/2-A
Matrix: Water
Analysis Batch: 601085

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598272

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Radium-226	11.3	10.88		1.10	1.00	0.0974	pCi/L	96	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	101		30 - 110

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCSD 160-598272/3-A
Matrix: Water
Analysis Batch: 601085

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 598272

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec		RER	Limit
									Limits	RER		
Radium-226	11.3	10.61		1.07	1.00	0.0992	pCi/L	94	75 - 125	0.13		1
Carrier		LCS	LCS									
<i>Ba Carrier</i>		<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>								
		105		30 - 110								

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-598275/1-A
Matrix: Water
Analysis Batch: 598871

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 598275

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Carrier		MB								
<i>Ba Carrier</i>		<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
		96.9		30 - 110				01/26/23 09:50	02/01/23 12:04	1
<i>Y Carrier</i>		85.6		30 - 110				01/26/23 09:50	02/01/23 12:04	1

Lab Sample ID: LCS 160-598275/2-A
Matrix: Water
Analysis Batch: 598871

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598275

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec	
									Limits	RER
Radium-228	8.23	10.75		1.38	1.00	0.513	pCi/L	131	75 - 125	
Carrier		LCS	LCS							
<i>Ba Carrier</i>		<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>						
		101		30 - 110						
<i>Y Carrier</i>		85.6		30 - 110						

Lab Sample ID: LCSD 160-598275/3-A
Matrix: Water
Analysis Batch: 598871

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 598275

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec		RER	Limit
									Limits	RER		
Radium-228	8.23	10.62		1.34	1.00	0.390	pCi/L	129	75 - 125	0.05		1
Carrier		LCS	LCS									
<i>Ba Carrier</i>		<i>%Yield</i>	<i>Qualifier</i>	<i>Limits</i>								
		105		30 - 110								
<i>Y Carrier</i>		86.4		30 - 110								

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-598546/1-A
Matrix: Water
Analysis Batch: 599671

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 598546

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium-90	0.1970	U	0.181	0.182	3.00	0.291	pCi/L	01/27/23 12:54	02/08/23 15:57	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Sr Carrier	87.1		30 - 110					01/27/23 12:54	02/08/23 15:57	1
Y Carrier	87.1		30 - 110		01/27/23 12:54	02/08/23 15:57	1			

Lab Sample ID: LCS 160-598546/2-A
Matrix: Water
Analysis Batch: 599671

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598546

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Strontium-90	7.37	7.382		0.816	3.00	0.271	pCi/L	100	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Sr Carrier	85.4		30 - 110						
Y Carrier	87.5		30 - 110						

Lab Sample ID: LCSD 160-598546/3-A
Matrix: Water
Analysis Batch: 599671

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 598546

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
				Uncert. (2σ+/-)							
Strontium-90	7.37	7.433		0.819	3.00	0.316	pCi/L	101	75 - 125	0.03	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Sr Carrier	88.3		30 - 110								
Y Carrier	86.4		30 - 110								

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-598717/1-A
Matrix: Water
Analysis Batch: 599486

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 598717

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	-27.93	U	147	147	500	270	pCi/L	01/31/23 12:11	02/01/23 21:31	1

Lab Sample ID: LCS 160-598717/2-A
Matrix: Water
Analysis Batch: 599486

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598717

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Tritium	2110	1839		333	500	270	pCi/L	87	75 - 125

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Method: 906.0 - Tritium, Total (LSC) (Continued)

Lab Sample ID: 570-124868-Q-1-B MS
Matrix: Water
Analysis Batch: 599486

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 598717

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Tritium	123	U	2160	2177		373	500	286	pCi/L	95	60 - 140	

Lab Sample ID: 570-124392-Q-1-B DU
Matrix: Water
Analysis Batch: 599486

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 598717

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Tritium	0.901	U	2.703	U	159	500	289	pCi/L	0.01	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-598317/1-A
Matrix: Water
Analysis Batch: 600238

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 598317

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.1240		0.1019	0.1021	1.00	0.124	pCi/L	01/26/23 16:02	02/13/23 13:57	1
Tracer	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	86.3		30 - 110					01/26/23 16:02	02/13/23 13:57	1

Lab Sample ID: LCS 160-598317/2-A
Matrix: Water
Analysis Batch: 600239

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 598317

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Uranium-234	12.7	13.54		1.51	1.00	0.165	pCi/L	106	75 - 125	
Uranium-238	13.0	14.49		1.59	1.00	0.112	pCi/L	111	75 - 125	
Tracer	LCS %Yield	LCS Qualifier	Limits							
Uranium-232	82.4		30 - 110							

Lab Sample ID: 570-124898-R-1-D DU
Matrix: Water
Analysis Batch: 600216

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 598317

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Total Uranium	0.0800	U	0.1269	U	0.138	1.00	0.198	pCi/L	0.20	1
Tracer	DU %Yield	DU Qualifier	Limits							
Uranium-232	83.0		30 - 110							

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

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Prep Batch: 598272

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-1	Outfall009_20230121_Comp	Total/NA	Water	PrecSep-21	
MB 160-598272/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-598272/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-598272/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 598275

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-1	Outfall009_20230121_Comp	Total/NA	Water	PrecSep_0	
MB 160-598275/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-598275/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-598275/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 598317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-1	Outfall009_20230121_Comp	Total/NA	Water	ExtChrom	
MB 160-598317/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-598317/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
570-124898-R-1-D DU	Duplicate	Total/NA	Water	ExtChrom	

Prep Batch: 598546

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-1	Outfall009_20230121_Comp	Total/NA	Water	PrecSep-7	
MB 160-598546/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-598546/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
LCSD 160-598546/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-7	

Prep Batch: 598560

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-1	Outfall009_20230121_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-598560/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-598560/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
570-124868-R-1-F DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Prep Batch: 598717

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-1	Outfall009_20230121_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-598717/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-598717/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
570-124868-Q-1-B MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
570-124392-Q-1-B DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 598963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-124891-1	Outfall009_20230121_Comp	Total/NA	Water	Evaporation	
MB 160-598963/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-598963/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSE 160-598963/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
570-124887-R-1-H MS	Matrix Spike	Total/NA	Water	Evaporation	
570-124887-R-1-I MSBT	Matrix Spike	Total/NA	Water	Evaporation	
570-124887-R-1-J DU	Duplicate	Total/NA	Water	Evaporation	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Client Sample ID: Outfall009_20230121_Comp

Lab Sample ID: 570-124891-1

Date Collected: 01/21/23 08:30

Matrix: Water

Date Received: 01/21/23 11:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.00 mL	1.0 g	598963	02/02/23 12:38	MST	EET SL
Total/NA	Analysis	900.0		1			600333	02/14/23 20:02	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 mL	598560	01/27/23 16:27	SAC	EET SL
Total/NA	Analysis	901.1		1			601378	02/22/23 13:47	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			759.08 mL	1.0 g	598272	01/26/23 09:36	DJP	EET SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	601085	02/21/23 17:55	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	PrecSep_0			759.08 mL	1.0 g	598275	01/26/23 09:50	DJP	EET SL
Total/NA	Analysis	904.0		1			598874	02/01/23 12:13	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	PrecSep-7			510.87 mL	1.0 g	598546	01/27/23 12:54	DJP	EET SL
Total/NA	Analysis	905		1			599672	02/08/23 16:03	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	LSC_Dist_Susp			102.91 mL	1.0 g	598717	01/31/23 12:11	SEH	EET SL
Total/NA	Analysis	906.0		1			599486	02/02/23 03:33	REV	EET SL
Instrument ID: LSCAQUA										
Total/NA	Prep	ExtChrom			297.66 mL	1.0 mL	598317	01/26/23 16:02	MAL	EET SL
Total/NA	Analysis	A-01-R		1			600253	02/13/23 13:57	FLC	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-23
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-124891-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-124891-1	Outfall009_20230121_Comp	Water	01/21/23 08:30	01/21/23 11:40

1

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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124891-3

Login Number: 124891

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-124891-3

Login Number: 124891

List Number: 2

Creator: Sharkey-Gonzalez, Briana L

List Source: Eurofins St. Louis

List Creation: 01/24/23 11:44 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/16/2023 4:06:38 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 009 - GRAB

JOB NUMBER

570-125741-1

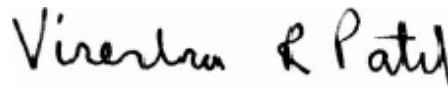
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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2/16/2023 4:06:38 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - GRAB

Job ID: 570-125741-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - GRAB

Job ID: 570-125741-1

Job ID: 570-125741-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-125741-1

Comments

No additional comments.

Receipt

The samples were received on 1/30/2023 5:39 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.3° C.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 1664A: The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-300575.

Method: 1664.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-125741-1

Project/Site: Boeing NPDES SSFL - Outfall 009 - GRAB

Client Sample ID: Outfall009_20230130_Grab

Lab Sample ID: 570-125741-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - GRAB

Job ID: 570-125741-1

General Chemistry

Client Sample ID: Outfall009_20230130_Grab
Date Collected: 01/30/23 07:05
Date Received: 01/30/23 17:39

Lab Sample ID: 570-125741-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	ND		1.0	0.53	mg/L		02/02/23 09:27	02/02/23 13:57	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - GRAB

Job ID: 570-125741-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-300575/1-A
Matrix: Water
Analysis Batch: 300701

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 300575

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		1.0	0.51	mg/L		02/02/23 09:27	02/02/23 13:57	1

Lab Sample ID: LCS 570-300575/2-A
Matrix: Water
Analysis Batch: 300701

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 300575

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	36.8		mg/L		92	78 - 114

Lab Sample ID: LCSD 570-300575/3-A
Matrix: Water
Analysis Batch: 300701

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 300575

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	38.2		mg/L		95	78 - 114	4	18

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - GRAB

Job ID: 570-125741-1

General Chemistry

Prep Batch: 300575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125741-1	Outfall009_20230130_Grab	Total/NA	Water	1664A	
MB 570-300575/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-300575/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-300575/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 300701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125741-1	Outfall009_20230130_Grab	Total/NA	Water	1664A	300575
MB 570-300575/1-A	Method Blank	Total/NA	Water	1664A	300575
LCS 570-300575/2-A	Lab Control Sample	Total/NA	Water	1664A	300575
LCSD 570-300575/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	300575

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - GRAB

Job ID: 570-125741-1

Client Sample ID: Outfall009_20230130_Grab

Lab Sample ID: 570-125741-1

Date Collected: 01/30/23 07:05

Matrix: Water

Date Received: 01/30/23 17:39

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1664A			965 mL	1000 mL	300575	02/02/23 09:27	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			300701	02/02/23 13:57	L6IE	EET CAL 4

Instrument ID: NOEQUIP

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

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Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - GRAB

Job ID: 570-125741-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-23
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-23
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - GRAB

Job ID: 570-125741-1

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - GRAB

Job ID: 570-125741-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-125741-1	Outfall009_20230130_Grab	Water	01/30/23 07:05	01/30/23 17:39

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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-125741-1

Login Number: 125741

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 2/16/2023 4:25:32 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 009 - COMP

JOB NUMBER

570-125839-1

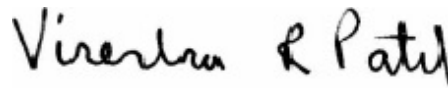
Job Notes

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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration
EY	Result exceeds normal dynamic range; reported as a min. est.

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

General Chemistry

Qualifier	Qualifier Description
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Job ID: 570-125839-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-125839-1

Comments

No additional comments.

Receipt

The samples were received on 1/31/2023 7:25 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.0° C, 1.2° C, 1.3° C and 1.7° C.

HPLC/IC

Method 300.0: The native sample, matrix spike, and matrix spike duplicate (MS/MSD) associated with analytical batch 570-300156 were performed at the same dilution. Due to the additional level of analyte present in the spiked samples, the concentration of Chloride and Sulfate in the MS/MSD was above the instrument calibration range. The data have been reported and qualified.

Method 300.0: Due to the high concentration of Sulfate, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 570-300156 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall009_20230131_Comp_F (570-125839-2), Outfall009_20230131_Comp_F (570-125839-2[MS]) and Outfall009_20230131_Comp_F (570-125839-2[MSD]). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall009_20230131_Comp_F (570-125839-2), Outfall009_20230131_Comp_F (570-125839-2[MS]) and Outfall009_20230131_Comp_F (570-125839-2[MSD]). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Client Sample ID: Outfall009_20230131_Comp

Lab Sample ID: 570-125839-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.0		1.0	0.36	mg/L	1		300.0	Total/NA
Sulfate	14		1.0	0.24	mg/L	1		300.0	Total/NA
Nitrate Nitrite as N	0.51		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Copper	2.5		2.0	0.32	ug/L	1		200.8	Total Recoverable
Antimony	0.51	J,DX	2.0	0.36	ug/L	1		200.8	Total Recoverable
Nickel	1.6	J,DX	2.0	0.17	ug/L	1		200.8	Total Recoverable
Total Dissolved Solids	170		10	8.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: Outfall009_20230131_Comp_F

Lab Sample ID: 570-125839-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	2.3	BU	2.0	0.32	ug/L	1		200.8	Dissolved
Antimony	0.63	J,DX BU	2.0	0.36	ug/L	1		200.8	Dissolved
Selenium	0.57	J,DX BU	2.0	0.52	ug/L	1		200.8	Dissolved
Nickel	1.5	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Zinc	3.2	J,DX BU	20	2.8	ug/L	1		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall009_20230131_Comp

Date Collected: 01/31/23 07:30

Date Received: 01/31/23 19:25

Lab Sample ID: 570-125839-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.0		1.0	0.36	mg/L			02/01/23 08:07	1
Sulfate	14		1.0	0.24	mg/L			02/01/23 08:07	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall009_20230131_Comp

Lab Sample ID: 570-125839-1

Date Collected: 01/31/23 07:30

Matrix: Water

Date Received: 01/31/23 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.51		0.10	0.020	mg/L			02/03/23 18:31	1

- 1
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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall009_20230131_Comp

Date Collected: 01/31/23 07:30

Date Received: 01/31/23 19:25

Lab Sample ID: 570-125839-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.23	ug/L		02/02/23 07:00	02/02/23 11:39	1
Cadmium	ND		1.0	0.13	ug/L		02/02/23 07:00	02/02/23 11:39	1
Copper	2.5		2.0	0.32	ug/L		02/02/23 07:00	02/02/23 11:39	1
Lead	ND		1.0	0.12	ug/L		02/02/23 07:00	02/02/23 11:39	1
Antimony	0.51	J,DX	2.0	0.36	ug/L		02/02/23 07:00	02/02/23 11:39	1
Selenium	ND		2.0	0.52	ug/L		02/02/23 07:00	02/02/23 11:39	1
Thallium	ND		1.0	0.11	ug/L		02/02/23 07:00	02/02/23 11:39	1
Nickel	1.6	J,DX	2.0	0.17	ug/L		02/02/23 07:00	02/02/23 11:39	1
Zinc	ND		20	2.8	ug/L		02/02/23 07:00	02/02/23 11:39	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall009_20230131_Comp_F

Date Collected: 01/31/23 07:30

Date Received: 01/31/23 19:25

Lab Sample ID: 570-125839-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND	BU	1.0	0.23	ug/L			02/01/23 14:32	1
Cadmium	ND	BU	1.0	0.13	ug/L			02/01/23 14:32	1
Copper	2.3	BU	2.0	0.32	ug/L			02/01/23 14:32	1
Lead	ND	BU	1.0	0.12	ug/L			02/01/23 14:32	1
Antimony	0.63	J,DX BU	2.0	0.36	ug/L			02/01/23 14:32	1
Selenium	0.57	J,DX BU	2.0	0.52	ug/L			02/01/23 14:32	1
Thallium	ND	BU	1.0	0.11	ug/L			02/01/23 14:32	1
Nickel	1.5	J,DX BU	2.0	0.17	ug/L			02/01/23 14:32	1
Zinc	3.2	J,DX BU	20	2.8	ug/L			02/01/23 14:32	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall009_20230131_Comp
Date Collected: 01/31/23 07:30
Date Received: 01/31/23 19:25

Lab Sample ID: 570-125839-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		02/02/23 17:34	02/03/23 15:26	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall009_20230131_Comp_F
Date Collected: 01/31/23 07:30
Date Received: 01/31/23 19:25

Lab Sample ID: 570-125839-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU	0.20	0.12	ug/L		02/02/23 17:45	02/03/23 14:17	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

General Chemistry

Client Sample ID: Outfall009_20230131_Comp

Date Collected: 01/31/23 07:30

Date Received: 01/31/23 19:25

Lab Sample ID: 570-125839-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			02/03/23 16:30	1
Total Dissolved Solids (SM 2540C)	170		10	8.7	mg/L			02/03/23 13:24	1
Total Suspended Solids (SM 2540D)	ND		1.0	0.83	mg/L			02/06/23 15:39	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-300156/5
Matrix: Water
Analysis Batch: 300156

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			02/01/23 04:54	1
Sulfate	ND		1.0	0.24	mg/L			02/01/23 04:54	1

Lab Sample ID: LCS 570-300156/6
Matrix: Water
Analysis Batch: 300156

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	48.3		mg/L		97	90 - 110
Sulfate	50.0	48.4		mg/L		97	90 - 110

Lab Sample ID: LCSD 570-300156/7
Matrix: Water
Analysis Batch: 300156

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	48.3		mg/L		97	90 - 110	0	15
Sulfate	50.0	48.4		mg/L		97	90 - 110	0	15

Lab Sample ID: 570-125930-P-4 MS
Matrix: Water
Analysis Batch: 300156

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	58		50.0	112	EY	mg/L		108	80 - 120
Sulfate	370	EY	50.0	427	EY BB	mg/L		115	80 - 120

Lab Sample ID: 570-125930-P-4 MSD
Matrix: Water
Analysis Batch: 300156

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	58		50.0	111	EY	mg/L		108	80 - 120	0	20
Sulfate	370	EY	50.0	425	EY BB	mg/L		112	80 - 120	0	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-300523/1-A
Matrix: Water
Analysis Batch: 300699

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 300523

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.23	ug/L		02/02/23 06:30	02/02/23 10:37	1
Cadmium	ND		1.0	0.13	ug/L		02/02/23 06:30	02/02/23 10:37	1
Copper	ND		2.0	0.32	ug/L		02/02/23 06:30	02/02/23 10:37	1
Lead	ND		1.0	0.12	ug/L		02/02/23 06:30	02/02/23 10:37	1
Antimony	ND		2.0	0.36	ug/L		02/02/23 06:30	02/02/23 10:37	1
Selenium	ND		2.0	0.52	ug/L		02/02/23 06:30	02/02/23 10:37	1
Thallium	ND		1.0	0.11	ug/L		02/02/23 06:30	02/02/23 10:37	1
Nickel	ND		2.0	0.17	ug/L		02/02/23 06:30	02/02/23 10:37	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 570-300523/1-A
Matrix: Water
Analysis Batch: 300699

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 300523

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		20	2.8	ug/L		02/02/23 06:30	02/02/23 10:37	1

Lab Sample ID: LCS 570-300523/2-A
Matrix: Water
Analysis Batch: 300699

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 300523

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	80.0	78.7		ug/L		98	85 - 115
Cadmium	80.0	79.0		ug/L		99	85 - 115
Copper	80.0	76.9		ug/L		96	85 - 115
Lead	80.0	74.8		ug/L		94	85 - 115
Antimony	80.0	72.7		ug/L		91	85 - 115
Selenium	80.0	73.9		ug/L		92	85 - 115
Thallium	80.0	75.3		ug/L		94	85 - 115
Nickel	80.0	78.2		ug/L		98	85 - 115
Zinc	80.0	76.0		ug/L		95	85 - 115

Lab Sample ID: LCSD 570-300523/3-A
Matrix: Water
Analysis Batch: 300699

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 300523

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Silver	80.0	81.4		ug/L		102	85 - 115	3	20
Cadmium	80.0	82.0		ug/L		103	85 - 115	4	20
Copper	80.0	80.1		ug/L		100	85 - 115	4	20
Lead	80.0	76.7		ug/L		96	85 - 115	2	20
Antimony	80.0	77.5		ug/L		97	85 - 115	6	20
Selenium	80.0	75.2		ug/L		94	85 - 115	2	20
Thallium	80.0	79.7		ug/L		100	85 - 115	6	20
Nickel	80.0	80.5		ug/L		101	85 - 115	3	20
Zinc	80.0	78.5		ug/L		98	85 - 115	3	20

Lab Sample ID: 570-125839-1 MS
Matrix: Water
Analysis Batch: 300699

Client Sample ID: Outfall009_20230131_Comp
Prep Type: Total Recoverable
Prep Batch: 300523

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	ND		80.0	76.2		ug/L		95	80 - 120
Cadmium	ND		80.0	76.4		ug/L		96	80 - 120
Copper	2.5		80.0	78.6		ug/L		95	80 - 120
Lead	ND		80.0	74.1		ug/L		93	80 - 120
Antimony	0.51	J,DX	80.0	80.8		ug/L		100	80 - 120
Selenium	ND		80.0	72.5		ug/L		91	80 - 120
Thallium	ND		80.0	75.0		ug/L		94	80 - 120
Nickel	1.6	J,DX	80.0	78.2		ug/L		96	80 - 120
Zinc	ND		80.0	76.7		ug/L		96	80 - 120

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-125839-1 MSD
Matrix: Water
Analysis Batch: 300699

Client Sample ID: Outfall009_20230131_Comp
Prep Type: Total Recoverable
Prep Batch: 300523

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits		
Silver	ND		80.0	78.9		ug/L		99	80 - 120	4	20
Cadmium	ND		80.0	78.9		ug/L		99	80 - 120	3	20
Copper	2.5		80.0	85.6		ug/L		104	80 - 120	9	20
Lead	ND		80.0	77.5		ug/L		97	80 - 120	5	20
Antimony	0.51	J,DX	80.0	84.9		ug/L		105	80 - 120	5	20
Selenium	ND		80.0	75.5		ug/L		94	80 - 120	4	20
Thallium	ND		80.0	78.8		ug/L		99	80 - 120	5	20
Nickel	1.6	J,DX	80.0	80.6		ug/L		99	80 - 120	3	20
Zinc	ND		80.0	81.5		ug/L		102	80 - 120	6	20

Lab Sample ID: MB 570-300322/1-A
Matrix: Water
Analysis Batch: 300368

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Silver	ND		1.0	0.23	ug/L			02/01/23 14:38	1
Cadmium	ND		1.0	0.13	ug/L			02/01/23 14:38	1
Copper	ND		2.0	0.32	ug/L			02/01/23 14:38	1
Lead	ND		1.0	0.12	ug/L			02/01/23 14:38	1
Antimony	ND		2.0	0.36	ug/L			02/01/23 14:38	1
Selenium	ND		2.0	0.52	ug/L			02/01/23 14:38	1
Thallium	ND		1.0	0.11	ug/L			02/01/23 14:38	1
Nickel	ND		2.0	0.17	ug/L			02/01/23 14:38	1
Zinc	ND		20	2.8	ug/L			02/01/23 14:38	1

Lab Sample ID: LCS 570-300322/2-A
Matrix: Water
Analysis Batch: 300368

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec
		Added	Result				Qualifier
Silver	80.0	74.1		ug/L		93	85 - 115
Cadmium	80.0	74.6		ug/L		93	85 - 115
Copper	80.0	73.4		ug/L		92	85 - 115
Lead	80.0	76.3		ug/L		95	85 - 115
Antimony	80.0	73.2		ug/L		91	85 - 115
Selenium	80.0	70.7		ug/L		88	85 - 115
Thallium	80.0	77.8		ug/L		97	85 - 115
Nickel	80.0	73.9		ug/L		92	85 - 115
Zinc	80.0	71.9		ug/L		90	85 - 115

Lab Sample ID: LCSD 570-300322/3-A
Matrix: Water
Analysis Batch: 300368

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec	RPD	Limit
		Added	Result				Qualifier		
Silver	80.0	72.8		ug/L		91	85 - 115	2	20
Cadmium	80.0	74.8		ug/L		94	85 - 115	0	20
Copper	80.0	73.3		ug/L		92	85 - 115	0	20
Lead	80.0	74.3		ug/L		93	85 - 115	3	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 570-300322/3-A
Matrix: Water
Analysis Batch: 300368

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	80.0	76.9		ug/L		96	85 - 115	5	20
Selenium	80.0	69.8		ug/L		87	85 - 115	1	20
Thallium	80.0	75.9		ug/L		95	85 - 115	2	20
Nickel	80.0	73.8		ug/L		92	85 - 115	0	20
Zinc	80.0	71.3		ug/L		89	85 - 115	1	20

Lab Sample ID: 570-125839-2 MS
Matrix: Water
Analysis Batch: 300379

Client Sample ID: Outfall009_20230131_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silver	ND	BU	80.0	73.5	BU	ug/L		92	80 - 120		
Cadmium	ND	BU	80.0	73.8	BU	ug/L		92	80 - 120		
Copper	2.3	BU	80.0	72.5	BU	ug/L		88	80 - 120		
Lead	ND	BU	80.0	72.0	BU	ug/L		90	80 - 120		
Antimony	0.63	J,DX BU	80.0	65.7	BU	ug/L		81	80 - 120		
Selenium	0.57	J,DX BU	80.0	70.2	BU	ug/L		87	80 - 120		
Thallium	ND	BU	80.0	68.3	BU	ug/L		85	80 - 120		
Nickel	1.5	J,DX BU	80.0	71.8	BU	ug/L		88	80 - 120		
Zinc	3.2	J,DX BU	80.0	74.6	BU	ug/L		89	80 - 120		

Lab Sample ID: 570-125839-2 MSD
Matrix: Water
Analysis Batch: 300379

Client Sample ID: Outfall009_20230131_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silver	ND	BU	80.0	73.9	BU	ug/L		92	80 - 120	1	20
Cadmium	ND	BU	80.0	74.2	BU	ug/L		93	80 - 120	1	20
Copper	2.3	BU	80.0	72.6	BU	ug/L		88	80 - 120	0	20
Lead	ND	BU	80.0	72.4	BU	ug/L		91	80 - 120	1	20
Antimony	0.63	J,DX BU	80.0	66.6	BU	ug/L		82	80 - 120	1	20
Selenium	0.57	J,DX BU	80.0	70.6	BU	ug/L		87	80 - 120	1	20
Thallium	ND	BU	80.0	69.3	BU	ug/L		87	80 - 120	2	20
Nickel	1.5	J,DX BU	80.0	71.1	BU	ug/L		87	80 - 120	1	20
Zinc	3.2	J,DX BU	80.0	74.3	BU	ug/L		89	80 - 120	0	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-300791/1-A
Matrix: Water
Analysis Batch: 301067

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 300791

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		02/02/23 17:34	02/03/23 15:13	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 570-300791/2-A
Matrix: Water
Analysis Batch: 301067

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 300791

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.30		ug/L		104	85 - 115

Lab Sample ID: LCSD 570-300791/3-A
Matrix: Water
Analysis Batch: 301067

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 300791

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	8.00	8.46		ug/L		106	85 - 115	2	10

Lab Sample ID: 570-125840-A-1-E MS
Matrix: Water
Analysis Batch: 301067

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 300791

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.03		ug/L		100	85 - 115

Lab Sample ID: 570-125840-A-1-F MSD
Matrix: Water
Analysis Batch: 301067

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 300791

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	ND		8.00	7.74		ug/L		97	85 - 115	4	10

Lab Sample ID: MB 570-300793/1-B
Matrix: Water
Analysis Batch: 301067

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 300795

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		02/02/23 17:45	02/03/23 14:06	1

Lab Sample ID: LCS 570-300793/2-B
Matrix: Water
Analysis Batch: 301067

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 300795

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.11		ug/L		101	85 - 115

Lab Sample ID: LCSD 570-300793/3-B
Matrix: Water
Analysis Batch: 301067

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 300795

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	8.00	8.06		ug/L		101	85 - 115	1	10

Lab Sample ID: 570-125840-A-3-I MS
Matrix: Water
Analysis Batch: 301067

Client Sample ID: Matrix Spike
Prep Type: Dissolved
Prep Batch: 300795

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.15	J,DX	8.00	7.99		ug/L		98	85 - 115

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: 570-125840-A-3-J MSD
Matrix: Water
Analysis Batch: 301067

Client Sample ID: Matrix Spike Duplicate
Prep Type: Dissolved
Prep Batch: 300795

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.15	J,DX	8.00	8.10		ug/L		99	85 - 115	1	10

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-301139/11
Matrix: Water
Analysis Batch: 301139

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			02/03/23 11:39	1

Lab Sample ID: LCS 570-301139/13
Matrix: Water
Analysis Batch: 301139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	249		ug/L		100	90 - 110

Lab Sample ID: LCSD 570-301139/14
Matrix: Water
Analysis Batch: 301139

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	250	240		ug/L		96	90 - 110	4	20

Lab Sample ID: MRL 570-301139/10
Matrix: Water
Analysis Batch: 301139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	5.00	6.41		ug/L		128	50 - 150

Lab Sample ID: 570-125231-D-7 MS
Matrix: Water
Analysis Batch: 301139

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	6.7		250	334	LM	ug/L		131	70 - 130

Lab Sample ID: 570-125231-D-7 MSD
Matrix: Water
Analysis Batch: 301139

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	6.7		250	315		ug/L		123	70 - 130	6	30

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate (Continued)

Lab Sample ID: 570-125231-F-7 DU
 Matrix: Water
 Analysis Batch: 301139

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cyanide, Total	6.7		7.30		ug/L		8	

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-301037/1
 Matrix: Water
 Analysis Batch: 301037

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			02/03/23 13:24	1

Lab Sample ID: LCS 570-301037/2
 Matrix: Water
 Analysis Batch: 301037

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1020		mg/L		102	84 - 108

Lab Sample ID: LCSD 570-301037/3
 Matrix: Water
 Analysis Batch: 301037

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1050		mg/L		105	84 - 108	3	10

Lab Sample ID: 570-125958-G-1 DU
 Matrix: Water
 Analysis Batch: 301037

Client Sample ID: Duplicate
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	5100		5190		mg/L		2	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-301541/1
 Matrix: Water
 Analysis Batch: 301541

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			02/06/23 15:39	1

Lab Sample ID: LCS 570-301541/2
 Matrix: Water
 Analysis Batch: 301541

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	92.0		mg/L		92	77 - 116

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCSD 570-301541/3
Matrix: Water
Analysis Batch: 301541

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	86.0		mg/L		86	77 - 116	7	10

Lab Sample ID: 570-126460-F-1 DU
Matrix: Water
Analysis Batch: 301541

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	19		20.0		mg/L		4	10

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

HPLC/IC

Analysis Batch: 300156

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-1	Outfall009_20230131_Comp	Total/NA	Water	300.0	
MB 570-300156/5	Method Blank	Total/NA	Water	300.0	
LCS 570-300156/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-300156/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-125930-P-4 MS	Matrix Spike	Total/NA	Water	300.0	
570-125930-P-4 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Analysis Batch: 301152

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-1	Outfall009_20230131_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Filtration Batch: 300322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-2	Outfall009_20230131_Comp_F	Dissolved	Water	Filtration	
MB 570-300322/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-300322/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-300322/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-125839-2 MS	Outfall009_20230131_Comp_F	Dissolved	Water	Filtration	
570-125839-2 MSD	Outfall009_20230131_Comp_F	Dissolved	Water	Filtration	

Analysis Batch: 300368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-300322/1-A	Method Blank	Dissolved	Water	200.8	300322
LCS 570-300322/2-A	Lab Control Sample	Dissolved	Water	200.8	300322
LCSD 570-300322/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	300322

Analysis Batch: 300379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-2	Outfall009_20230131_Comp_F	Dissolved	Water	200.8	300322
570-125839-2 MS	Outfall009_20230131_Comp_F	Dissolved	Water	200.8	300322
570-125839-2 MSD	Outfall009_20230131_Comp_F	Dissolved	Water	200.8	300322

Prep Batch: 300523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-1	Outfall009_20230131_Comp	Total Recoverable	Water	200.8	
MB 570-300523/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-300523/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-300523/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-125839-1 MS	Outfall009_20230131_Comp	Total Recoverable	Water	200.8	
570-125839-1 MSD	Outfall009_20230131_Comp	Total Recoverable	Water	200.8	

Analysis Batch: 300699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-1	Outfall009_20230131_Comp	Total Recoverable	Water	200.8	300523
MB 570-300523/1-A	Method Blank	Total Recoverable	Water	200.8	300523
LCS 570-300523/2-A	Lab Control Sample	Total Recoverable	Water	200.8	300523
LCSD 570-300523/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	300523
570-125839-1 MS	Outfall009_20230131_Comp	Total Recoverable	Water	200.8	300523
570-125839-1 MSD	Outfall009_20230131_Comp	Total Recoverable	Water	200.8	300523

Eurofins Calscience

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Metals

Prep Batch: 300791

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-1	Outfall009_20230131_Comp	Total/NA	Water	245.1	
MB 570-300791/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-300791/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-300791/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-125840-A-1-E MS	Matrix Spike	Total/NA	Water	245.1	
570-125840-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

Filtration Batch: 300793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-2	Outfall009_20230131_Comp_F	Dissolved	Water	Filtration	
MB 570-300793/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-300793/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-300793/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-125840-A-3-I MS	Matrix Spike	Dissolved	Water	Filtration	
570-125840-A-3-J MSD	Matrix Spike Duplicate	Dissolved	Water	Filtration	

Prep Batch: 300795

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-2	Outfall009_20230131_Comp_F	Dissolved	Water	245.1	300793
MB 570-300793/1-B	Method Blank	Dissolved	Water	245.1	300793
LCS 570-300793/2-B	Lab Control Sample	Dissolved	Water	245.1	300793
LCSD 570-300793/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	300793
570-125840-A-3-I MS	Matrix Spike	Dissolved	Water	245.1	300793
570-125840-A-3-J MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	300793

Analysis Batch: 301067

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-1	Outfall009_20230131_Comp	Total/NA	Water	245.1	300791
570-125839-2	Outfall009_20230131_Comp_F	Dissolved	Water	245.1	300795
MB 570-300791/1-A	Method Blank	Total/NA	Water	245.1	300791
MB 570-300793/1-B	Method Blank	Dissolved	Water	245.1	300795
LCS 570-300791/2-A	Lab Control Sample	Total/NA	Water	245.1	300791
LCS 570-300793/2-B	Lab Control Sample	Dissolved	Water	245.1	300795
LCSD 570-300791/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	300791
LCSD 570-300793/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	300795
570-125840-A-1-E MS	Matrix Spike	Total/NA	Water	245.1	300791
570-125840-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	300791
570-125840-A-3-I MS	Matrix Spike	Dissolved	Water	245.1	300795
570-125840-A-3-J MSD	Matrix Spike Duplicate	Dissolved	Water	245.1	300795

General Chemistry

Analysis Batch: 301037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-1	Outfall009_20230131_Comp	Total/NA	Water	SM 2540C	
MB 570-301037/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-301037/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-301037/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
570-125958-G-1 DU	Duplicate	Total/NA	Water	SM 2540C	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

General Chemistry

Analysis Batch: 301139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-1	Outfall009_20230131_Comp	Total/NA	Water	Kelada 01	
MB 570-301139/11	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-301139/13	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-301139/14	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-301139/10	Lab Control Sample	Total/NA	Water	Kelada 01	
570-125231-D-7 MS	Matrix Spike	Total/NA	Water	Kelada 01	
570-125231-D-7 MSD	Matrix Spike Duplicate	Total/NA	Water	Kelada 01	
570-125231-F-7 DU	Duplicate	Total/NA	Water	Kelada 01	

Analysis Batch: 301541

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-1	Outfall009_20230131_Comp	Total/NA	Water	SM 2540D	
MB 570-301541/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-301541/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-301541/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	
570-126460-F-1 DU	Duplicate	Total/NA	Water	SM 2540D	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Client Sample ID: Outfall009_20230131_Comp

Lab Sample ID: 570-125839-1

Date Collected: 01/31/23 07:30

Matrix: Water

Date Received: 01/31/23 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	4 mL	4 mL	300156	02/01/23 08:07	PS	EET CAL 4
Instrument ID: IC15										
Total/NA	Analysis	NO2NO3 Calc		1			301152	02/03/23 18:31	WH6J	EET CAL 4
Instrument ID: NOEQUIP										
Total Recoverable	Prep	200.8			50 mL	50 mL	300523	02/02/23 07:00	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			300699	02/02/23 11:39	Y2WS	EET CAL 4
Instrument ID: ICPMS10										
Total/NA	Prep	245.1			25 mL	50 mL	300791	02/02/23 17:34	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			301067	02/03/23 15:26	COYH	EET CAL 4
Instrument ID: HG8										
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	301139	02/03/23 16:30	GG0B	EET CAL 4
Instrument ID: LACHAT01										
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	301037	02/03/23 13:24	ZL7L	EET CAL 4
Instrument ID: NOEQUIP										
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	301541	02/06/23 15:39	UWCT	EET CAL 4
Instrument ID: BAL71										

Client Sample ID: Outfall009_20230131_Comp_F

Lab Sample ID: 570-125839-2

Date Collected: 01/31/23 07:30

Matrix: Water

Date Received: 01/31/23 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	300322	02/01/23 13:29	JP8N	EET CAL 4
Dissolved	Analysis	200.8		1			300379	02/01/23 14:32	Y2WS	EET CAL 4
Instrument ID: ICPMS10										
Dissolved	Filtration	Filtration			25 mL	25 mL	300793	02/02/23 17:35	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	300795	02/02/23 17:45	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			301067	02/03/23 14:17	COYH	EET CAL 4
Instrument ID: HG8										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-23
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4

Protocol References:

- EPA = US Environmental Protection Agency
- None = None
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

- EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-125839-1	Outfall009_20230131_Comp	Water	01/31/23 07:30	01/31/23 19:25
570-125839-2	Outfall009_20230131_Comp_F	Water	01/31/23 07:30	01/31/23 19:25

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Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab PM	Carrier Tracking No(s):		COC No.
Client Contact: 13715 Rider Trail North		Patel, Virendra	Patel, Virendra	State of Origin: California		570-206097 1
Shipping/Receiving		E-Mail: Virendra.Patel@et.eurofins.com	Virendra.Patel@et.eurofins.com	Page 1 of 1		Page: 570-125839-3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note)		Job #: 570-125839-3		Preservation Codes A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:
Address: 13715 Rider Trail North		State Program - California		Analysis Requested		
City: Earth City	Due Date Requested: 3/7/2023	Field Filtered Sample (Yes or No)		Total Number of Containers		Special Instructions/Note: Boeiling SSFL, DO NOT FILTER use prep date from preservation
State, Zip: MO, 63045	TAT Requested (days)	Perform MS/MSD (Yes or No)		2		
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:	Matrix (W=water, S=solid, O=water/oil, BT=Tissue, A=air)		906.0/LSC_Dist_Susp Tritium		Preservation Codes M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)
Email:	WO #:	Sample Type (C=Comp, G=grab)		905.5r90/PreSep_7 Strontium-90		
Project Name: Boeiling NPDES SSFL - Outfall 009 - COMP	Project #: 44024446	Sample Time		904.0/PreSep_0 Radium-226		
Site:	SSOW#:	Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
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		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
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		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
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		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
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		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
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		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
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		Sample Date		904.0/PreSep_0 Radium-226		
		Sample Date		903.0/PreSep_21 Radium-226		
		Sample Date		900.0/Evaporation Gross Alpha/Beta		
		Sample Date		901.0/PreSep_21 Radium-226		
		Sample Date		900.0/PreSep_0 Radium-226		
		Sample Date		906.0/LSC_Dist_Susp Tritium		
		Sample Date		905.5r90/PreSep_7 Strontium-90		
		Sample Date		904.0/PreSep_0 Radium-22		

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-125839-1

Login Number: 125839

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004
Generated 2/14/2023 6:34:05 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 009 - COMP

JOB NUMBER

570-125839-2

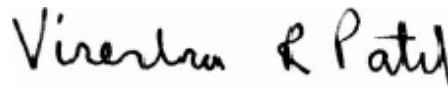
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-2

Job ID: 570-125839-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-125839-2

Comments

No additional comments.

Receipt

The samples were received on 1/31/2023 7:25 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.0° C, 1.2° C, 1.3° C and 1.7° C.

Dioxin

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument 11D2 exceeded this criteria: (CCV 320-652668/2) and (MB 320-651919/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-2

Client Sample ID: Outfall009_20230131_Comp

Lab Sample ID: 570-125839-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,7,8-PeCDF	0.0000065	J,DX MB	0.000048	0.000002	ug/L	1		1613B	Total/NA
				1					
1,2,3,4,7,8-HxCDD	0.0000016	J,DX MB q	0.000048	0.000003	ug/L	1		1613B	Total/NA
				1					
1,2,3,6,7,8-HxCDD	0.0000062	J,DX MB q	0.000048	0.000003	ug/L	1		1613B	Total/NA
				0					
1,2,3,7,8,9-HxCDD	0.0000027	J,DX MB q	0.000048	0.000002	ug/L	1		1613B	Total/NA
				7					
1,2,3,4,7,8-HxCDF	0.0000035	J,DX MB q	0.000048	0.000001	ug/L	1		1613B	Total/NA
				6					
1,2,3,6,7,8-HxCDF	0.0000046	J,DX MB q	0.000048	0.000001	ug/L	1		1613B	Total/NA
				5					
1,2,3,7,8,9-HxCDF	0.0000041	J,DX MB q	0.000048	0.000001	ug/L	1		1613B	Total/NA
				5					
2,3,4,6,7,8-HxCDF	0.0000037	J,DX MB	0.000048	0.000001	ug/L	1		1613B	Total/NA
				3					
1,2,3,4,6,7,8-HpCDD	0.0000014	J,DX MB	0.000048	0.000001	ug/L	1		1613B	Total/NA
				7					
1,2,3,4,6,7,8-HpCDF	0.0000014	J,DX MB q	0.000048	0.000002	ug/L	1		1613B	Total/NA
				6					
OCDD	0.0000056	J,DX MB	0.000095	0.000004	ug/L	1		1613B	Total/NA
				9					
OCDF	0.0000012	J,DX MB q	0.000095	0.000004	ug/L	1		1613B	Total/NA
				2					
Total PeCDF	0.0000065	J,DX MB	0.000048	0.000002	ug/L	1		1613B	Total/NA
				1					
Total HxCDD	0.0000025	J,DX MB q	0.000048	0.000002	ug/L	1		1613B	Total/NA
				7					
Total HxCDF	0.0000016	J,DX MB q	0.000048	0.000001	ug/L	1		1613B	Total/NA
				3					
Total HpCDD	0.0000032	J,DX MB	0.000048	0.000001	ug/L	1		1613B	Total/NA
				7					
Total HpCDF	0.0000014	J,DX MB q	0.000048	0.000002	ug/L	1		1613B	Total/NA
				6					

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall009_20230131_Comp

Lab Sample ID: 570-125839-1

Date Collected: 01/31/23 07:30

Matrix: Water

Date Received: 01/31/23 19:25

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000095	0.0000004	ug/L		02/06/23 05:11	02/08/23 19:00	1
2,3,7,8-TCDF	ND		0.0000095	0.0000001	ug/L		02/06/23 05:11	02/08/23 19:00	1
1,2,3,7,8-PeCDD	ND		0.000048	0.0000003	ug/L		02/06/23 05:11	02/08/23 19:00	1
1,2,3,7,8-PeCDF	0.0000065	J,DX MB	0.000048	0.0000002	ug/L		02/06/23 05:11	02/08/23 19:00	1
2,3,4,7,8-PeCDF	ND		0.000048	0.0000002	ug/L		02/06/23 05:11	02/08/23 19:00	1
1,2,3,4,7,8-HxCDD	0.0000016	J,DX MB q	0.000048	0.0000003	ug/L		02/06/23 05:11	02/08/23 19:00	1
1,2,3,6,7,8-HxCDD	0.0000062	J,DX MB q	0.000048	0.0000003	ug/L		02/06/23 05:11	02/08/23 19:00	1
1,2,3,7,8,9-HxCDD	0.0000027	J,DX MB q	0.000048	0.0000002	ug/L		02/06/23 05:11	02/08/23 19:00	1
1,2,3,4,7,8-HxCDF	0.0000035	J,DX MB q	0.000048	0.0000001	ug/L		02/06/23 05:11	02/08/23 19:00	1
1,2,3,6,7,8-HxCDF	0.0000046	J,DX MB q	0.000048	0.0000001	ug/L		02/06/23 05:11	02/08/23 19:00	1
1,2,3,7,8,9-HxCDF	0.0000041	J,DX MB q	0.000048	0.0000001	ug/L		02/06/23 05:11	02/08/23 19:00	1
2,3,4,6,7,8-HxCDF	0.0000037	J,DX MB	0.000048	0.0000001	ug/L		02/06/23 05:11	02/08/23 19:00	1
1,2,3,4,6,7,8-HpCDD	0.0000014	J,DX MB	0.000048	0.0000001	ug/L		02/06/23 05:11	02/08/23 19:00	1
1,2,3,4,6,7,8-HpCDF	0.0000014	J,DX MB q	0.000048	0.0000002	ug/L		02/06/23 05:11	02/08/23 19:00	1
1,2,3,4,7,8,9-HpCDF	ND		0.000048	0.0000002	ug/L		02/06/23 05:11	02/08/23 19:00	1
OCDD	0.0000056	J,DX MB	0.000095	0.0000004	ug/L		02/06/23 05:11	02/08/23 19:00	1
OCDF	0.0000012	J,DX MB q	0.000095	0.0000004	ug/L		02/06/23 05:11	02/08/23 19:00	1
Total TCDD	ND		0.0000095	0.0000004	ug/L		02/06/23 05:11	02/08/23 19:00	1
Total TCDF	ND		0.0000095	0.0000001	ug/L		02/06/23 05:11	02/08/23 19:00	1
Total PeCDD	ND		0.000048	0.0000003	ug/L		02/06/23 05:11	02/08/23 19:00	1
Total PeCDF	0.0000065	J,DX MB	0.000048	0.0000002	ug/L		02/06/23 05:11	02/08/23 19:00	1
Total HxCDD	0.0000025	J,DX MB q	0.000048	0.0000002	ug/L		02/06/23 05:11	02/08/23 19:00	1
Total HxCDF	0.0000016	J,DX MB q	0.000048	0.0000001	ug/L		02/06/23 05:11	02/08/23 19:00	1
Total HpCDD	0.0000032	J,DX MB	0.000048	0.0000001	ug/L		02/06/23 05:11	02/08/23 19:00	1
Total HpCDF	0.0000014	J,DX MB q	0.000048	0.0000002	ug/L		02/06/23 05:11	02/08/23 19:00	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	56		25 - 164				02/06/23 05:11	02/08/23 19:00	1
13C-2,3,7,8-TCDF	53		24 - 169				02/06/23 05:11	02/08/23 19:00	1
13C-1,2,3,7,8-PeCDD	56		25 - 181				02/06/23 05:11	02/08/23 19:00	1
13C-1,2,3,7,8-PeCDF	57		24 - 185				02/06/23 05:11	02/08/23 19:00	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall009_20230131_Comp

Date Collected: 01/31/23 07:30

Date Received: 01/31/23 19:25

Lab Sample ID: 570-125839-1

Matrix: Water

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-2,3,4,7,8-PeCDF	55		21 - 178	02/06/23 05:11	02/08/23 19:00	1
13C-1,2,3,4,7,8-HxCDD	53		32 - 141	02/06/23 05:11	02/08/23 19:00	1
13C-1,2,3,6,7,8-HxCDD	59		28 - 130	02/06/23 05:11	02/08/23 19:00	1
13C-1,2,3,4,7,8-HxCDF	50		26 - 152	02/06/23 05:11	02/08/23 19:00	1
13C-1,2,3,6,7,8-HxCDF	58		26 - 123	02/06/23 05:11	02/08/23 19:00	1
13C-1,2,3,7,8,9-HxCDF	61		29 - 147	02/06/23 05:11	02/08/23 19:00	1
13C-2,3,4,6,7,8-HxCDF	61		28 - 136	02/06/23 05:11	02/08/23 19:00	1
13C-1,2,3,4,6,7,8-HpCDD	58		23 - 140	02/06/23 05:11	02/08/23 19:00	1
13C-1,2,3,4,6,7,8-HpCDF	55		28 - 143	02/06/23 05:11	02/08/23 19:00	1
13C-1,2,3,4,7,8,9-HpCDF	61		26 - 138	02/06/23 05:11	02/08/23 19:00	1
13C-OCDD	62		17 - 157	02/06/23 05:11	02/08/23 19:00	1
13C-OCDF	61		17 - 157	02/06/23 05:11	02/08/23 19:00	1
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
37Cl4-2,3,7,8-TCDD	85		35 - 197	02/06/23 05:11	02/08/23 19:00	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-125839-1	Outfall009_20230131_Comp	85
MB 320-651919/1-A	Method Blank	87
MB 320-651919/1-A - RA	Method Blank	90

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-651919/2-A	Lab Control Sample	85
LCSD 320-651919/3-A	Lab Control Sample Dup	89

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-125839-1	Outfall009_20230131_Comp	56	53	56	57	55	53	59	50
MB 320-651919/1-A	Method Blank	68	65	64	66	62	57	63	53
MB 320-651919/1-A - RA	Method Blank		55						

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxCDF (26-123)	HxCF (29-147)	13CHxCDF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-125839-1	Outfall009_20230131_Comp	58	61	61	58	55	61	62	61
MB 320-651919/1-A	Method Blank	62	74	72	65	57	67	66	64
MB 320-651919/1-A - RA	Method Blank								

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxCDF = 13C-1,2,3,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCDF = 13C-2,3,4,6,7,8-HxCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- OCDD = 13C-OCDD
- OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-651919/2-A	Lab Control Sample	69	67	63	65	57	51	60	47
LCSD 320-651919/3-A	Lab Control Sample Dup	74	72	72	75	67	58	66	50

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxCDF (21-159)	HxCF (17-205)	13CHxCDF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-651919/2-A	Lab Control Sample	57	77	73	67	54	71	72	69
LCSD 320-651919/3-A	Lab Control Sample Dup	62	82	78	74	60	79	84	81

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-125839-2

Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

HxCDF = 13C-1,2,3,4,7,8-HxCDF

HxDF = 13C-1,2,3,6,7,8-HxCDF

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-651919/1-A
Matrix: Water
Analysis Batch: 652545

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 651919

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8-PeCDF	66		24 - 185	02/06/23 05:11	02/08/23 14:21	1
13C-2,3,4,7,8-PeCDF	62		21 - 178	02/06/23 05:11	02/08/23 14:21	1
13C-1,2,3,4,7,8-HxCDD	57		32 - 141	02/06/23 05:11	02/08/23 14:21	1
13C-1,2,3,6,7,8-HxCDD	63		28 - 130	02/06/23 05:11	02/08/23 14:21	1
13C-1,2,3,4,7,8-HxCDF	53		26 - 152	02/06/23 05:11	02/08/23 14:21	1
13C-1,2,3,6,7,8-HxCDF	62		26 - 123	02/06/23 05:11	02/08/23 14:21	1
13C-1,2,3,7,8,9-HxCDF	74		29 - 147	02/06/23 05:11	02/08/23 14:21	1
13C-2,3,4,6,7,8-HxCDF	72		28 - 136	02/06/23 05:11	02/08/23 14:21	1
13C-1,2,3,4,6,7,8-HpCDD	65		23 - 140	02/06/23 05:11	02/08/23 14:21	1
13C-1,2,3,4,6,7,8-HpCDF	57		28 - 143	02/06/23 05:11	02/08/23 14:21	1
13C-1,2,3,4,7,8,9-HpCDF	67		26 - 138	02/06/23 05:11	02/08/23 14:21	1
13C-OCDD	66		17 - 157	02/06/23 05:11	02/08/23 14:21	1
13C-OCDF	64		17 - 157	02/06/23 05:11	02/08/23 14:21	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	87		35 - 197	02/06/23 05:11	02/08/23 14:21	1

Lab Sample ID: LCS 320-651919/2-A
Matrix: Water
Analysis Batch: 652545

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 651919

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,3,7,8-TCDF	0.000200	0.000235	MB	ug/L		118	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00102	MB	ug/L		102	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.00105	MB	ug/L		105	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.00105	MB	ug/L		105	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.00101	MB	ug/L		101	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.00106	MB	ug/L		106	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00136	MB	ug/L		136	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.00104	MB	ug/L		104	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00106	MB	ug/L		106	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.00104	MB	ug/L		104	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.00105	MB	ug/L		105	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.00106	MB	ug/L		106	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00108	MB	ug/L		108	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.00106	MB	ug/L		106	78 - 138
OCDD	0.00200	0.00209	MB	ug/L		105	78 - 144
OCDF	0.00200	0.00223	MB	ug/L		112	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	69		20 - 175
13C-2,3,7,8-TCDF	67		22 - 152
13C-1,2,3,7,8-PeCDD	63		21 - 227
13C-1,2,3,7,8-PeCDF	65		21 - 192
13C-2,3,4,7,8-PeCDF	57		13 - 328
13C-1,2,3,4,7,8-HxCDD	51		21 - 193
13C-1,2,3,6,7,8-HxCDD	60		25 - 163

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-651919/2-A
Matrix: Water
Analysis Batch: 652545

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 651919

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,4,7,8-HxCDF	47		19 - 202
13C-1,2,3,6,7,8-HxCDF	57		21 - 159
13C-1,2,3,7,8,9-HxCDF	77		17 - 205
13C-2,3,4,6,7,8-HxCDF	73		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	67		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	54		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	71		20 - 186
13C-OCDD	72		13 - 199
13C-OCDF	69		13 - 199

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	85		31 - 191

Lab Sample ID: LCSD 320-651919/3-A
Matrix: Water
Analysis Batch: 652545

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 651919

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
2,3,7,8-TCDD	0.000200	0.000214		ug/L		107	67 - 158	1	50	
2,3,7,8-TCDF	0.000200	0.000231	MB	ug/L		115	75 - 158	2	50	
1,2,3,7,8-PeCDD	0.00100	0.00104	MB	ug/L		104	70 - 142	2	50	
1,2,3,7,8-PeCDF	0.00100	0.00103	MB	ug/L		103	80 - 134	2	50	
2,3,4,7,8-PeCDF	0.00100	0.00105	MB	ug/L		105	68 - 160	0	50	
1,2,3,4,7,8-HxCDD	0.00100	0.00105	MB	ug/L		105	70 - 164	3	50	
1,2,3,6,7,8-HxCDD	0.00100	0.00104	MB	ug/L		104	76 - 134	2	50	
1,2,3,7,8,9-HxCDD	0.00100	0.00128	MB	ug/L		128	64 - 162	6	50	
1,2,3,4,7,8-HxCDF	0.00100	0.00107	MB	ug/L		107	72 - 134	3	50	
1,2,3,6,7,8-HxCDF	0.00100	0.00105	MB	ug/L		105	84 - 130	1	50	
1,2,3,7,8,9-HxCDF	0.00100	0.00105	MB	ug/L		105	78 - 130	1	50	
2,3,4,6,7,8-HxCDF	0.00100	0.00104	MB	ug/L		104	70 - 156	1	50	
1,2,3,4,6,7,8-HpCDD	0.00100	0.00106	MB	ug/L		106	70 - 140	0	50	
1,2,3,4,6,7,8-HpCDF	0.00100	0.00107	MB	ug/L		107	82 - 122	1	50	
1,2,3,4,7,8,9-HpCDF	0.00100	0.00107	MB	ug/L		107	78 - 138	0	50	
OCDD	0.00200	0.00207	MB	ug/L		103	78 - 144	1	50	
OCDF	0.00200	0.00220	MB	ug/L		110	63 - 170	1	50	

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	74		20 - 175
13C-2,3,7,8-TCDF	72		22 - 152
13C-1,2,3,7,8-PeCDD	72		21 - 227
13C-1,2,3,7,8-PeCDF	75		21 - 192
13C-2,3,4,7,8-PeCDF	67		13 - 328
13C-1,2,3,4,7,8-HxCDD	58		21 - 193
13C-1,2,3,6,7,8-HxCDD	66		25 - 163
13C-1,2,3,4,7,8-HxCDF	50		19 - 202
13C-1,2,3,6,7,8-HxCDF	62		21 - 159
13C-1,2,3,7,8,9-HxCDF	82		17 - 205
13C-2,3,4,6,7,8-HxCDF	78		22 - 176

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-651919/3-A
Matrix: Water
Analysis Batch: 652545

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 651919

<i>Isotope Dilution</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C-1,2,3,4,6,7,8-HpCDD	74		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	60		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	79		20 - 186
13C-OCDD	84		13 - 199
13C-OCDF	81		13 - 199

<i>Surrogate</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
37Cl4-2,3,7,8-TCDD	89		31 - 191

Method: 1613B - Dioxins and Furans (HRGC/HRMS) - RA

Lab Sample ID: MB 320-651919/1-A
Matrix: Water
Analysis Batch: 652668

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 651919

<i>Analyte</i>	<i>MB Result</i>	<i>MB Qualifier</i>	<i>RL</i>	<i>EDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
2,3,7,8-TCDF - RA	ND		0.000010	0.0000005	ug/L		02/06/23 05:11	02/09/23 15:44	1

<i>Isotope Dilution</i>	<i>MB MB</i>		<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
	<i>%Recovery</i>	<i>Qualifier</i>				
13C-2,3,7,8-TCDF - RA	55		24 - 169	02/06/23 05:11	02/09/23 15:44	1

<i>Surrogate</i>	<i>MB MB</i>		<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
	<i>%Recovery</i>	<i>Qualifier</i>				
37Cl4-2,3,7,8-TCDD - RA	90		35 - 197	02/06/23 05:11	02/09/23 15:44	1

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-2

Specialty Organics

Prep Batch: 651919

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-1	Outfall009_20230131_Comp	Total/NA	Water	1613B	
MB 320-651919/1-A - RA	Method Blank	Total/NA	Water	1613B	
MB 320-651919/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-651919/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-651919/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 652545

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-1	Outfall009_20230131_Comp	Total/NA	Water	1613B	651919
MB 320-651919/1-A	Method Blank	Total/NA	Water	1613B	651919
LCS 320-651919/2-A	Lab Control Sample	Total/NA	Water	1613B	651919
LCSD 320-651919/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	651919

Analysis Batch: 652668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-651919/1-A - RA	Method Blank	Total/NA	Water	1613B	651919

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-2

Client Sample ID: Outfall009_20230131_Comp

Lab Sample ID: 570-125839-1

Date Collected: 01/31/23 07:30

Matrix: Water

Date Received: 01/31/23 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			1051.1 mL	20.0 uL	651919	02/06/23 05:11	FC	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	652545	02/08/23 19:00	GRB	EET SAC

Instrument ID: 12D5

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-23 *
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-23
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-23 *
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
Utah	NELAP	CA000442021-12	02-28-23
Virginia	NELAP	460278	03-14-23
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

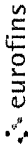
Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-125839-1	Outfall009_20230131_Comp	Water	01/31/23 07:30	01/31/23 19:25

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler	Lab PM	Carrier Tracking No(s):		COC No.	
Client Contact:		Patel, Virendra	Patel, Virendra	State of Origin:		570-206097 1	
Shipping/Receiving		Virendra Patel@et.eurofins.com	Virendra Patel	California		Page: 1 of 1	
Company		TestAmerica Laboratories, Inc.	State Program - California	Job #:		570-125839-3	
Address:		13715 Rider Trail North	Due Date Requested	Analysis Requested		Preservation Codes	
City:		Earth City	3/7/2023	901 Cs/137m, 902m, 903m, 904m, 905m, 906m, 907m, 908m, 909m, 910m, 911m, 912m, 913m, 914m, 915m, 916m, 917m, 918m, 919m, 920m, 921m, 922m, 923m, 924m, 925m, 926m, 927m, 928m, 929m, 930m, 931m, 932m, 933m, 934m, 935m, 936m, 937m, 938m, 939m, 940m, 941m, 942m, 943m, 944m, 945m, 946m, 947m, 948m, 949m, 950m, 951m, 952m, 953m, 954m, 955m, 956m, 957m, 958m, 959m, 960m, 961m, 962m, 963m, 964m, 965m, 966m, 967m, 968m, 969m, 970m, 971m, 972m, 973m, 974m, 975m, 976m, 977m, 978m, 979m, 980m, 981m, 982m, 983m, 984m, 985m, 986m, 987m, 988m, 989m, 990m, 991m, 992m, 993m, 994m, 995m, 996m, 997m, 998m, 999m, 1000m		A - HCL N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
State, Zip:		MO, 63045	TAT Requested (days)	900.0/Evaporation Gross Alpha/Beta			
Phone:		314-298-8566(Tel) 314-298-8757(Fax)	PO #:	901.0/PreSep_21 Radium-226			
Email:			WO #:	902.0/PreSep_0 Radium-228			
Project Name:		Boeing NPDES SSFL - Outfall 009 - COMP	Project #:	903.0/PreSep_7 Strontium-90			
Site:			44024446	904.0/PreSep_0 Radium-226			
			SSOW#:	905.0/PreSep_7 Strontium-90			
				906.0/PreSep_0 Radium-226			
				907.0/PreSep_21 Radium-226			
				908.0/PreSep_0 Radium-226			
				909.0/PreSep_21 Radium-226			
				910.0/PreSep_0 Radium-226			
				911.0/PreSep_21 Radium-226			
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				913.0/PreSep_21 Radium-226			
				914.0/PreSep_0 Radium-226			
				915.0/PreSep_21 Radium-226			
				916.0/PreSep_0 Radium-226			
				917.0/PreSep_21 Radium-226			
				918.0/PreSep_0 Radium-226			
				919.0/PreSep_21 Radium-226			
				920.0/PreSep_0 Radium-226			
				921.0/PreSep_21 Radium-226			
				922.0/PreSep_0 Radium-226			
				923.0/PreSep_21 Radium-226			
				924.0/PreSep_0 Radium-226			
				925.0/PreSep_21 Radium-226			
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				927.0/PreSep_21 Radium-226			
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				998.0/PreSep_0 Radium-226			
				999.0/PreSep_21 Radium-226			
				1000.0/PreSep_0 Radium-226			
				Total Number of containers		2	
				Boeing SSFL, DO NOT FILTER use prep date from preservation			
				Special Instructions/Note:			

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/rests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested I, II, III, IV, Other (specify) _____ Months
 Return To Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by:	2/2/23	1312	Company
Relinquished by:			Company
Relinquished by:			Company
Custody Seals Intact:	Cooler Temperature(s) °C and Other Remarks:		
Δ Yes Δ No			



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:
Client Contact: Shipping/Receiving		Phone:	Patel, Virendra	State of Origin: California	570-205933.1
Company: Eurofins Environment Testing Northern CA		E-Mail: Virendra.Patel@et.eurofins.com	Page: 1 of 1		
Address: 880 Riverside Parkway,		Accreditations Required (See note): State Program - California		Job #: 570-125839-2	Preservation Codes: M - Hexane N - None O - AshNaO2 P - Na2OAS Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma L - EDA Z - other (specify) Other:
City: West Sacramento	State/Zip: CA, 95605	PO #:	Analysis Requested		
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	WO #:	Total Number of containers			
Project Name: Boeing NPDES SSFL - Outfall 009 - COMP	Project #: 44024446	16138/16138_Sox_Sep_P (MOD) Standard List W/			
Site:	SSOW#:	16138/16138_Sox_Sep_P (MOD) Standard List W/			
Due Date Requested: 2/20/2023		Field Filtered Sample (Yes or No)		Total	
TAT Requested (days):		Perform MS/MSD (Yes or No)		2	
Sample Date		Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=water/soil, BT= tissue, A=Air)	Special Instructions/Note:
1/31/23	07:30 Pacific	Water		Water	See QAS, Boeing_w/lu to zero, ug/L; Use Boeing glassware.
1/31/23	07:30 Pacific	Water		Water	See QAS, Boeing_w/lu to zero, ug/L; Use Boeing glassware.

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) _____ Months

Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: _____ Date: 2/11/23 1302 Company
 Relinquished by: _____ Date: _____ Company
 Relinquished by: _____ Date: _____ Company

Cooler Temperature Intact: Yes No
 Custody Seal No.: _____
 Cooler Temperature(s) °C and Other Remarks: 3.06

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-125839-2

Login Number: 125839

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-125839-2

Login Number: 125839

List Number: 2

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 02/02/23 05:11 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.0c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 3/6/2023 4:37:13 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 009 - COMP

JOB NUMBER

570-125839-3

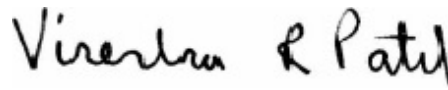
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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3/6/2023 4:37:13 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Qualifiers

Rad

Qualifier	Qualifier Description
F	MS/MSD Recovery and/or RPD exceeds the control limits
F1	MS and/or MSD recovery exceeds control limits.
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Job ID: 570-125839-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-125839-3

Comments

No additional comments.

Receipt

The samples were received on 1/31/2023 7:25 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.0° C, 1.2° C, 1.3° C and 1.7° C.

RAD

Method 900.0: Gross Alpha and Gross Beta batch 599624

The matrix spike (MS) recoveries for Gross Alpha were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. (240-179737-P-1-B MS)

Method 900.0: Gross Alpha and Gross Beta batch 599624

The matrix spike / matrix spike duplicate (MS/MSD) precision for Gross Beta was outside control limits. However the MS/MSD precision for Gross Alpha was within the acceptable QC limits. Original results will be reported (240-179737-P-1-F MSBTD)

Method 900.0: Gross Alpha and Gross Beta batch 599624

The detection goal was not met for the following samples due to a reduction of the sample size attributed to high residual mass: Outfall009_20230131_Comp (570-125839-1) and (240-179737-P-1-C). Analytical results are reported with the detection limit achieved.

Method 900.0: Gross Alpha and Gross Beta batch 599624

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230131_Comp (570-125839-1), (LCS 160-599624/2-A), (LCSB 160-599624/3-A), (MB 160-599624/1-A), (240-179737-P-1-C), (240-179737-P-1-B MS), (240-179737-P-1-E MSBT), (240-179737-P-1-F MSBTD) and (240-179737-P-1-D MSD)

Method 901.1: Gamma Prep Batch 160-601388

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Job ID: 570-125839-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Bi-214 Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230131_Comp (570-125839-1), (570-125746-U-1-K) and (570-125746-U-1-L DU)

Methods 903.0, 9315: Radium-226 prep batch 160-599777:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230131_Comp (570-125839-1), (LCS 160-599777/2-A), (MB 160-599777/1-A), (160-48840-A-1-A) and (160-48840-B-1-B DU)

Methods 904.0, 9320: Radium-228 batch 599779

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230131_Comp (570-125839-1), (LCS 160-599779/2-A), (MB 160-599779/1-A), (160-48840-A-1-B) and (160-48840-B-1-C DU)

Methods 905, SR-03-RC: Strontium-90 prep batch 160-600473:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230131_Comp (570-125839-1), (LCS 160-600473/2-A), (LCSD 160-600473/3-A) and (MB 160-600473/1-A)

Method 906.0: Tritium 599699

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230131_Comp (570-125839-1), (LCS 160-599699/2-A), (MB 160-599699/1-A), (570-125746-S-2-A), (570-125746-S-2-B MS), (570-125930-D-5-A) and (570-125930-D-5-B DU)

Method A-01-R: Isotopic Uranium Batch 599667

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230131_Comp (570-125839-1), (LCS 160-599667/2-A), (MB 160-599667/1-A) and (570-125839-J-1-C DU)

Method PrecSep_0:

Method PrecSep-21:

Method PrecSep-7: Strontium-90 Prep Batch 160-600473

The following sample was prepared at a reduced aliquot due to Matrix: Outfall009_20230131_Comp (570-125839-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Job ID: 570-125839-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Method PrecSep-7: Strontium-90 Prep Batch 160-600473

The carrier recovery is outside lower control limit (40%) for the following samples: Outfall009_20230131_Comp (570-125839-1). There was physical evidence of matrix interference apparent during the initial preparation of the sample. The QC samples associated with the batch have acceptable carrier recovery indicating the presence of matrix interference.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Client Sample ID: Outfall009_20230131_Comp

Lab Sample ID: 570-125839-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall009_20230131_Comp
Date Collected: 01/31/23 07:30
Date Received: 01/31/23 19:25

Lab Sample ID: 570-125839-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	-0.552	U G	1.95	1.95	3.00	3.93	pCi/L	02/08/23 08:13	02/16/23 20:26	1
Gross Beta	1.21	U F	0.939	0.947	4.00	1.48	pCi/L	02/08/23 08:13	02/16/23 20:26	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall009_20230131_Comp
Date Collected: 01/31/23 07:30
Date Received: 01/31/23 19:25

Lab Sample ID: 570-125839-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	2.98	U	6.85	6.85	20.0	7.96	pCi/L	02/23/23 09:06	03/03/23 09:21	1
Potassium-40	147		45.8	49.0		26.4	pCi/L	02/23/23 09:06	03/03/23 09:21	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall009_20230131_Comp
 Date Collected: 01/31/23 07:30
 Date Received: 01/31/23 19:25

Lab Sample ID: 570-125839-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0127	U	0.0816	0.0816	1.00	0.158	pCi/L	02/09/23 09:26	03/03/23 08:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.7		30 - 110					02/09/23 09:26	03/03/23 08:37	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall009_20230131_Comp
Date Collected: 01/31/23 07:30
Date Received: 01/31/23 19:25

Lab Sample ID: 570-125839-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.184	U	0.381	0.381	1.00	0.778	pCi/L	02/09/23 09:57	02/14/23 12:05	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.7		30 - 110					02/09/23 09:57	02/14/23 12:05	1
Y Carrier	84.5		30 - 110					02/09/23 09:57	02/14/23 12:05	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall009_20230131_Comp
Date Collected: 01/31/23 07:30
Date Received: 01/31/23 19:25

Lab Sample ID: 570-125839-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	1.29	U	1.26	1.27	3.00	2.04	pCi/L	02/15/23 12:32	02/27/23 16:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	60.4		30 - 110					02/15/23 12:32	02/27/23 16:09	1
Y Carrier	37.4		30 - 110					02/15/23 12:32	02/27/23 16:09	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall009_20230131_Comp
Date Collected: 01/31/23 07:30
Date Received: 01/31/23 19:25

Lab Sample ID: 570-125839-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	0.000	U	175	175	500	322	pCi/L	02/08/23 13:19	02/10/23 02:10	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall009_20230131_Comp
 Date Collected: 01/31/23 07:30
 Date Received: 01/31/23 19:25

Lab Sample ID: 570-125839-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	1.85		0.431	0.445	1.00	0.203	pCi/L	02/08/23 11:16	02/24/23 20:07	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	78.3		30 - 110					02/08/23 11:16	02/24/23 20:07	1

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	
160-48840-B-1-B DU	Duplicate	89.4	
570-125839-1	Outfall009_20230131_Comp	79.7	
LCS 160-599777/2-A	Lab Control Sample	87.7	
MB 160-599777/1-A	Method Blank	95.4	
Tracer/Carrier Legend			
Ba = Ba Carrier			

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
160-48840-B-1-C DU	Duplicate	89.4	84.5
570-125839-1	Outfall009_20230131_Comp	79.7	84.5
LCS 160-599779/2-A	Lab Control Sample	87.7	84.1
MB 160-599779/1-A	Method Blank	95.4	87.9
Tracer/Carrier Legend			
Ba = Ba Carrier			
Y = Y Carrier			

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr (30-110)	Y (30-110)
570-125839-1	Outfall009_20230131_Comp	60.4	37.4
LCS 160-600473/2-A	Lab Control Sample	88.4	80.4
LCSD 160-600473/3-A	Lab Control Sample Dup	87.1	84.5
MB 160-600473/1-A	Method Blank	89.3	75.9
Tracer/Carrier Legend			
Sr = Sr Carrier			
Y = Y Carrier			

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	U-232 (30-110)	
570-125839-1	Outfall009_20230131_Comp	78.3	
570-125839-1 DU	Outfall009_20230131_Comp	85.7	
LCS 160-599667/2-A	Lab Control Sample	79.6	
MB 160-599667/1-A	Method Blank	91.1	
Tracer/Carrier Legend			
U-232 = Uranium-232			

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-599624/1-A
Matrix: Water
Analysis Batch: 600533

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 599624

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	-0.1272	U	0.434	0.435	3.00	0.907	pCi/L	02/08/23 08:13	02/16/23 20:18	1
Gross Beta	-0.2369	U	0.499	0.499	4.00	0.934	pCi/L	02/08/23 08:13	02/16/23 20:18	1

Lab Sample ID: LCS 160-599624/2-A
Matrix: Water
Analysis Batch: 600533

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 599624

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Alpha	50.5	57.56		8.21	3.00	1.80	pCi/L	114	75 - 125

Lab Sample ID: LCSB 160-599624/3-A
Matrix: Water
Analysis Batch: 600533

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 599624

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Beta	73.7	71.23		7.65	4.00	0.872	pCi/L	97	75 - 125

Lab Sample ID: 240-179737-P-1-B MS
Matrix: Water
Analysis Batch: 600561

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 599624

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
						Uncert. (2σ+/-)					
Gross Alpha	34.4	G	158	122.0	F1	24.1	3.00	13.7	pCi/L	56	60 - 140

Lab Sample ID: 240-179737-P-1-D MSD
Matrix: Water
Analysis Batch: 600561

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 599624

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	Limit
						Uncert. (2σ+/-)							
Gross Alpha	34.4	G	158	174.3		32.6	3.00	17.3	pCi/L	89	60 - 140	0.92	1

Lab Sample ID: 240-179737-P-1-E MSBT
Matrix: Water
Analysis Batch: 600561

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 599624

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
						Uncert. (2σ+/-)					
Gross Beta	8.27	F G	230	182.7	G	21.7	4.00	5.31	pCi/L	76	60 - 140

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: 240-179737-P-1-F MSBTD
Matrix: Water
Analysis Batch: 600561

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 599624

Analyte	Sample Result	Sample Qual	Spike Added	MSBTD Result	MSBTD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec		RER
											Limits	RER	
Gross Beta	8.27	F G	230	286.6	G F	32.4	4.00	7.23	pCi/L	121	60 - 140	1.92	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-601388/1-A
Matrix: Water
Analysis Batch: 602173

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 601388

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Potassium-40	-36.44	U	92.7	92.8		125	pCi/L	02/23/23 09:06	03/02/23 20:11	1

Lab Sample ID: LCS 160-601388/2-A
Matrix: Water
Analysis Batch: 602169

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 601388

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec	
									Limits	
Americium-241	135000	149400		17800		304	pCi/L	111	75 - 125	
Cesium-137	40900	39950		4760	20.0	111	pCi/L	98	75 - 125	
Cobalt-60	18000	17720		2110		63.9	pCi/L	99	75 - 125	

Lab Sample ID: 570-125746-U-1-L DU
Matrix: Water
Analysis Batch: 602250

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 601388

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	Limit
Potassium-40	31.6	U	24.08	U	66.9		108	pCi/L	0.04	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-599777/1-A
Matrix: Water
Analysis Batch: 602334

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 599777

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.4		30 - 110					02/09/23 09:26	03/03/23 08:31	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCS 160-599777/2-A
Matrix: Water
Analysis Batch: 602334

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 599777

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-226	11.3	11.45		1.17	1.00	0.0795	pCi/L	101	75 - 125	
Carrier	%Yield	LCS Qualifier	LCS Limits							
Ba Carrier	87.7		30 - 110							

Lab Sample ID: 160-48840-B-1-B DU
Matrix: Water
Analysis Batch: 602335

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 599777

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	0.00835	U	0.02211	U	0.0608	1.00	0.112	pCi/L	0.12	1
Carrier	%Yield	DU Qualifier	DU Limits							
Ba Carrier	89.4		30 - 110							

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-599779/1-A
Matrix: Water
Analysis Batch: 600303

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 599779

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2043	U	0.291	0.292	1.00	0.491	pCi/L	02/09/23 09:57	02/14/23 11:55	1
Carrier	%Yield	MB Qualifier	Count Limits							
Ba Carrier	95.4		30 - 110							
Y Carrier	87.9		30 - 110							
				Prepared	Analyzed	Dil Fac				
				02/09/23 09:57	02/14/23 11:55	1				
				02/09/23 09:57	02/14/23 11:55	1				

Lab Sample ID: LCS 160-599779/2-A
Matrix: Water
Analysis Batch: 600303

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 599779

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228	8.19	9.775		1.32	1.00	0.457	pCi/L	119	75 - 125
Carrier	%Yield	LCS Qualifier	LCS Limits						
Ba Carrier	87.7		30 - 110						
Y Carrier	84.1		30 - 110						

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: 160-48840-B-1-C DU
Matrix: Water
Analysis Batch: 600333

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 599779

Analyte	Sample	Sample	DU		Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
	Result	Qual	Result	Qual						
Radium-228	0.894		0.2475	U	0.264	1.00	0.423	pCi/L	0.92	1
DU DU										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	89.4		30 - 110							
Y Carrier	84.5		30 - 110							

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-600473/1-A
Matrix: Water
Analysis Batch: 601722

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 600473

Analyte	MB	MB	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier								
Strontium-90	0.2660	U	0.215	0.216	3.00	0.340	pCi/L	02/15/23 12:32	02/27/23 15:56	1
MB MB										
Carrier	%Yield	Qualifier	Limits				Prepared		Analyzed	
Sr Carrier	89.3		30 - 110				02/15/23 12:32		02/27/23 15:56	
Y Carrier	75.9		30 - 110				02/15/23 12:32		02/27/23 15:56	

Lab Sample ID: LCS 160-600473/2-A
Matrix: Water
Analysis Batch: 601722

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 600473

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
LCS LCS									
Carrier	%Yield	Qualifier	Limits						
Sr Carrier	88.4		30 - 110						
Y Carrier	80.4		30 - 110						

Lab Sample ID: LCSD 160-600473/3-A
Matrix: Water
Analysis Batch: 601722

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 600473

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
LCSD LCSD											
Carrier	%Yield	Qualifier	Limits								
Sr Carrier	87.1		30 - 110								
Y Carrier	84.5		30 - 110								

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-599699/1-A
 Matrix: Water
 Analysis Batch: 600150

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 599699

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	-31.08	U	168	168	500	314	pCi/L	02/08/23 13:19	02/09/23 23:19	1

Lab Sample ID: LCS 160-599699/2-A
 Matrix: Water
 Analysis Batch: 600150

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 599699

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Tritium	2110	1939		387	500	324	pCi/L	92	75 - 125

Lab Sample ID: 570-125746-S-2-B MS
 Matrix: Water
 Analysis Batch: 600150

Client Sample ID: Matrix Spike
 Prep Type: Total/NA
 Prep Batch: 599699

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
						Uncert. (2σ+/-)					
Tritium	0.000	U	2150	1817		372	500	320	pCi/L	85	60 - 140

Lab Sample ID: 570-125930-D-5-B DU
 Matrix: Water
 Analysis Batch: 600150

Client Sample ID: Duplicate
 Prep Type: Total/NA
 Prep Batch: 599699

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total	RL	MDC	Unit	RER	RER Limit
					Uncert. (2σ+/-)					
Tritium	-82.4	U	-1.351	U	173	500	318	pCi/L	0.24	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-599667/1-A
 Matrix: Water
 Analysis Batch: 601420

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 599667

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Total Uranium	0.1885		0.150	0.150	1.00	0.173	pCi/L	02/08/23 11:16	02/23/23 13:00	1

Tracer	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Yield	Qualifier				
Uranium-232	91.1		30 - 110	02/08/23 11:16	02/23/23 13:00	1

Lab Sample ID: LCS 160-599667/2-A
 Matrix: Water
 Analysis Batch: 601483

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 599667

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Uranium-234	12.7	12.45		1.48	1.00	0.151	pCi/L	98	75 - 125
Uranium-238	13.0	13.17		1.55	1.00	0.164	pCi/L	101	75 - 125

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: LCS 160-599667/2-A
 Matrix: Water
 Analysis Batch: 601483

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 599667

Tracer	LCS		Limits
	%Yield	Qualifier	
Uranium-232	79.6		30 - 110

Lab Sample ID: 570-125839-1 DU
 Matrix: Water
 Analysis Batch: 601424

Client Sample ID: Outfall009_20230131_Comp
 Prep Type: Total/NA
 Prep Batch: 599667

Analyte	Sample	Sample	DU		Total	RL	MDC	Unit	RER	Limit
	Result	Qual	Result	Qual	Uncert. (2σ+/-)					
Total Uranium	1.85		1.656		0.399	1.00	0.135	pCi/L	0.23	1

Tracer	DU		Limits
	%Yield	Qualifier	
Uranium-232	85.7		30 - 110

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Rad

Prep Batch: 599624

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-1	Outfall009_20230131_Comp	Total/NA	Water	Evaporation	
MB 160-599624/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-599624/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-599624/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
240-179737-P-1-B MS	Matrix Spike	Total/NA	Water	Evaporation	
240-179737-P-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	
240-179737-P-1-E MSBT	Matrix Spike	Total/NA	Water	Evaporation	
240-179737-P-1-F MSBTD	Matrix Spike Duplicate	Total/NA	Water	Evaporation	

Prep Batch: 599667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-1	Outfall009_20230131_Comp	Total/NA	Water	ExtChrom	
MB 160-599667/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-599667/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
570-125839-1 DU	Outfall009_20230131_Comp	Total/NA	Water	ExtChrom	

Prep Batch: 599699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-1	Outfall009_20230131_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-599699/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-599699/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
570-125746-S-2-B MS	Matrix Spike	Total/NA	Water	LSC_Dist_Susp	
570-125930-D-5-B DU	Duplicate	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 599777

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-1	Outfall009_20230131_Comp	Total/NA	Water	PrecSep-21	
MB 160-599777/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-599777/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
160-48840-B-1-B DU	Duplicate	Total/NA	Water	PrecSep-21	

Prep Batch: 599779

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-1	Outfall009_20230131_Comp	Total/NA	Water	PrecSep_0	
MB 160-599779/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-599779/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
160-48840-B-1-C DU	Duplicate	Total/NA	Water	PrecSep_0	

Prep Batch: 600473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-1	Outfall009_20230131_Comp	Total/NA	Water	PrecSep-7	
MB 160-600473/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-600473/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
LCSD 160-600473/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-7	

Prep Batch: 601388

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-125839-1	Outfall009_20230131_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-601388/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-601388/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
570-125746-U-1-L DU	Duplicate	Total/NA	Water	Fill_Geo-0	

Eurofins Calscience

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Client Sample ID: Outfall009_20230131_Comp

Lab Sample ID: 570-125839-1

Date Collected: 01/31/23 07:30

Matrix: Water

Date Received: 01/31/23 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			122.96 mL	1.0 g	599624	02/08/23 08:13	MST	EET SL
Total/NA	Analysis	900.0		1			600561	02/16/23 20:26	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	601388	02/23/23 09:06	SRE	EET SL
Total/NA	Analysis	901.1		1			602243	03/03/23 09:21	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			745.00 mL	1.0 g	599777	02/09/23 09:26	DJP	EET SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	602335	03/03/23 08:37	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			745.00 mL	1.0 g	599779	02/09/23 09:57	DJP	EET SL
Total/NA	Analysis	904.0		1			600305	02/14/23 12:05	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep-7			507.03 mL	1.0 g	600473	02/15/23 12:32	DJP	EET SL
Total/NA	Analysis	905		1			601725	02/27/23 16:09	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	LSC_Dist_Susp			103.90 mL	1.0 g	599699	02/08/23 13:19	SEH	EET SL
Total/NA	Analysis	906.0		1			600150	02/10/23 02:10	REV	EET SL
Instrument ID: LSCAQUA										
Total/NA	Prep	ExtChrom			501.00 mL	1.0 mL	599667	02/08/23 11:16	MAL	EET SL
Total/NA	Analysis	A-01-R		1			601565	02/24/23 20:07	EJS	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	04-01-23
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-24
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 - COMP

Job ID: 570-125839-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-125839-1	Outfall009_20230131_Comp	Water	01/31/23 07:30	01/31/23 19:25

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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-125839-3

Login Number: 125839

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-125839-3

Login Number: 125839

List Number: 3

Creator: Hoerchler, Elizabeth M

List Source: Eurofins St. Louis

List Creation: 02/07/23 12:49 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 3/4/2023 1:16:48 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 009 - Grab

JOB NUMBER

570-128846-1

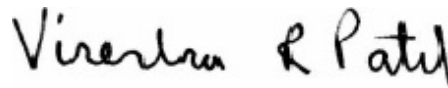
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Job ID: 570-128846-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grab

Job ID: 570-128846-1

Job ID: 570-128846-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-128846-1

Comments

No additional comments.

Receipt

The samples were received on 2/24/2023 6:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.7° C.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Job ID: 570-128846-1

Client Sample ID: Outfall009_20230224_Grab

Lab Sample ID: 570-128846-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
HEM: Oil and Grease	0.68	J,DX	0.98	0.50	mg/L	1		1664A	Total/NA

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Job ID: 570-128846-1

General Chemistry

Client Sample ID: Outfall009_20230224_Grab
Date Collected: 02/24/23 11:10
Date Received: 02/24/23 18:00

Lab Sample ID: 570-128846-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease (1664A)	0.68	J,DX	0.98	0.50	mg/L		02/28/23 09:30	02/28/23 15:26	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Job ID: 570-128846-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-307465/1-A
Matrix: Water
Analysis Batch: 307764

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 307465

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	ND		1.0	0.51	mg/L		02/28/23 09:30	02/28/23 15:26	1

Lab Sample ID: LCS 570-307465/2-A
Matrix: Water
Analysis Batch: 307764

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 307465

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM: Oil and Grease	40.0	37.9		mg/L		95	78 - 114

Lab Sample ID: LCSD 570-307465/3-A
Matrix: Water
Analysis Batch: 307764

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 307465

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	36.8		mg/L		92	78 - 114	3	18

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Job ID: 570-128846-1

General Chemistry

Prep Batch: 307465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128846-1	Outfall009_20230224_Grab	Total/NA	Water	1664A	
MB 570-307465/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-307465/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-307465/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 307764

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-128846-1	Outfall009_20230224_Grab	Total/NA	Water	1664A	307465
MB 570-307465/1-A	Method Blank	Total/NA	Water	1664A	307465
LCS 570-307465/2-A	Lab Control Sample	Total/NA	Water	1664A	307465
LCSD 570-307465/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	307465



Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Job ID: 570-128846-1

Client Sample ID: Outfall009_20230224_Grab

Lab Sample ID: 570-128846-1

Date Collected: 02/24/23 11:10

Matrix: Water

Date Received: 02/24/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1664A			1025 mL	1000 mL	307465	02/28/23 09:30	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			307764	02/28/23 15:26	L6IE	EET CAL 4

Instrument ID: NO EQUIQ

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

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Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Job ID: 570-128846-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Job ID: 570-128846-1

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Grab

Job ID: 570-128846-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-128846-1	Outfall009_20230224_Grab	Water	02/24/23 11:10	02/24/23 18:00

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CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

EDBP500X

Client Name/Address		Project		Field Readings		Meter serial #			
H-Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Boeing-SSFL NPDES Permit 2023 Routine Outfall 003-007 009, 010 Outfall 009 Grab		Time of Readings: 1110 pH: 8.17 pH unit Temp: 43.3 °C/F					
Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218 EC# 157013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Field readings QC Checked by: <i>[Signature]</i> Date/Time: 2-24-2023/1110					
Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3218 EC# 157013187		Project Manager: Mark Dominick 978.234.5033 818.599.0702 (cell)		Comments					
*Residues may be analyzed under this COC shall be performed in accordance with the TSCs within Blanket Service Agreement # 0116-2021 and amended by and between Haley & Aldrich, Inc. its subsidiaries and affiliates, and TestAmerica Laboratories Inc.		Sampler: Adrian Mobeka		Hold					
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Oil & Grease (E1694A-HEM)
Outfall 009	Outfall009_20230224_Grab	2/24/2023/1110	WM	1 L Glass Amber	2	HCl	15	No	X
	Outfall009_20230224_Grab_Extra	2/24/2023/1110	WM	1 L Glass Amber	2	HCl	15	No	H

Relinquished By	Date/Time	Company	Received By	Date/Time	Company
<i>[Signature]</i>	2-24-2023/1205	Company	<i>[Signature]</i>	2/24/23 1205	Company
<i>[Signature]</i>	2/24/23 1800	Company	<i>[Signature]</i>	2-24-23 18:00	Company

Legend R=Routine

Turn-around time: (Check)
 24 Hour ___ 72 Hour ___ 10 Day ___ X ___
 48 Hour ___ 5 Day ___ Normal: ___
 Sample integrity: (Check)
 Intact: ___ On Ice: ___
 Store samples for 6 months.
 Data Requirements: (Check)
 No Level IV: ___ All Level IV: ___ X ___



570-128846 Chain of Custody

1-8/1.7 SC12
1-8/1.7 2-11-2023
2-24-23



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-128846-1

Login Number: 128846

List Number: 1

Creator: Patel, Jayesh

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 3/22/2023 1:25:13 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 009 - Comp

JOB NUMBER

570-129010-1

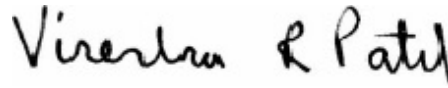
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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3/22/2023 1:25:13 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-1

Qualifiers

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Comp

Job ID: 570-129010-1

Job ID: 570-129010-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-129010-1

Comments

No additional comments.

Receipt

The samples were received on 2/27/2023 6:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.6° C and 2.8° C.

Receipt Exceptions

The following samples were received outside of holding time for 300.0 NO₂,NO₃: Outfall009_20230225_Comp (570-129010-1) and Outfall009_20230225_Comp_Extra (570-129010-3).

HPLC/IC

Method 300.0: The following sample was received outside of holding time: Outfall009_20230225_Comp (570-129010-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

Method 200.8: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-308039 and analytical batch 570-308100 were outside control limits for Antimony. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall009_20230225_Comp_F (570-129010-2). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall009_20230225_Comp_F (570-129010-2). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-1

Client Sample ID: Outfall009_20230225_Comp

Lab Sample ID: 570-129010-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	1.9		1.0	0.36	mg/L	1		300.0	Total/NA
Sulfate	1.9		1.0	0.24	mg/L	1		300.0	Total/NA
Nitrate Nitrite as N	0.47		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Antimony	1.1	J,DX	2.0	0.36	ug/L	1		200.8	Total Recoverable
Copper	3.4		2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	3.8		1.0	0.12	ug/L	1		200.8	Total Recoverable
Nickel	2.6		2.0	0.17	ug/L	1		200.8	Total Recoverable
Silver	0.26	J,DX	1.0	0.23	ug/L	1		200.8	Total Recoverable
Zinc	30		20	2.8	ug/L	1		200.8	Total Recoverable
Total Dissolved Solids	84		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	29		2.0	1.6	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Outfall009_20230225_Comp_F

Lab Sample ID: 570-129010-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	4.5	BU	2.0	0.36	ug/L	1		200.8	Dissolved
Copper	1.8	J,DX BU	2.0	0.32	ug/L	1		200.8	Dissolved
Lead	0.44	J,DX BU	1.0	0.12	ug/L	1		200.8	Dissolved
Nickel	1.0	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Selenium	0.53	J,DX BU	2.0	0.52	ug/L	1		200.8	Dissolved
Silver	0.37	J,DX BU	1.0	0.23	ug/L	1		200.8	Dissolved
Zinc	6.1	J,DX BU	20	2.8	ug/L	1		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall009_20230225_Comp

Date Collected: 02/25/23 11:45

Date Received: 02/27/23 18:00

Lab Sample ID: 570-129010-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.9		1.0	0.36	mg/L			02/28/23 06:41	1
Sulfate	1.9		1.0	0.24	mg/L			02/28/23 06:41	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall009_20230225_Comp

Lab Sample ID: 570-129010-1

Date Collected: 02/25/23 11:45

Matrix: Water

Date Received: 02/27/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.47		0.10	0.020	mg/L			03/03/23 14:06	1

- 1
- 2
- 3
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- 13
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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-1

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall009_20230225_Comp

Date Collected: 02/25/23 11:45

Date Received: 02/27/23 18:00

Lab Sample ID: 570-129010-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.1	J,DX	2.0	0.36	ug/L		03/01/23 06:30	03/01/23 11:10	1
Cadmium	ND		1.0	0.13	ug/L		03/01/23 06:30	03/01/23 11:10	1
Copper	3.4		2.0	0.32	ug/L		03/01/23 06:30	03/01/23 11:10	1
Lead	3.8		1.0	0.12	ug/L		03/01/23 06:30	03/01/23 11:10	1
Nickel	2.6		2.0	0.17	ug/L		03/01/23 06:30	03/01/23 11:10	1
Selenium	ND		2.0	0.52	ug/L		03/01/23 06:30	03/01/23 11:10	1
Silver	0.26	J,DX	1.0	0.23	ug/L		03/01/23 06:30	03/01/23 11:10	1
Thallium	ND		1.0	0.11	ug/L		03/01/23 06:30	03/01/23 11:10	1
Zinc	30		20	2.8	ug/L		03/01/23 06:30	03/01/23 11:10	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall009_20230225_Comp_F

Lab Sample ID: 570-129010-2

Date Collected: 02/25/23 11:45

Matrix: Water

Date Received: 02/27/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	4.5	BU	2.0	0.36	ug/L			03/01/23 14:30	1
Cadmium	ND	BU	1.0	0.13	ug/L			03/01/23 14:30	1
Copper	1.8	J,DX BU	2.0	0.32	ug/L			03/01/23 14:30	1
Lead	0.44	J,DX BU	1.0	0.12	ug/L			03/01/23 14:30	1
Nickel	1.0	J,DX BU	2.0	0.17	ug/L			03/01/23 14:30	1
Selenium	0.53	J,DX BU	2.0	0.52	ug/L			03/01/23 14:30	1
Silver	0.37	J,DX BU	1.0	0.23	ug/L			03/01/23 14:30	1
Thallium	ND	BU	1.0	0.11	ug/L			03/01/23 14:30	1
Zinc	6.1	J,DX BU	20	2.8	ug/L			03/01/23 14:30	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall009_20230225_Comp

Date Collected: 02/25/23 11:45

Date Received: 02/27/23 18:00

Lab Sample ID: 570-129010-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/03/23 17:41	03/07/23 13:06	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall009_20230225_Comp_F

Date Collected: 02/25/23 11:45

Date Received: 02/27/23 18:00

Lab Sample ID: 570-129010-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU	0.20	0.12	ug/L		03/06/23 18:07	03/07/23 13:43	1

- 1
- 2
- 3
- 4
- 5
- 6
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- 10
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- 12
- 13
- 14

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-1

General Chemistry

Client Sample ID: Outfall009_20230225_Comp

Date Collected: 02/25/23 11:45

Date Received: 02/27/23 18:00

Lab Sample ID: 570-129010-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			03/03/23 20:26	1
Total Dissolved Solids (SM 2540C)	84		10	8.7	mg/L			03/02/23 16:19	1
Total Suspended Solids (SM 2540D)	29		2.0	1.6	mg/L			03/03/23 18:43	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-307535/5
Matrix: Water
Analysis Batch: 307535

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			02/28/23 04:07	1
Sulfate	ND		1.0	0.24	mg/L			02/28/23 04:07	1

Lab Sample ID: LCS 570-307535/6
Matrix: Water
Analysis Batch: 307535

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	50.2		mg/L		100	90 - 110
Sulfate	50.0	49.7		mg/L		99	90 - 110

Lab Sample ID: LCSD 570-307535/7
Matrix: Water
Analysis Batch: 307535

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	50.2		mg/L		100	90 - 110	0	15
Sulfate	50.0	49.6		mg/L		99	90 - 110	0	15

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-307908/1-A
Matrix: Water
Analysis Batch: 308055

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 307908

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.36	ug/L		03/01/23 06:30	03/01/23 10:48	1
Cadmium	ND		1.0	0.13	ug/L		03/01/23 06:30	03/01/23 10:48	1
Copper	ND		2.0	0.32	ug/L		03/01/23 06:30	03/01/23 10:48	1
Lead	ND		1.0	0.12	ug/L		03/01/23 06:30	03/01/23 10:48	1
Nickel	ND		2.0	0.17	ug/L		03/01/23 06:30	03/01/23 10:48	1
Selenium	ND		2.0	0.52	ug/L		03/01/23 06:30	03/01/23 10:48	1
Silver	ND		1.0	0.23	ug/L		03/01/23 06:30	03/01/23 10:48	1
Thallium	ND		1.0	0.11	ug/L		03/01/23 06:30	03/01/23 10:48	1
Zinc	ND		20	2.8	ug/L		03/01/23 06:30	03/01/23 10:48	1

Lab Sample ID: LCS 570-307908/2-A
Matrix: Water
Analysis Batch: 308055

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 307908

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	80.0	82.5		ug/L		103	85 - 115
Cadmium	80.0	77.6		ug/L		97	85 - 115
Copper	80.0	75.9		ug/L		95	85 - 115
Lead	80.0	76.9		ug/L		96	85 - 115
Nickel	80.0	76.3		ug/L		95	85 - 115
Selenium	80.0	77.6		ug/L		97	85 - 115
Silver	80.0	78.9		ug/L		99	85 - 115
Thallium	80.0	78.0		ug/L		97	85 - 115

Eurolins Calscience

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 570-307908/2-A
Matrix: Water
Analysis Batch: 308055

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 307908

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Zinc	80.0	76.6		ug/L		96	85 - 115

Lab Sample ID: LCSD 570-307908/3-A
Matrix: Water
Analysis Batch: 308055

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 307908

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	80.0	83.9		ug/L		105	85 - 115	2	20
Cadmium	80.0	77.0		ug/L		96	85 - 115	1	20
Copper	80.0	76.3		ug/L		95	85 - 115	1	20
Lead	80.0	78.0		ug/L		97	85 - 115	1	20
Nickel	80.0	76.6		ug/L		96	85 - 115	0	20
Selenium	80.0	74.8		ug/L		93	85 - 115	4	20
Silver	80.0	78.5		ug/L		98	85 - 115	0	20
Thallium	80.0	78.5		ug/L		98	85 - 115	1	20
Zinc	80.0	77.1		ug/L		96	85 - 115	1	20

Lab Sample ID: MB 570-308039/1-A
Matrix: Water
Analysis Batch: 308100

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.36	ug/L			03/01/23 14:16	1
Cadmium	ND		1.0	0.13	ug/L			03/01/23 14:16	1
Copper	ND		2.0	0.32	ug/L			03/01/23 14:16	1
Lead	ND		1.0	0.12	ug/L			03/01/23 14:16	1
Nickel	ND		2.0	0.17	ug/L			03/01/23 14:16	1
Selenium	ND		2.0	0.52	ug/L			03/01/23 14:16	1
Silver	ND		1.0	0.23	ug/L			03/01/23 14:16	1
Thallium	ND		1.0	0.11	ug/L			03/01/23 14:16	1
Zinc	ND		20	2.8	ug/L			03/01/23 14:16	1

Lab Sample ID: LCS 570-308039/2-A
Matrix: Water
Analysis Batch: 308100

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	80.0	79.8		ug/L		100	85 - 115
Cadmium	80.0	80.0		ug/L		100	85 - 115
Copper	80.0	77.6		ug/L		97	85 - 115
Lead	80.0	80.3		ug/L		100	85 - 115
Nickel	80.0	78.1		ug/L		98	85 - 115
Selenium	80.0	82.2		ug/L		103	85 - 115
Silver	80.0	79.7		ug/L		100	85 - 115
Thallium	80.0	80.5		ug/L		101	85 - 115
Zinc	80.0	78.5		ug/L		98	85 - 115

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 570-308039/3-A
 Matrix: Water
 Analysis Batch: 308100

Client Sample ID: Lab Control Sample Dup
 Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	80.0	82.8		ug/L		103	85 - 115	4	20
Cadmium	80.0	80.5		ug/L		101	85 - 115	1	20
Copper	80.0	78.2		ug/L		98	85 - 115	1	20
Lead	80.0	80.5		ug/L		101	85 - 115	0	20
Nickel	80.0	78.2		ug/L		98	85 - 115	0	20
Selenium	80.0	83.1		ug/L		104	85 - 115	1	20
Silver	80.0	79.8		ug/L		100	85 - 115	0	20
Thallium	80.0	80.5		ug/L		101	85 - 115	0	20
Zinc	80.0	81.1		ug/L		101	85 - 115	3	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-308182/1-A
 Matrix: Water
 Analysis Batch: 308434

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 308182

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/01/23 18:22	03/02/23 11:55	1

Lab Sample ID: LCS 570-308182/2-A
 Matrix: Water
 Analysis Batch: 308434

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 308182

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.18		ug/L		102	85 - 115

Lab Sample ID: LCSD 570-308182/3-A
 Matrix: Water
 Analysis Batch: 308434

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 308182

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.08		ug/L		101	85 - 115	1	10

Lab Sample ID: MB 570-308890/1-A
 Matrix: Water
 Analysis Batch: 309665

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 308890

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/03/23 17:41	03/07/23 13:00	1

Lab Sample ID: LCS 570-308890/2-A
 Matrix: Water
 Analysis Batch: 309665

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 308890

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.72		ug/L		109	85 - 115

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: LCSD 570-308890/3-A
Matrix: Water
Analysis Batch: 309665

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 308890

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.78		ug/L		110	85 - 115	1	10

Lab Sample ID: 570-129010-1 MS
Matrix: Water
Analysis Batch: 309665

Client Sample ID: Outfall009_20230225_Comp
Prep Type: Total/NA
Prep Batch: 308890

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.85		ug/L		111	85 - 115

Lab Sample ID: 570-129010-1 MSD
Matrix: Water
Analysis Batch: 309665

Client Sample ID: Outfall009_20230225_Comp
Prep Type: Total/NA
Prep Batch: 308890

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	8.91		ug/L		111	85 - 115	1	10

Lab Sample ID: MB 570-309367/1-B
Matrix: Water
Analysis Batch: 309665

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 309368

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/06/23 18:07	03/07/23 13:11	1

Lab Sample ID: LCS 570-309367/2-B
Matrix: Water
Analysis Batch: 309665

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 309368

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.47		ug/L		106	85 - 115

Lab Sample ID: LCSD 570-309367/3-B
Matrix: Water
Analysis Batch: 309665

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 309368

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.40		ug/L		105	85 - 115	1	10

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-309199/12
Matrix: Water
Analysis Batch: 309199

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			03/03/23 20:26	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-1

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate (Continued)

Lab Sample ID: LCS 570-309199/13
 Matrix: Water
 Analysis Batch: 309199

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	229		ug/L		92	90 - 110

Lab Sample ID: LCSD 570-309199/15
 Matrix: Water
 Analysis Batch: 309199

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	250	231		ug/L		92	90 - 110	1	20

Lab Sample ID: MRL 570-309199/11
 Matrix: Water
 Analysis Batch: 309199

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	5.00	5.41		ug/L		108	50 - 150

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-308507/1
 Matrix: Water
 Analysis Batch: 308507

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			03/02/23 16:18	1

Lab Sample ID: LCS 570-308507/2
 Matrix: Water
 Analysis Batch: 308507

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	944		mg/L		94	84 - 108

Lab Sample ID: LCSD 570-308507/3
 Matrix: Water
 Analysis Batch: 308507

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	992		mg/L		99	84 - 108	5	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-308912/1
 Matrix: Water
 Analysis Batch: 308912

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			03/03/23 18:43	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCS 570-308912/2
Matrix: Water
Analysis Batch: 308912

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	96.0		mg/L		96	77 - 116

Lab Sample ID: LCSD 570-308912/3
Matrix: Water
Analysis Batch: 308912

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	96.0		mg/L		96	77 - 116	0	10



QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-1

HPLC/IC

Analysis Batch: 307535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-1	Outfall009_20230225_Comp	Total/NA	Water	300.0	
MB 570-307535/5	Method Blank	Total/NA	Water	300.0	
LCS 570-307535/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-307535/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 308826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-1	Outfall009_20230225_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Prep Batch: 307908

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-1	Outfall009_20230225_Comp	Total Recoverable	Water	200.8	
MB 570-307908/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-307908/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-307908/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	

Filtration Batch: 308039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-2	Outfall009_20230225_Comp_F	Dissolved	Water	Filtration	
MB 570-308039/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-308039/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-308039/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	

Analysis Batch: 308055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-1	Outfall009_20230225_Comp	Total Recoverable	Water	200.8	307908
MB 570-307908/1-A	Method Blank	Total Recoverable	Water	200.8	307908
LCS 570-307908/2-A	Lab Control Sample	Total Recoverable	Water	200.8	307908
LCSD 570-307908/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	307908

Analysis Batch: 308100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-2	Outfall009_20230225_Comp_F	Dissolved	Water	200.8	308039
MB 570-308039/1-A	Method Blank	Dissolved	Water	200.8	308039
LCS 570-308039/2-A	Lab Control Sample	Dissolved	Water	200.8	308039
LCSD 570-308039/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	308039

Prep Batch: 308182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-308182/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-308182/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-308182/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	

Analysis Batch: 308434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-308182/1-A	Method Blank	Total/NA	Water	245.1	308182
LCS 570-308182/2-A	Lab Control Sample	Total/NA	Water	245.1	308182
LCSD 570-308182/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	308182

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-1

Metals

Prep Batch: 308890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-1	Outfall009_20230225_Comp	Total/NA	Water	245.1	
MB 570-308890/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-308890/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-308890/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-129010-1 MS	Outfall009_20230225_Comp	Total/NA	Water	245.1	
570-129010-1 MSD	Outfall009_20230225_Comp	Total/NA	Water	245.1	

Filtration Batch: 309367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-2	Outfall009_20230225_Comp_F	Dissolved	Water	Filtration	
MB 570-309367/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-309367/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-309367/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	

Prep Batch: 309368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-2	Outfall009_20230225_Comp_F	Dissolved	Water	245.1	309367
MB 570-309367/1-B	Method Blank	Dissolved	Water	245.1	309367
LCS 570-309367/2-B	Lab Control Sample	Dissolved	Water	245.1	309367
LCSD 570-309367/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	309367

Analysis Batch: 309665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-1	Outfall009_20230225_Comp	Total/NA	Water	245.1	308890
570-129010-2	Outfall009_20230225_Comp_F	Dissolved	Water	245.1	309368
MB 570-308890/1-A	Method Blank	Total/NA	Water	245.1	308890
MB 570-309367/1-B	Method Blank	Dissolved	Water	245.1	309368
LCS 570-308890/2-A	Lab Control Sample	Total/NA	Water	245.1	308890
LCS 570-309367/2-B	Lab Control Sample	Dissolved	Water	245.1	309368
LCSD 570-308890/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	308890
LCSD 570-309367/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	309368
570-129010-1 MS	Outfall009_20230225_Comp	Total/NA	Water	245.1	308890
570-129010-1 MSD	Outfall009_20230225_Comp	Total/NA	Water	245.1	308890

General Chemistry

Analysis Batch: 308507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-1	Outfall009_20230225_Comp	Total/NA	Water	SM 2540C	
MB 570-308507/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-308507/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-308507/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 308912

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-1	Outfall009_20230225_Comp	Total/NA	Water	SM 2540D	
MB 570-308912/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-308912/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-308912/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Eurofins Calscience

QC Association Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129010-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

General Chemistry

Analysis Batch: 309199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-1	Outfall009_20230225_Comp	Total/NA	Water	Kelada 01	
MB 570-309199/12	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-309199/13	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-309199/15	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-309199/11	Lab Control Sample	Total/NA	Water	Kelada 01	

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Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-1

Client Sample ID: Outfall009_20230225_Comp

Lab Sample ID: 570-129010-1

Date Collected: 02/25/23 11:45

Matrix: Water

Date Received: 02/27/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	4 mL	4 mL	307535	02/28/23 06:41	PS	EET CAL 4
	Instrument ID: IC9									
Total/NA	Analysis	NO2NO3 Calc		1			308826	03/03/23 14:06	WH6J	EET CAL 4
	Instrument ID: NOEQUIP									
Total Recoverable	Prep	200.8			50 mL	50 mL	307908	03/01/23 06:30	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			308055	03/01/23 11:10	Y2WS	EET CAL 4
	Instrument ID: ICPMS09									
Total/NA	Prep	245.1			25 mL	50 mL	308890	03/03/23 17:41	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			309665	03/07/23 13:06	C0YH	EET CAL 4
	Instrument ID: HG8									
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	309199	03/03/23 20:26	GG0B	EET CAL 4
	Instrument ID: LACHAT01									
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	308507	03/02/23 16:19	UWCT	EET CAL 4
	Instrument ID: NOEQUIP									
Total/NA	Analysis	SM 2540D		1	510 mL	1000 mL	308912	03/03/23 18:43	BDH9	EET CAL 4
	Instrument ID: BAL71									

Client Sample ID: Outfall009_20230225_Comp_F

Lab Sample ID: 570-129010-2

Date Collected: 02/25/23 11:45

Matrix: Water

Date Received: 02/27/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	308039	03/01/23 12:58	JP8N	EET CAL 4
Dissolved	Analysis	200.8		1			308100	03/01/23 14:30	Y2WS	EET CAL 4
	Instrument ID: ICPMS09									
Dissolved	Filtration	Filtration			25 mL	25 mL	309367	03/06/23 17:48	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	309368	03/06/23 18:07	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			309665	03/07/23 13:43	C0YH	EET CAL 4
	Instrument ID: HG8									

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129010-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4

Protocol References:

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129010-1	Outfall009_20230225_Comp	Water	02/25/23 11:45	02/27/23 18:00
570-129010-2	Outfall009_20230225_Comp_F	Water	02/25/23 11:45	02/27/23 18:00

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129010

ANALYSIS REQUIRED

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSMSD	Total Recoverable Metals: (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.8): Ni, Zn	Gross Alpha(E900.0), Gross Beta(E900.0), Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, Cs-137 (E901.0 or E901.1)	Cyanide (SM4500-CNE / E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))	Comments	
Outfall 009	Outfall009_20230225_Comp	2/25/2023 1145	WM	500 mL Poly	1	HNO ₃	95	Yes	X					X				
	Outfall009_20230225_Comp_F	2/25/2023 1145	WM	1 L Glass Amber	2	None	110	No			X							48 hours Holding Time NO ₂ & NO _x
	Outfall009_20230225_Comp_Extra	2/25/2023 1145	WM	500 mL Poly	2	None	145	No		X								
			WM	500 mL Poly	1	None	155	No										
			WM	500 mL Poly	1	NaOH	220	No										
			WM	2.5 Gal Cube	1	None	225	No										
			WM	1 L Glass Amber	1	None	230	No										
			WM	1 L Poly	1	None	185	No										
			WM	1L Poly	1	None	205	Yes			X							
			WM	borosilicate vials	1	None	320	No										
			WM	1 L Glass Amber	2	None	110	No										
			WM	500 mL Poly	2	None	145	No										

Legend: EP=Expert Panel, R=Routine

Received by: *[Signature]* Date/Time: 2/27/23 12:00 EC
 Received by: *[Signature]* Date/Time: EC 2-27-23 18:00
 Received by: *[Signature]* Date/Time: EC 2-27-23 18:00

Turn-around time: (Check)
 24 Hour 72 Hour 10 Day
 48 Hour 5 Day Normal

Sample Integrity: (Check)
 Intact: On Ice:
 Store samples for 6 months:
 Data Requirements: (Check)
 No Level IV: All Level IV:

2.9/2.8, 2.7/2.6 SC12



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129010-1

Login Number: 129010

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 009 - Comp

JOB NUMBER

570-129010-2

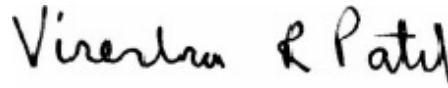
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Comp

Job ID: 570-129010-2

Job ID: 570-129010-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-129010-2

Comments

No additional comments.

Receipt

The samples were received on 2/27/2023 6:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.6° C and 2.8° C.

Receipt Exceptions

The following samples were received outside of holding time for 300.0 NO₂,NO₃: Outfall009_20230225_Comp (570-129010-1) and Outfall009_20230225_Comp_Extra (570-129010-3).

Dioxin

Method 1613B: The automated ending resolution check scheduled to be performed on March 20, 2023 at approximately 22:23 did not print. A manual resolution check was performed, without retuning, at the end of the second sequence on March 21, 2023 at 10:21, which indicated that the instrument maintained 10,000 resolution. The approximately 12 hour delay in printing the ending resolution check has no impact on the data.

Outfall009_20230225_Comp (570-129010-1), (CCV 320-662109/2), (LCS 320-659338/2-A), (LCSD 320-659338/3-A), (MB 320-659338/1-A) and (WDM 320-662109/1)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-2

Client Sample ID: Outfall009_20230225_Comp

Lab Sample ID: 570-129010-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,7,8-PeCDF	0.0000065	J,DX q	0.000048	0.000004	ug/L	1		1613B	Total/NA
1,2,3,4,7,8-HxCDD	0.0000016	J,DX q MB	0.000048	0.000003	ug/L	1		1613B	Total/NA
1,2,3,6,7,8-HxCDD	0.0000014	J,DX q MB	0.000048	0.000004	ug/L	1		1613B	Total/NA
1,2,3,7,8,9-HxCDD	0.0000011	J,DX q	0.000048	0.000003	ug/L	1		1613B	Total/NA
1,2,3,4,7,8-HxCDF	0.0000051	J,DX q	0.000048	0.000003	ug/L	1		1613B	Total/NA
1,2,3,6,7,8-HxCDF	0.0000059	J,DX q	0.000048	0.000003	ug/L	1		1613B	Total/NA
1,2,3,7,8,9-HxCDF	0.0000011	J,DX q MB	0.000048	0.000003	ug/L	1		1613B	Total/NA
2,3,4,6,7,8-HxCDF	0.0000097	J,DX	0.000048	0.000003	ug/L	1		1613B	Total/NA
1,2,3,4,6,7,8-HpCDD	0.000033	J,DX MB	0.000048	0.000006	ug/L	1		1613B	Total/NA
1,2,3,4,6,7,8-HpCDF	0.0000092	J,DX MB	0.000048	0.000004	ug/L	1		1613B	Total/NA
OCDD	0.00029	MB	0.000095	0.000011	ug/L	1		1613B	Total/NA
OCDF	0.000018	J,DX MB	0.000095	0.000004	ug/L	1		1613B	Total/NA
Total PeCDF	0.0000065	J,DX q	0.000048	0.000004	ug/L	1		1613B	Total/NA
Total HxCDD	0.0000098	J,DX q MB	0.000048	0.000003	ug/L	1		1613B	Total/NA
Total HxCDF	0.0000070	J,DX q MB	0.000048	0.000003	ug/L	1		1613B	Total/NA
Total HpCDD	0.000068	MB	0.000048	0.000006	ug/L	1		1613B	Total/NA
Total HpCDF	0.000018	J,DX q MB	0.000048	0.000004	ug/L	1		1613B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall009_20230225_Comp

Date Collected: 02/25/23 11:45

Date Received: 02/27/23 18:00

Lab Sample ID: 570-129010-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000095	0.0000009	ug/L		03/09/23 04:30	03/20/23 16:51	1
2,3,7,8-TCDF	ND		0.0000095	0.0000005	ug/L		03/09/23 04:30	03/20/23 16:51	1
1,2,3,7,8-PeCDD	ND		0.000048	0.0000004	ug/L		03/09/23 04:30	03/20/23 16:51	1
1,2,3,7,8-PeCDF	0.0000065	J,DX q	0.000048	0.0000004	ug/L		03/09/23 04:30	03/20/23 16:51	1
2,3,4,7,8-PeCDF	ND		0.000048	0.0000004	ug/L		03/09/23 04:30	03/20/23 16:51	1
1,2,3,4,7,8-HxCDD	0.0000016	J,DX q MB	0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:51	1
1,2,3,6,7,8-HxCDD	0.0000014	J,DX q MB	0.000048	0.0000004	ug/L		03/09/23 04:30	03/20/23 16:51	1
1,2,3,7,8,9-HxCDD	0.0000011	J,DX q	0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:51	1
1,2,3,4,7,8-HxCDF	0.00000051	J,DX q	0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:51	1
1,2,3,6,7,8-HxCDF	0.00000059	J,DX q	0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:51	1
1,2,3,7,8,9-HxCDF	0.0000011	J,DX q MB	0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:51	1
2,3,4,6,7,8-HxCDF	0.00000097	J,DX	0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:51	1
1,2,3,4,6,7,8-HpCDD	0.000033	J,DX MB	0.000048	0.0000006	ug/L		03/09/23 04:30	03/20/23 16:51	1
1,2,3,4,6,7,8-HpCDF	0.0000092	J,DX MB	0.000048	0.0000004	ug/L		03/09/23 04:30	03/20/23 16:51	1
1,2,3,4,7,8,9-HpCDF	ND		0.000048	0.0000004	ug/L		03/09/23 04:30	03/20/23 16:51	1
OCDD	0.00029	MB	0.000095	0.0000011	ug/L		03/09/23 04:30	03/20/23 16:51	1
OCDF	0.000018	J,DX MB	0.000095	0.0000004	ug/L		03/09/23 04:30	03/20/23 16:51	1
Total TCDD	ND		0.0000095	0.0000009	ug/L		03/09/23 04:30	03/20/23 16:51	1
Total TCDF	ND		0.0000095	0.0000005	ug/L		03/09/23 04:30	03/20/23 16:51	1
Total PeCDD	ND		0.000048	0.0000004	ug/L		03/09/23 04:30	03/20/23 16:51	1
Total PeCDF	0.0000065	J,DX q	0.000048	0.0000004	ug/L		03/09/23 04:30	03/20/23 16:51	1
Total HxCDD	0.0000098	J,DX q MB	0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:51	1
Total HxCDF	0.0000070	J,DX q MB	0.000048	0.0000003	ug/L		03/09/23 04:30	03/20/23 16:51	1
Total HpCDD	0.000068	MB	0.000048	0.0000006	ug/L		03/09/23 04:30	03/20/23 16:51	1
Total HpCDF	0.000018	J,DX q MB	0.000048	0.0000004	ug/L		03/09/23 04:30	03/20/23 16:51	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	73		25 - 164				03/09/23 04:30	03/20/23 16:51	1
13C-2,3,7,8-TCDF	66		24 - 169				03/09/23 04:30	03/20/23 16:51	1
13C-1,2,3,7,8-PeCDD	91		25 - 181				03/09/23 04:30	03/20/23 16:51	1
13C-1,2,3,7,8-PeCDF	80		24 - 185				03/09/23 04:30	03/20/23 16:51	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall009_20230225_Comp

Date Collected: 02/25/23 11:45

Date Received: 02/27/23 18:00

Lab Sample ID: 570-129010-1

Matrix: Water

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-2,3,4,7,8-PeCDF	81		21 - 178	03/09/23 04:30	03/20/23 16:51	1
13C-1,2,3,4,7,8-HxCDD	73		32 - 141	03/09/23 04:30	03/20/23 16:51	1
13C-1,2,3,6,7,8-HxCDD	73		28 - 130	03/09/23 04:30	03/20/23 16:51	1
13C-1,2,3,4,7,8-HxCDF	63		26 - 152	03/09/23 04:30	03/20/23 16:51	1
13C-1,2,3,6,7,8-HxCDF	67		26 - 123	03/09/23 04:30	03/20/23 16:51	1
13C-1,2,3,7,8,9-HxCDF	74		29 - 147	03/09/23 04:30	03/20/23 16:51	1
13C-2,3,4,6,7,8-HxCDF	71		28 - 136	03/09/23 04:30	03/20/23 16:51	1
13C-1,2,3,4,6,7,8-HpCDD	90		23 - 140	03/09/23 04:30	03/20/23 16:51	1
13C-1,2,3,4,6,7,8-HpCDF	71		28 - 143	03/09/23 04:30	03/20/23 16:51	1
13C-1,2,3,4,7,8,9-HpCDF	81		26 - 138	03/09/23 04:30	03/20/23 16:51	1
13C-OCDD	88		17 - 157	03/09/23 04:30	03/20/23 16:51	1
13C-OCDF	81		17 - 157	03/09/23 04:30	03/20/23 16:51	1
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
37Cl4-2,3,7,8-TCDD	79		35 - 197	03/09/23 04:30	03/20/23 16:51	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-129010-1	Outfall009_20230225_Comp	79
MB 320-659338/1-A	Method Blank	84

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-659338/2-A	Lab Control Sample	85
LCSD 320-659338/3-A	Lab Control Sample Dup	86

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-129010-1	Outfall009_20230225_Comp	73	66	91	80	81	73	73	63
MB 320-659338/1-A	Method Blank	71	62	90	77	78	70	72	59

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-129010-1	Outfall009_20230225_Comp	67	74	71	90	71	81	88	81
MB 320-659338/1-A	Method Blank	65	71	69	88	71	81	89	80

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- OCDD = 13C-OCDD
- OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-659338/2-A	Lab Control Sample	65	58	83	71	70	63	62	51
LCSD 320-659338/3-A	Lab Control Sample Dup	77	70	96	82	84	72	68	57

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-659338/2-A	Lab Control Sample	56	65	61	78	63	72	78	71
LCSD 320-659338/3-A	Lab Control Sample Dup	64	75	71	91	71	84	93	84

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129010-2

Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

HxDF = 13C-1,2,3,6,7,8-HxCDF

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-659338/1-A
Matrix: Water
Analysis Batch: 662109

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 659338

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000009	ug/L		03/09/23 04:30	03/20/23 13:41	1
				7					
2,3,7,8-TCDF	ND		0.000010	0.0000005	ug/L		03/09/23 04:30	03/20/23 13:41	1
				5					
1,2,3,7,8-PeCDD	ND		0.000050	0.0000004	ug/L		03/09/23 04:30	03/20/23 13:41	1
				5					
1,2,3,7,8-PeCDF	ND		0.000050	0.0000003	ug/L		03/09/23 04:30	03/20/23 13:41	1
				7					
2,3,4,7,8-PeCDF	ND		0.000050	0.0000004	ug/L		03/09/23 04:30	03/20/23 13:41	1
				2					
1,2,3,4,7,8-HxCDD	0.00000174	J,DX	0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				8					
1,2,3,6,7,8-HxCDD	0.000000455	J,DX q	0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				9					
1,2,3,7,8,9-HxCDD	ND		0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				5					
1,2,3,4,7,8-HxCDF	ND		0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				8					
1,2,3,6,7,8-HxCDF	ND		0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				6					
1,2,3,7,8,9-HxCDF	0.000000967	J,DX	0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				6					
2,3,4,6,7,8-HxCDF	ND		0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				4					
1,2,3,4,6,7,8-HpCDD	0.00000104	J,DX q	0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				4					
1,2,3,4,6,7,8-HpCDF	0.00000126	J,DX	0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				9					
1,2,3,4,7,8,9-HpCDF	ND		0.000050	0.0000003	ug/L		03/09/23 04:30	03/20/23 13:41	1
				2					
OCDD	0.0000112	J,DX	0.00010	0.0000003	ug/L		03/09/23 04:30	03/20/23 13:41	1
				1					
OCDF	0.00000213	J,DX q	0.00010	0.0000003	ug/L		03/09/23 04:30	03/20/23 13:41	1
				9					
Total TCDD	ND		0.000010	0.0000009	ug/L		03/09/23 04:30	03/20/23 13:41	1
				7					
Total TCDF	ND		0.000010	0.0000005	ug/L		03/09/23 04:30	03/20/23 13:41	1
				5					
Total PeCDD	ND		0.000050	0.0000004	ug/L		03/09/23 04:30	03/20/23 13:41	1
				5					
Total PeCDF	ND		0.000050	0.0000004	ug/L		03/09/23 04:30	03/20/23 13:41	1
				2					
Total HxCDD	0.00000263	J,DX q	0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				8					
Total HxCDF	0.000000967	J,DX	0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				6					
Total HpCDD	0.00000272	J,DX q	0.000050	0.0000002	ug/L		03/09/23 04:30	03/20/23 13:41	1
				4					
Total HpCDF	0.00000126	J,DX	0.000050	0.0000003	ug/L		03/09/23 04:30	03/20/23 13:41	1
				1					
	MB	MB							
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	71		25 - 164				03/09/23 04:30	03/20/23 13:41	1
13C-2,3,7,8-TCDF	62		24 - 169				03/09/23 04:30	03/20/23 13:41	1

Eurofins Calscience

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-659338/1-A
Matrix: Water
Analysis Batch: 662109

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 659338

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8-PeCDD	90		25 - 181	03/09/23 04:30	03/20/23 13:41	1
13C-1,2,3,7,8-PeCDF	77		24 - 185	03/09/23 04:30	03/20/23 13:41	1
13C-2,3,4,7,8-PeCDF	78		21 - 178	03/09/23 04:30	03/20/23 13:41	1
13C-1,2,3,4,7,8-HxCDD	70		32 - 141	03/09/23 04:30	03/20/23 13:41	1
13C-1,2,3,6,7,8-HxCDD	72		28 - 130	03/09/23 04:30	03/20/23 13:41	1
13C-1,2,3,4,7,8-HxCDF	59		26 - 152	03/09/23 04:30	03/20/23 13:41	1
13C-1,2,3,6,7,8-HxCDF	65		26 - 123	03/09/23 04:30	03/20/23 13:41	1
13C-1,2,3,7,8,9-HxCDF	71		29 - 147	03/09/23 04:30	03/20/23 13:41	1
13C-2,3,4,6,7,8-HxCDF	69		28 - 136	03/09/23 04:30	03/20/23 13:41	1
13C-1,2,3,4,6,7,8-HpCDD	88		23 - 140	03/09/23 04:30	03/20/23 13:41	1
13C-1,2,3,4,6,7,8-HpCDF	71		28 - 143	03/09/23 04:30	03/20/23 13:41	1
13C-1,2,3,4,7,8,9-HpCDF	81		26 - 138	03/09/23 04:30	03/20/23 13:41	1
13C-OCDD	89		17 - 157	03/09/23 04:30	03/20/23 13:41	1
13C-OCDF	80		17 - 157	03/09/23 04:30	03/20/23 13:41	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	84		35 - 197	03/09/23 04:30	03/20/23 13:41	1

Lab Sample ID: LCS 320-659338/2-A
Matrix: Water
Analysis Batch: 662109

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 659338

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,3,7,8-TCDF	0.000200	0.000212		ug/L		106	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000901		ug/L		90	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000947		ug/L		95	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000953		ug/L		95	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000912		ug/L		91	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.000959		ug/L		96	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.000963		ug/L		96	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000953		ug/L		95	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000956		ug/L		96	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000924		ug/L		92	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000948		ug/L		95	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000934		ug/L		93	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.000984		ug/L		98	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000935		ug/L		94	78 - 138
OCDD	0.00200	0.00191		ug/L		96	78 - 144
OCDF	0.00200	0.00195		ug/L		97	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	65		20 - 175
13C-2,3,7,8-TCDF	58		22 - 152
13C-1,2,3,7,8-PeCDD	83		21 - 227
13C-1,2,3,7,8-PeCDF	71		21 - 192
13C-2,3,4,7,8-PeCDF	70		13 - 328

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-659338/2-A
Matrix: Water
Analysis Batch: 662109

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 659338

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C-1,2,3,4,7,8-HxCDD	63		21 - 193
13C-1,2,3,6,7,8-HxCDD	62		25 - 163
13C-1,2,3,4,7,8-HxCDF	51		19 - 202
13C-1,2,3,6,7,8-HxCDF	56		21 - 159
13C-1,2,3,7,8,9-HxCDF	65		17 - 205
13C-2,3,4,6,7,8-HxCDF	61		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	78		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	63		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	72		20 - 186
13C-OCDD	78		13 - 199
13C-OCDF	71		13 - 199

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
37Cl4-2,3,7,8-TCDD	85		31 - 191

Lab Sample ID: LCSD 320-659338/3-A
Matrix: Water
Analysis Batch: 662109

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 659338

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
2,3,7,8-TCDD	0.000200	0.000197		ug/L		98	67 - 158	6	50
2,3,7,8-TCDF	0.000200	0.000218		ug/L		109	75 - 158	3	50
1,2,3,7,8-PeCDD	0.00100	0.000927		ug/L		93	70 - 142	3	50
1,2,3,7,8-PeCDF	0.00100	0.000974		ug/L		97	80 - 134	3	50
2,3,4,7,8-PeCDF	0.00100	0.000961		ug/L		96	68 - 160	1	50
1,2,3,4,7,8-HxCDD	0.00100	0.000919		ug/L		92	70 - 164	1	50
1,2,3,6,7,8-HxCDD	0.00100	0.00100		ug/L		100	76 - 134	4	50
1,2,3,7,8,9-HxCDD	0.00100	0.00101		ug/L		101	64 - 162	4	50
1,2,3,4,7,8-HxCDF	0.00100	0.000989		ug/L		99	72 - 134	4	50
1,2,3,6,7,8-HxCDF	0.00100	0.000954		ug/L		95	84 - 130	0	50
1,2,3,7,8,9-HxCDF	0.00100	0.000953		ug/L		95	78 - 130	3	50
2,3,4,6,7,8-HxCDF	0.00100	0.000958		ug/L		96	70 - 156	1	50
1,2,3,4,6,7,8-HpCDD	0.00100	0.000942		ug/L		94	70 - 140	1	50
1,2,3,4,6,7,8-HpCDF	0.00100	0.000988		ug/L		99	82 - 122	0	50
1,2,3,4,7,8,9-HpCDF	0.00100	0.000957		ug/L		96	78 - 138	2	50
OCDD	0.00200	0.00195		ug/L		97	78 - 144	2	50
OCDF	0.00200	0.00199		ug/L		99	63 - 170	2	50

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C-2,3,7,8-TCDD	77		20 - 175
13C-2,3,7,8-TCDF	70		22 - 152
13C-1,2,3,7,8-PeCDD	96		21 - 227
13C-1,2,3,7,8-PeCDF	82		21 - 192
13C-2,3,4,7,8-PeCDF	84		13 - 328
13C-1,2,3,4,7,8-HxCDD	72		21 - 193
13C-1,2,3,6,7,8-HxCDD	68		25 - 163
13C-1,2,3,4,7,8-HxCDF	57		19 - 202

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-659338/3-A

Matrix: Water

Analysis Batch: 662109

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 659338

<i>Isotope Dilution</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C-1,2,3,6,7,8-HxCDF	64		21 - 159
13C-1,2,3,7,8,9-HxCDF	75		17 - 205
13C-2,3,4,6,7,8-HxCDF	71		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	91		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	71		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	84		20 - 186
13C-OCDD	93		13 - 199
13C-OCDF	84		13 - 199

<i>Surrogate</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
37Cl4-2,3,7,8-TCDD	86		31 - 191

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-2

Specialty Organics

Prep Batch: 659338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-1	Outfall009_20230225_Comp	Total/NA	Water	1613B	
MB 320-659338/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-659338/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-659338/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 662109

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-1	Outfall009_20230225_Comp	Total/NA	Water	1613B	659338
MB 320-659338/1-A	Method Blank	Total/NA	Water	1613B	659338
LCS 320-659338/2-A	Lab Control Sample	Total/NA	Water	1613B	659338
LCSD 320-659338/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	659338

Lab Chronicle

Client: Haley & Aldrich, Inc.

Job ID: 570-129010-2

Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Client Sample ID: Outfall009_20230225_Comp

Lab Sample ID: 570-129010-1

Date Collected: 02/25/23 11:45

Matrix: Water

Date Received: 02/27/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			1047.4 mL	20.0 uL	659338	03/09/23 04:30	FC	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	662109	03/20/23 16:51	DB	EET SAC

Instrument ID: 12D5

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-23 *
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-23
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-24
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442021-12	02-28-23 *
Virginia	NELAP	460278	03-14-23 *
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129010-1	Outfall009_20230225_Comp	Water	02/25/23 11:45	02/27/23 18:00

- 1
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129010

ANALYSIS REQUIRED

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MSMSD	Total Recoverable Metals: (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.8): Ni, Zn	Gross Alpha(E900.0), Gross Beta(E900.0), Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Cyanide (SM4500-CNE / E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))	Comments
Outfall 009	Outfall009_20230225_Comp	2/25/2023 1145	WM	500 mL Poly	1	HNO ₃	95	Yes	X					X			
Outfall 009	Outfall009_20230225_Comp_F	2/25/2023 1145	WM	1 L Glass Amber	2	None	110	No			X						48 hours Holding Time NO ₂ & NO _x
Outfall 009	Outfall009_20230225_Comp_Extra	2/25/2023 1145	WM	500 mL Poly	2	None	145	No		X							Unfiltered and unpreserved analysis. Separate RAD into another workorder. Analyze duplicate, not MSMSD.
			WM	1 L Poly	1	None	185	No			X						Filter and preserve with 24hrs of receipt at lab
			WM	1L Poly	1	None	205	Yes									Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.
			WM	borosilicate vials	1	None	320	No									Hold
			WM	1 L Glass Amber	2	None	110	No		H							Hold
			WM	500 mL Poly	2	None	145	No									Hold

Legend: EP=Expert Panel, R=Routine

Retransmitted By: *W.D. [Signature]* Date/Time: 2/27/23 1800 Company: *EC*

Retransmitted By: *W.D. [Signature]* Date/Time: 2/27/23 1800 Company: *EC*

Retransmitted By: *W.D. [Signature]* Date/Time: 2/27/23 1800 Company: *EC*

Received by: *[Signature]* Date/Time: 2/27/23 1720 EC

Received by: *[Signature]* Date/Time: 2/27/23 1800 EC

Turn-around time: (Check) 24 Hour ___ 72 Hour ___ 10 Day ___ X
48 Hour ___ 5 Day ___ Normal: ___

Sample Integrity: (Check) Intact: ___ On loss: ___
Store samples for 6 months. Data Requirements: (Check) No Level IV ___ All Level IV ___ X

2.9/2.8, 2.7/2.6 SC12



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:
Client Contact: Shipping/Receiving		Patel, Virendra	Patel, Virendra	570-208633.1	570-208633.1
Company: Eurofins Environment Testing Northern Ca		Phone:	E-Mail:	State of Origin:	Page:
Address: 880 Riverside Parkway,		Virendra.Patel@eurofins.com	Virendra.Patel@eurofins.com	California	Page 1 of 1
City: West Sacramento		Due Date Requested:	Accreditations Required (See note):		
State, Zip: CA, 95605		3/15/2023	State Program - California		
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		TAT Requested (days):	Analysis Requested		
Email:			M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)		
Project Name: Boeing NPDES SSFL - Routine Outfall 009 - Comp		PO #:	Preservation Codes:		
Site:		WO #:	A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:		
Project #: 57013187		Sample Date:	Sample Time:	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=water/oil, BT=Tissue, A=Air)
SSOW#:		2/25/23	11:45 Pacific		Water
Sample Identification - Client ID (Lab ID)		Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P (MOD) Standard List w/	Totals
Outfall009_20230225_Comp (570-129010-1)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X	X
		Special Instructions/Note:	See QAS, Boeing_w/lu to zero, ug/L; Use Boeing glassware.		
		Total Number of containers			
		2			
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>					
Possible Hazard Identification					
Unconfirmed					
Deliverable Requested: I, II, III, IV, Other (specify)					
Primary Deliverable Rank: 2					
Empty Kit Relinquished by:					
Date:					
Relinquished by:					
Date/Time:					
Relinquished by:					
Date/Time:					
Relinquished by:					
Date/Time:					
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No					
Custody Seal No.:					
Cooler Temperature(s) °C and Other Remarks: 2.40					
<p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</p> <p><input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p> <p>Special Instructions/QC Requirements:</p>					
Time:					
Method of Shipment:					
Received by:					
Date/Time:					
Received by:					
Date/Time:					
Received by:					
Date/Time:					



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129010-2

Login Number: 129010

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129010-2

Login Number: 129010

List Number: 2

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 03/01/23 01:40 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.4c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129010-2

Login Number: 129010

List Number: 4

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 03/09/23 05:02 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.0c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 4/4/2023 10:54:57 AM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 009 - Comp

JOB NUMBER

570-129010-3

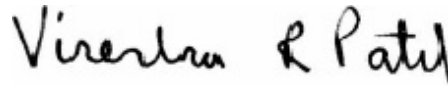
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494

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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-3

Qualifiers

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Comp

Job ID: 570-129010-3

Job ID: 570-129010-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-129010-3

Comments

No additional comments.

Receipt

The samples were received on 2/27/2023 6:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.6° C and 2.8° C.

Receipt Exceptions

The following samples were received outside of holding time for 300.0 NO₂,NO₃: Outfall009_20230225_Comp (570-129010-1) and Outfall009_20230225_Comp_Extra (570-129010-3).

RAD

Methods 900.0, 9310: Gross Alpha and Gross Beta batch 604346

The LCS recovered at (128%). The limits in our LIMS system at 75-125 reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of (72-149%) per method requirements. The LCS passes, no further action is required

(LCS 160-604346/2-A)

Methods 900.0, 9310: Gross Alpha and Gross Beta batch 604346

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230225_Comp (570-129010-1), (LCS 160-604346/2-A), (LCSB 160-604346/3-A), (MB 160-604346/1-A), (670-16310-C-2-A), (670-16310-C-2-D DU), (670-16310-C-2-B MS) and (670-16310-C-2-C MSBT)

Method 901.1: Gamma Prep Batch 160-604032

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Comp

Job ID: 570-129010-3

Job ID: 570-129010-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

**The method blank (MB) Z-score is within limits and is located in the level IV raw data.

Outfall009_20230225_Comp (570-129010-1), (570-128840-R-1-D) and (570-128840-R-1-E DU)

Method 903.0: Radium-226 batch 602356

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230225_Comp (570-129010-1), (LCS 160-602356/2-A), (LCSD 160-602356/3-A) and (MB 160-602356/1-A)

Method 904.0: Radium-228 batch 602360

The detection goal was not met for the following sample(s). Sample was prepped at a reduced volume due to the presence of matrix interferences: Outfall009_20230225_Comp (570-129010-1). Analytical results are reported with the detection limit achieved.

Method 904.0: Radium-228 batch 602360

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230225_Comp (570-129010-1), (LCS 160-602360/2-A), (LCSD 160-602360/3-A) and (MB 160-602360/1-A)

Method 905: Strontium-90 prep batch 160-603495:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230225_Comp (570-129010-1), (LCS 160-603033/2-A), (LCSD 160-603033/3-A) and (MB 160-603033/1-A)

Method 905: Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Method 906.0: Tritium 605070

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230225_Comp (570-129010-1), (LCS 160-605070/2-A), (MB 160-605070/1-A), (160-49329-A-1-A), (160-49329-A-1-B DU), (160-49329-A-2-A) and (160-49329-A-2-B MS)

Method A-01-R: Isotopic Uranium batch 604368

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230225_Comp (570-129010-1), (LCS 160-604368/2-A), (MB 160-604368/1-A), (570-129285-J-1-D) and (570-129285-J-1-E DU)

Method Evaporation:

Method ExtChrom: Uranium Prep Batch 160-604368:

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Comp

Job ID: 570-129010-3

Job ID: 570-129010-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

The following sample was prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall009_20230225_Comp (570-129010-1).

Method PrecSep_0: Radium-228 Prep Batch 160-602360

The following sample was prepared at a reduced aliquot due to Matrix: Outfall009_20230225_Comp (570-129010-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep-21: Radium-226 Prep Batch 160-602356

The following sample was prepared at a reduced aliquot due to Matrix: Outfall009_20230225_Comp (570-129010-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep-7: Strontium 90 Prep Batch 160-603033

The following sample was prepared at a reduced aliquot due to Matrix: Outfall009_20230225_Comp (570-129010-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-3

Client Sample ID: Outfall009_20230225_Comp

Lab Sample ID: 570-129010-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall009_20230225_Comp

Date Collected: 02/25/23 11:45

Date Received: 02/27/23 18:00

Lab Sample ID: 570-129010-1

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	1.96		0.947	0.973	3.00	1.19	pCi/L	03/20/23 10:44	03/28/23 08:14	1
Gross Beta	2.25		0.720	0.754	4.00	0.909	pCi/L	03/20/23 10:44	03/28/23 08:14	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall009_20230225_Comp

Lab Sample ID: 570-129010-1

Date Collected: 02/25/23 11:45

Matrix: Water

Date Received: 02/27/23 18:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	3.03	U	11.2	11.2	20.0	14.1	pCi/L	03/17/23 14:08	03/22/23 22:17	1
Potassium-40	28.9	U	122	122		172	pCi/L	03/17/23 14:08	03/22/23 22:17	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall009_20230225_Comp
Date Collected: 02/25/23 11:45
Date Received: 02/27/23 18:00

Lab Sample ID: 570-129010-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0284	U	0.139	0.139	1.00	0.268	pCi/L	03/06/23 09:11	03/29/23 21:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	43.2		30 - 110					03/06/23 09:11	03/29/23 21:59	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall009_20230225_Comp
Date Collected: 02/25/23 11:45
Date Received: 02/27/23 18:00

Lab Sample ID: 570-129010-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.46	G	0.970	0.979	1.00	1.44	pCi/L	03/06/23 09:48	03/16/23 12:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	43.2		30 - 110					03/06/23 09:48	03/16/23 12:14	1
Y Carrier	86.4		30 - 110					03/06/23 09:48	03/16/23 12:14	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall009_20230225_Comp
Date Collected: 02/25/23 11:45
Date Received: 02/27/23 18:00

Lab Sample ID: 570-129010-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.0834	U	0.353	0.353	3.00	0.659	pCi/L	03/09/23 13:03	03/17/23 18:33	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	77.5		30 - 110					03/09/23 13:03	03/17/23 18:33	1
Y Carrier	87.1		30 - 110					03/09/23 13:03	03/17/23 18:33	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall009_20230225_Comp
Date Collected: 02/25/23 11:45
Date Received: 02/27/23 18:00

Lab Sample ID: 570-129010-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	62.6	U	175	175	500	305	pCi/L	03/27/23 11:11	03/27/23 22:55	1

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- 13
- 14
- 15

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall009_20230225_Comp

Date Collected: 02/25/23 11:45

Date Received: 02/27/23 18:00

Lab Sample ID: 570-129010-1

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.193	U	0.287	0.288	1.00	0.474	pCi/L	03/20/23 12:19	03/27/23 14:38	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	79.2		30 - 110					03/20/23 12:19	03/27/23 14:38	1

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)							
570-129010-1	Outfall009_20230225_Comp	43.2							
LCS 160-602356/2-A	Lab Control Sample	87.6							
LCSD 160-602356/3-A	Lab Control Sample Dup	83.3							
MB 160-602356/1-A	Method Blank	87.6							

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)						
570-129010-1	Outfall009_20230225_Comp	43.2	86.4						
LCS 160-602360/2-A	Lab Control Sample	87.6	87.1						
LCSD 160-602360/3-A	Lab Control Sample Dup	83.3	87.1						
MB 160-602360/1-A	Method Blank	87.6	87.9						

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Sr (30-110)	Y (30-110)						
570-129010-1	Outfall009_20230225_Comp	77.5	87.1						
LCS 160-603033/2-A	Lab Control Sample	79.1	82.2						
LCSD 160-603033/3-A	Lab Control Sample Dup	80.1	82.2						
MB 160-603033/1-A	Method Blank	87.1	81.1						

Tracer/Carrier Legend

Sr = Sr Carrier

Y = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	U-232 (30-110)							
570-129010-1	Outfall009_20230225_Comp	79.2							
LCS 160-604368/2-A	Lab Control Sample	93.0							
MB 160-604368/1-A	Method Blank	90.9							

Tracer/Carrier Legend

U-232 = Uranium-232

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-604346/1-A
Matrix: Water
Analysis Batch: 604975

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604346

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)				Time	Time	Time	Time	
Gross Alpha	0.1540	U	0.611	0.611	3.00	1.12	pCi/L	03/20/23 10:44	03/24/23 07:23			1
Gross Beta	0.1337	U	0.489	0.489	4.00	0.852	pCi/L	03/20/23 10:44	03/24/23 07:23			1

Lab Sample ID: LCS 160-604346/2-A
Matrix: Water
Analysis Batch: 604975

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604346

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Alpha	50.5	64.53		9.27	3.00	2.86	pCi/L	128	75 - 125

Lab Sample ID: LCSB 160-604346/3-A
Matrix: Water
Analysis Batch: 604974

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604346

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Beta	73.5	70.28		7.55	4.00	0.889	pCi/L	96	75 - 125

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-604032/1-A
Matrix: Water
Analysis Batch: 604760

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604032

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)				Time	Time	Time	Time	
Cesium-137	-0.4655	U	10.3	10.3	20.0	12.1	pCi/L	03/17/23 14:08	03/22/23 19:49			1
Potassium-40	12.53	U	78.9	78.9		135	pCi/L	03/17/23 14:08	03/22/23 19:49			1

Lab Sample ID: LCS 160-604032/2-A
Matrix: Water
Analysis Batch: 604760

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604032

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Americium-241	135000	143200		17000		415	pCi/L	106	75 - 125
Cesium-137	40900	41780		4980	20.0	92.9	pCi/L	102	75 - 125
Cobalt-60	17800	18360		2190		50.3	pCi/L	103	75 - 125

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-3

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-602356/1-A
Matrix: Water
Analysis Batch: 605412

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602356

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.03827	U	0.0641	0.0642	1.00	0.111	pCi/L	03/06/23 09:11	03/29/23 20:10	1
Carrier	MB MB		Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier								
Ba Carrier	87.6		30 - 110			03/06/23 09:11	03/29/23 20:10	1		

Lab Sample ID: LCS 160-602356/2-A
Matrix: Water
Analysis Batch: 605412

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602356

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	11.79		1.20	1.00	0.118	pCi/L	104	75 - 125
Carrier	LCS LCS		Limits			Prepared	Analyzed	Dil Fac	
	%Yield	Qualifier							
Ba Carrier	87.6		30 - 110						

Lab Sample ID: LCSD 160-602356/3-A
Matrix: Water
Analysis Batch: 605412

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602356

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
				Uncert. (2σ+/-)							
Radium-226	11.3	11.01		1.14	1.00	0.107	pCi/L	97	75 - 125	0.33	1
Carrier	LCSD LCSD		Limits			Prepared	Analyzed	Dil Fac			
	%Yield	Qualifier									
Ba Carrier	83.3		30 - 110								

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-602360/1-A
Matrix: Water
Analysis Batch: 603871

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602360

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.2985	U	0.293	0.294	1.00	0.468	pCi/L	03/06/23 09:48	03/16/23 12:10	1
Carrier	MB MB		Limits			Prepared	Analyzed	Dil Fac		
	%Yield	Qualifier								
Ba Carrier	87.6		30 - 110			03/06/23 09:48	03/16/23 12:10	1		
Y Carrier	87.9		30 - 110			03/06/23 09:48	03/16/23 12:10	1		

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-3

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-602360/2-A
Matrix: Water
Analysis Batch: 603871

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602360

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-228	8.11	8.303		1.17	1.00	0.455	pCi/L	102	75 - 125	
LCS LCS										
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	87.6		30 - 110							
Y Carrier	87.1		30 - 110							

Lab Sample ID: LCSD 160-602360/3-A
Matrix: Water
Analysis Batch: 603871

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602360

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		RER	RER Limit
											0.36	1
Radium-228	8.11	9.182		1.28	1.00	0.521	pCi/L	113	75 - 125	0.36	1	
LCSD LCSD												
Carrier	%Yield	Qualifier	Limits									
Ba Carrier	83.3		30 - 110									
Y Carrier	87.1		30 - 110									

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-603033/1-A
Matrix: Water
Analysis Batch: 604031

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 603033

Analyte	MB MB		Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier						03/09/23 13:03	03/17/23 18:29	03/17/23 18:29	18:29	
Strontium-90	-0.1395	U	0.149	0.149	3.00	0.303	pCi/L	03/09/23 13:03	03/17/23 18:29	03/17/23 18:29	18:29	1
MB MB												
Carrier	%Yield	Qualifier	Limits		Prepared		Analyzed		Dil Fac			
Sr Carrier	87.1		30 - 110		03/09/23 13:03		03/17/23 18:29		1			
Y Carrier	81.1		30 - 110		03/09/23 13:03		03/17/23 18:29		1			

Lab Sample ID: LCS 160-603033/2-A
Matrix: Water
Analysis Batch: 604031

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 603033

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Strontium-90	7.35	6.881		0.800	3.00	0.299	pCi/L	94	75 - 125	
LCS LCS										
Carrier	%Yield	Qualifier	Limits							
Sr Carrier	79.1		30 - 110							
Y Carrier	82.2		30 - 110							

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-3

Method: 905 - Strontium-90 (GFPC) (Continued)

Lab Sample ID: LCSD 160-603033/3-A
 Matrix: Water
 Analysis Batch: 604031

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 603033

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec		RER	Limit
									Limits	RER		
Strontium-90	7.35	7.495		0.858	3.00	0.360	pCi/L	102	75 - 125	0.37	1	
Carrier	LCSD %Yield	LCSD Qualifier	Limits									
Sr Carrier	80.1		30 - 110									
Y Carrier	82.2		30 - 110									

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-605070/1-A
 Matrix: Water
 Analysis Batch: 605427

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 605070

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac

Lab Sample ID: LCS 160-605070/2-A
 Matrix: Water
 Analysis Batch: 605427

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 605070

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec	
									Limits	RER
Tritium	2100	1848		360	500	314	pCi/L	88	75 - 125	

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-604368/1-A
 Matrix: Water
 Analysis Batch: 605170

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 604368

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tracer	MB %Yield	MB Qualifier	Limits							
Uranium-232	90.9		30 - 110							

Lab Sample ID: LCS 160-604368/2-A
 Matrix: Water
 Analysis Batch: 605172

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 604368

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec	
									Limits	RER
Uranium-234	12.7	11.77		1.40	1.00	0.159	pCi/L	92	75 - 125	
Uranium-238	13.0	13.98		1.59	1.00	0.126	pCi/L	107	75 - 125	

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QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-3

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: LCS 160-604368/2-A
Matrix: Water
Analysis Batch: 605172

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604368

<i>Tracer</i>	<i>LCS</i>	<i>LCS</i>	<i>Limits</i>
	<i>%Yield</i>	<i>Qualifier</i>	
Uranium-232	93.0		30 - 110

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-3

Rad

Prep Batch: 602356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-1	Outfall009_20230225_Comp	Total/NA	Water	PrecSep-21	
MB 160-602356/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-602356/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-602356/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 602360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-1	Outfall009_20230225_Comp	Total/NA	Water	PrecSep_0	
MB 160-602360/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-602360/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-602360/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 603033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-1	Outfall009_20230225_Comp	Total/NA	Water	PrecSep-7	
MB 160-603033/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-603033/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
LCSD 160-603033/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-7	

Prep Batch: 604032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-1	Outfall009_20230225_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-604032/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-604032/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	

Prep Batch: 604346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-1	Outfall009_20230225_Comp	Total/NA	Water	Evaporation	
MB 160-604346/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-604346/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-604346/3-A	Lab Control Sample	Total/NA	Water	Evaporation	

Prep Batch: 604368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-1	Outfall009_20230225_Comp	Total/NA	Water	ExtChrom	
MB 160-604368/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-604368/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	

Prep Batch: 605070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129010-1	Outfall009_20230225_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-605070/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-605070/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-3

Client Sample ID: Outfall009_20230225_Comp

Lab Sample ID: 570-129010-1

Date Collected: 02/25/23 11:45

Matrix: Water

Date Received: 02/27/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200 mL	1.0 g	604346	03/20/23 10:44	MST	EET SL
Total/NA	Analysis	900.0		1			605256	03/28/23 08:14	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	604032	03/17/23 14:08	SEH	EET SL
Total/NA	Analysis	901.1		1			604756	03/22/23 22:17	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			747.12 mL	1.0 g	602356	03/06/23 09:11	DJP	EET SL
Total/NA	Analysis	903.0		1			605412	03/29/23 21:59	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	PrecSep_0			747.12 mL	1.0 g	602360	03/06/23 09:48	DJP	EET SL
Total/NA	Analysis	904.0		1			603870	03/16/23 12:14	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep-7			500.36 mL	1.0 g	603033	03/09/23 13:03	DJP	EET SL
Total/NA	Analysis	905		1			604030	03/17/23 18:33	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	LSC_Dist_Susp			99.15 mL	1.0 g	605070	03/27/23 11:11	SEH	EET SL
Total/NA	Analysis	906.0		1			605427	03/27/23 22:55	REV	EET SL
Instrument ID: LSC3180										
Total/NA	Prep	ExtChrom			195.10 mL	1.0 mL	604368	03/20/23 12:19	MAL	EET SL
Total/NA	Analysis	A-01-R		1			605177	03/27/23 14:38	FLC	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129010-3

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	03-29-23
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	06-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-3

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129010-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129010-1	Outfall009_20230225_Comp	Water	02/25/23 11:45	02/27/23 18:00

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129010



570-129010 Chain of Custody

CHAIN OF CUSTODY FORM

Eurofins Calscience Irvine

Client Name/Address:		Project		ANALYSIS REQUIRED										Comments		
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108 Eurofins Calscience Irvine Contact: Christian Bondoc 17461 Derian Ave Suite #100 Irvine CA 92614 Tel: 949-260-3218 ECI #57013187		Boeing-SSFL NPDES Permit 2023 Routine Outfall 1003-007 009 010 Outfall 009 Comp		Project Manager: Katherine Miller 520.289.8606; 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033; 818.599.0702 (cell)												
Sample Description	Sample Matrix	Sampling Date/Time	Container Type	Preservative	Botte #	MSMSD	Total Recoverable Metals: (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	TCDD (and all congeners) (E161B) (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Tl	Cr, SO ₄ , NO ₃ -N (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.8): Ni, Zn	Gross Alpha(E900.0), Gross Beta(E900.0), Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Cyanide (SM4500-CNE / E395.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))
Outfall009_20230225_Comp	WM	2/25/2023 1145	500 mL Poly	HNO ₃	95	Yes	X	X	X							
Outfall009_20230225_Comp_F	WM	2/25/2023 1145	1 L Glass Amber	None	110	No				X						
Outfall009_20230225_Comp_Extra	WM	2/25/2023 1145	500 mL Poly	None	145	No										
	WM		500 mL Poly	None	155	No										
	WM		500 mL Poly	NaOH	220	No					X					
	WM		2.5 Gal Cube	None	225	No										
	WM		1 L Glass Amber	None	230	No										
	WM		1 L Poly	None	185	No										
	WM		1L Poly	None	205	Yes				X						
	WM		borosilicate vials	None	320	No								X		
	WM		1 L Glass Amber	None	110	No										
	WM		500 mL Poly	None	145	No			H							

Legend: EP=Expert Panel, R=Routine

Received by: *[Signature]* Date/Time: 2/27/23 12:00 EC
 Received by: *[Signature]* Date/Time: EC 2-27-23 18:00
 Requisitioned by: *[Signature]* Date/Time: 2/27/23 1800 Company: *[Signature]*
 Requisitioned by: *[Signature]* Date/Time: 2/27/23 1800 Company: *[Signature]*

Turn-around time: (Check)
 24 Hour _____ 72 Hour _____ 10 Day: _____ X
 48 Hour _____ 5 Day _____ Normal: _____

Sample Integrity: (Check)
 Intact: _____ On Ice: _____
 Store samples for 6 months: _____
 Data Requirements: (Check)
 No Level IV: _____ All Level IV: _____ X

2.9/2.8, 2.7/2.6 SC12



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129010-3

Login Number: 129010

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129010-3

Login Number: 129010

List Number: 3

Creator: Booker, Autumn R

List Source: Eurofins St. Louis

List Creation: 03/02/23 12:00 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 3/12/2023 10:54:15 AM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 009 - Grab

JOB NUMBER

570-129851-1

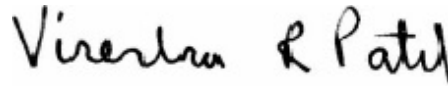
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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3/12/2023 10:54:15 AM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Sample Summary	13
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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-129851-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grab

Job ID: 570-129851-1

Job ID: 570-129851-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-129851-1

Comments

No additional comments.

Receipt

The samples were received on 3/6/2023 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.7° C.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 1664A: The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-310236.

Method: 1664.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Job ID: 570-129851-1

Client Sample ID: Outfall009_20230304_Grab

Lab Sample ID: 570-129851-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Job ID: 570-129851-1

General Chemistry

Client Sample ID: Outfall009_20230304_Grab
Date Collected: 03/04/23 07:10
Date Received: 03/06/23 17:00

Lab Sample ID: 570-129851-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease (1664A)	ND		0.98	0.50	mg/L		03/09/23 10:10	03/10/23 07:51	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Job ID: 570-129851-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-310236/1-A
Matrix: Water
Analysis Batch: 310507

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 310236

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	ND		1.0	0.51	mg/L		03/09/23 10:10	03/10/23 07:51	1

Lab Sample ID: LCS 570-310236/2-A
Matrix: Water
Analysis Batch: 310507

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 310236

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM: Oil and Grease	40.0	37.3		mg/L		93	78 - 114

Lab Sample ID: LCSD 570-310236/3-A
Matrix: Water
Analysis Batch: 310507

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 310236

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	38.7		mg/L		97	78 - 114	4	18

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Job ID: 570-129851-1

General Chemistry

Prep Batch: 310236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129851-1	Outfall009_20230304_Grab	Total/NA	Water	1664A	
MB 570-310236/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-310236/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-310236/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 310507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129851-1	Outfall009_20230304_Grab	Total/NA	Water	1664A	310236
MB 570-310236/1-A	Method Blank	Total/NA	Water	1664A	310236
LCS 570-310236/2-A	Lab Control Sample	Total/NA	Water	1664A	310236
LCSD 570-310236/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	310236

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Job ID: 570-129851-1

Client Sample ID: Outfall009_20230304_Grab

Lab Sample ID: 570-129851-1

Date Collected: 03/04/23 07:10

Matrix: Water

Date Received: 03/06/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1664A			1020 mL	1000 mL	310236	03/09/23 10:10	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			310507	03/10/23 07:51	L6IE	EET CAL 4

Instrument ID: NO EQUIQ

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

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Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Job ID: 570-129851-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129851-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Grab

Job ID: 570-129851-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129851-1	Outfall009_20230304_Grab	Water	03/04/23 07:10	03/06/23 17:00

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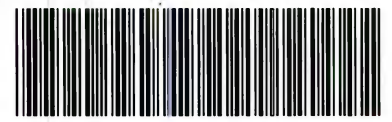
129851

CHAIN OF CUSTODY FORM

EDBPTGLX

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [003-007, 009, 010] Outfall 009 Grab					ANALYSIS REQUIRED										Field Readings		Meter serial #
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187									Oil & Grease (E1864A-HEM)										Field Readings: (Include units)		
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement # 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.																			Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Time of Readings: <u>0710</u>
Sampler: Adrian Mobeka				Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)					Field readings QC		Checked by: <u>[Signature]</u>		Date/Time: <u>3-7-2023/0710</u>		Comments						
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD													
Outfall 009	Outfall009_20230304_Grab	3/4/2023 / 0710	WM	1 L Glass Amber	2	HCl	15	No	X												
	Outfall009_20230304_Grab_Extra	3/4/2023 / 0710	WM	1 L Glass Amber	2	HCl	15	No	H									Hold			

Relinquished By: <u>[Signature]</u> Date/Time: <u>3-6-2023/1355</u> Company: <u>H:A</u>			Received By: <u>[Signature]</u> Date/Time: <u>3/6/23 1355</u> EC			Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u>X</u> 48 Hour: _____ 5 Day: _____ Normal: _____		
Relinquished By: <u>[Signature]</u> Date/Time: <u>3/6/23 1700</u> EC			Received By: <u>[Signature]</u> Date/Time: <u>3/6/23 1700</u>			Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u>X</u>		



570-129851 Chain of Custody

1.7/1.7 SC11

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129851-1

Login Number: 129851

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 3/22/2023 6:21:29 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 009 - Comp

JOB NUMBER

570-129959-1

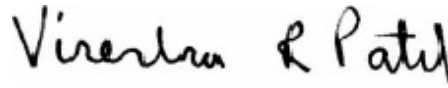
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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129959-1

Qualifiers

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)
LQ	LCS/LCSD recovery above method control limits
MB	Analyte present in the method blank

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Comp

Job ID: 570-129959-1

Job ID: 570-129959-1

Laboratory: Eurofins Calscience

Narrative

**Job Narrative
570-129959-1**

Comments

No additional comments.

Receipt

The samples were received on 3/6/2023 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.1° C and 2.4° C.

Receipt Exceptions

The reference method requires samples to have a pH of <2. The following samples were received with a pH of 7: <Affected Samples>. The samples were adjusted to the appropriate pH in the laboratory.

HPLC/IC

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

Method 200.8: The method blank for preparation batch 570-309651 and analytical batch 570-309903 contained Antimony above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 245.1: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 570-309760 and analytical batch 570-310041 recovered outside control limits for Mercury . These analytes were biased high in the LCS/LCSD and were not detected in the associated samples; therefore, the data have been reported.

Method 245.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-309760 and analytical batch 570-310041 were outside control limits for one or more analytes, see QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall009_20230305_Comp_F (570-129959-2). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

Method Kelada 01: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 570-312131 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-1

Client Sample ID: Outfall009_20230305_Comp

Lab Sample ID: 570-129959-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6.8		1.0	0.36	mg/L	1		300.0	Total/NA
Sulfate	10		1.0	0.24	mg/L	1		300.0	Total/NA
Nitrate Nitrite as N	0.79		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Antimony	1.9	J,DX	2.0	0.36	ug/L	1		200.8	Total Recoverable
Copper	2.4		2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	0.17	J,DX	1.0	0.12	ug/L	1		200.8	Total Recoverable
Nickel	1.6	J,DX	2.0	0.17	ug/L	1		200.8	Total Recoverable
Silver	0.28	J,DX	1.0	0.23	ug/L	1		200.8	Total Recoverable
Zinc	3.1	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Total Dissolved Solids	130		10	8.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: Outfall009_20230305_Comp_F

Lab Sample ID: 570-129959-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	4.2	BU MB	2.0	0.36	ug/L	1		200.8	Dissolved
Copper	2.2	BU	2.0	0.32	ug/L	1		200.8	Dissolved
Lead	0.49	J,DX BU	1.0	0.12	ug/L	1		200.8	Dissolved
Nickel	1.5	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Silver	0.43	J,DX BU	1.0	0.23	ug/L	1		200.8	Dissolved
Zinc	4.4	J,DX BU	20	2.8	ug/L	1		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129959-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall009_20230305_Comp

Date Collected: 03/05/23 07:30

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129959-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.8		1.0	0.36	mg/L			03/07/23 05:37	1
Sulfate	10		1.0	0.24	mg/L			03/07/23 05:37	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129959-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall009_20230305_Comp

Lab Sample ID: 570-129959-1

Date Collected: 03/05/23 07:30

Matrix: Water

Date Received: 03/06/23 17:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.79		0.10	0.020	mg/L			03/10/23 16:06	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-129959-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall009_20230305_Comp

Lab Sample ID: 570-129959-1

Date Collected: 03/05/23 07:30

Matrix: Water

Date Received: 03/06/23 17:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.9	J,DX	2.0	0.36	ug/L		03/07/23 09:05	03/07/23 12:55	1
Cadmium	ND		1.0	0.13	ug/L		03/07/23 09:05	03/07/23 12:55	1
Copper	2.4		2.0	0.32	ug/L		03/07/23 09:05	03/07/23 12:55	1
Lead	0.17	J,DX	1.0	0.12	ug/L		03/07/23 09:05	03/07/23 12:55	1
Nickel	1.6	J,DX	2.0	0.17	ug/L		03/07/23 09:05	03/07/23 12:55	1
Selenium	ND		2.0	0.52	ug/L		03/07/23 09:05	03/07/23 12:55	1
Silver	0.28	J,DX	1.0	0.23	ug/L		03/07/23 09:05	03/07/23 12:55	1
Thallium	ND		1.0	0.11	ug/L		03/07/23 09:05	03/07/23 12:55	1
Zinc	3.1	J,DX	20	2.8	ug/L		03/07/23 09:05	03/07/23 12:55	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129959-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall009_20230305_Comp_F

Date Collected: 03/05/23 07:30

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129959-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	4.2	BU MB	2.0	0.36	ug/L			03/08/23 10:29	1
Cadmium	ND	BU	1.0	0.13	ug/L			03/08/23 10:29	1
Copper	2.2	BU	2.0	0.32	ug/L			03/08/23 10:29	1
Lead	0.49	J,DX BU	1.0	0.12	ug/L			03/08/23 10:29	1
Nickel	1.5	J,DX BU	2.0	0.17	ug/L			03/08/23 10:29	1
Selenium	ND	BU	2.0	0.52	ug/L			03/08/23 10:29	1
Silver	0.43	J,DX BU	1.0	0.23	ug/L			03/08/23 10:29	1
Thallium	ND	BU	1.0	0.11	ug/L			03/08/23 10:29	1
Zinc	4.4	J,DX BU	20	2.8	ug/L			03/08/23 10:29	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129959-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall009_20230305_Comp

Date Collected: 03/05/23 07:30

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129959-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	LQ	0.20	0.12	ug/L		03/07/23 21:21	03/08/23 17:16	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129959-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall009_20230305_Comp_F

Date Collected: 03/05/23 07:30

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129959-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU	0.20	0.12	ug/L		03/06/23 18:07	03/07/23 14:08	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129959-1

General Chemistry

Client Sample ID: Outfall009_20230305_Comp

Date Collected: 03/05/23 07:30

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129959-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			03/14/23 19:36	1
Total Dissolved Solids (SM 2540C)	130		10	8.7	mg/L			03/09/23 18:08	1
Total Suspended Solids (SM 2540D)	ND		1.0	0.83	mg/L			03/09/23 11:52	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-309420/5
Matrix: Water
Analysis Batch: 309420

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			03/07/23 03:09	1
Sulfate	ND		1.0	0.24	mg/L			03/07/23 03:09	1

Lab Sample ID: LCS 570-309420/6
Matrix: Water
Analysis Batch: 309420

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	48.3		mg/L		97	90 - 110
Sulfate	50.0	49.1		mg/L		98	90 - 110

Lab Sample ID: LCSD 570-309420/7
Matrix: Water
Analysis Batch: 309420

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	48.3		mg/L		97	90 - 110	0	15
Sulfate	50.0	49.1		mg/L		98	90 - 110	0	15

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-309505/1-A
Matrix: Water
Analysis Batch: 309648

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 309505

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.36	ug/L		03/07/23 09:05	03/07/23 12:49	1
Cadmium	ND		1.0	0.13	ug/L		03/07/23 09:05	03/07/23 12:49	1
Copper	ND		2.0	0.32	ug/L		03/07/23 09:05	03/07/23 12:49	1
Lead	ND		1.0	0.12	ug/L		03/07/23 09:05	03/07/23 12:49	1
Nickel	ND		2.0	0.17	ug/L		03/07/23 09:05	03/07/23 12:49	1
Selenium	ND		2.0	0.52	ug/L		03/07/23 09:05	03/07/23 12:49	1
Silver	ND		1.0	0.23	ug/L		03/07/23 09:05	03/07/23 12:49	1
Thallium	ND		1.0	0.11	ug/L		03/07/23 09:05	03/07/23 12:49	1
Zinc	ND		20	2.8	ug/L		03/07/23 09:05	03/07/23 12:49	1

Lab Sample ID: LCS 570-309505/2-A
Matrix: Water
Analysis Batch: 309648

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 309505

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	80.0	80.5		ug/L		101	85 - 115
Cadmium	80.0	80.2		ug/L		100	85 - 115
Copper	80.0	82.3		ug/L		103	85 - 115
Lead	80.0	80.4		ug/L		100	85 - 115
Nickel	80.0	81.7		ug/L		102	85 - 115
Selenium	80.0	72.1		ug/L		90	85 - 115
Silver	80.0	82.2		ug/L		103	85 - 115
Thallium	80.0	80.2		ug/L		100	85 - 115

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 570-309505/2-A
Matrix: Water
Analysis Batch: 309648

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 309505

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Zinc	80.0	75.7		ug/L		95	85 - 115

Lab Sample ID: LCSD 570-309505/3-A
Matrix: Water
Analysis Batch: 309648

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 309505

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	80.0	79.5		ug/L		99	85 - 115	1	20
Cadmium	80.0	78.9		ug/L		99	85 - 115	2	20
Copper	80.0	80.7		ug/L		101	85 - 115	2	20
Lead	80.0	78.9		ug/L		99	85 - 115	2	20
Nickel	80.0	79.7		ug/L		100	85 - 115	2	20
Selenium	80.0	71.1		ug/L		89	85 - 115	1	20
Silver	80.0	81.5		ug/L		102	85 - 115	1	20
Thallium	80.0	77.8		ug/L		97	85 - 115	3	20
Zinc	80.0	74.5		ug/L		93	85 - 115	2	20

Lab Sample ID: 570-129959-1 MS
Matrix: Water
Analysis Batch: 309648

Client Sample ID: Outfall009_20230305_Comp
Prep Type: Total Recoverable
Prep Batch: 309505

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	1.9	J,DX	80.0	78.1		ug/L		95	80 - 120
Cadmium	ND		80.0	72.6		ug/L		91	80 - 120
Copper	2.4		80.0	77.4		ug/L		94	80 - 120
Lead	0.17	J,DX	80.0	72.0		ug/L		90	80 - 120
Nickel	1.6	J,DX	80.0	74.6		ug/L		91	80 - 120
Selenium	ND		80.0	66.5		ug/L		83	80 - 120
Silver	0.28	J,DX	80.0	73.2		ug/L		91	80 - 120
Thallium	ND		80.0	72.3		ug/L		90	80 - 120
Zinc	3.1	J,DX	80.0	71.1		ug/L		85	80 - 120

Lab Sample ID: 570-129959-1 MSD
Matrix: Water
Analysis Batch: 309648

Client Sample ID: Outfall009_20230305_Comp
Prep Type: Total Recoverable
Prep Batch: 309505

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	1.9	J,DX	80.0	77.4		ug/L		94	80 - 120	1	20
Cadmium	ND		80.0	71.6		ug/L		89	80 - 120	1	20
Copper	2.4		80.0	75.1		ug/L		91	80 - 120	3	20
Lead	0.17	J,DX	80.0	70.2		ug/L		88	80 - 120	3	20
Nickel	1.6	J,DX	80.0	72.4		ug/L		88	80 - 120	3	20
Selenium	ND		80.0	64.3		ug/L		80	80 - 120	3	20
Silver	0.28	J,DX	80.0	73.9		ug/L		92	80 - 120	1	20
Thallium	ND		80.0	69.7		ug/L		87	80 - 120	4	20
Zinc	3.1	J,DX	80.0	69.4		ug/L		83	80 - 120	2	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 570-309651/1-A
Matrix: Water
Analysis Batch: 309903

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.739	J,DX	2.0	0.36	ug/L			03/08/23 09:45	1
Cadmium	ND		1.0	0.13	ug/L			03/08/23 09:45	1
Copper	ND		2.0	0.32	ug/L			03/08/23 09:45	1
Lead	ND		1.0	0.12	ug/L			03/08/23 09:45	1
Nickel	ND		2.0	0.17	ug/L			03/08/23 09:45	1
Selenium	ND		2.0	0.52	ug/L			03/08/23 09:45	1
Silver	ND		1.0	0.23	ug/L			03/08/23 09:45	1
Thallium	ND		1.0	0.11	ug/L			03/08/23 09:45	1
Zinc	ND		20	2.8	ug/L			03/08/23 09:45	1

Lab Sample ID: LCS 570-309651/2-A
Matrix: Water
Analysis Batch: 309903

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	80.0	74.3		ug/L		93	85 - 115
Cadmium	80.0	80.5		ug/L		101	85 - 115
Copper	80.0	78.8		ug/L		98	85 - 115
Lead	80.0	79.5		ug/L		99	85 - 115
Nickel	80.0	79.5		ug/L		99	85 - 115
Selenium	80.0	81.4		ug/L		102	85 - 115
Silver	80.0	79.6		ug/L		100	85 - 115
Thallium	80.0	80.3		ug/L		100	85 - 115
Zinc	80.0	78.2		ug/L		98	85 - 115

Lab Sample ID: LCSD 570-309651/3-A
Matrix: Water
Analysis Batch: 309903

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	80.0	78.2		ug/L		98	85 - 115	5	20
Cadmium	80.0	79.9		ug/L		100	85 - 115	1	20
Copper	80.0	79.7		ug/L		100	85 - 115	1	20
Lead	80.0	79.7		ug/L		100	85 - 115	0	20
Nickel	80.0	80.2		ug/L		100	85 - 115	1	20
Selenium	80.0	82.5		ug/L		103	85 - 115	1	20
Silver	80.0	80.1		ug/L		100	85 - 115	1	20
Thallium	80.0	79.8		ug/L		100	85 - 115	1	20
Zinc	80.0	78.9		ug/L		99	85 - 115	1	20

Lab Sample ID: 570-129959-2 MS
Matrix: Water
Analysis Batch: 309903

Client Sample ID: Outfall009_20230305_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	4.2	BU MB	80.0	76.9	BU	ug/L		91	80 - 120
Cadmium	ND	BU	80.0	76.5	BU	ug/L		96	80 - 120
Copper	2.2	BU	80.0	77.4	BU	ug/L		94	80 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-129959-2 MS
Matrix: Water
Analysis Batch: 309903

Client Sample ID: Outfall009_20230305_Comp_F
Prep Type: Dissolved

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Result	Qualifier					
Lead	0.49	J,DX BU	80.0	75.6	BU	ug/L		94	80 - 120	
Nickel	1.5	J,DX BU	80.0	76.1	BU	ug/L		93	80 - 120	
Selenium	ND	BU	80.0	77.7	BU	ug/L		97	80 - 120	
Silver	0.43	J,DX BU	80.0	76.0	BU	ug/L		94	80 - 120	
Thallium	ND	BU	80.0	76.1	BU	ug/L		95	80 - 120	
Zinc	4.4	J,DX BU	80.0	75.9	BU	ug/L		89	80 - 120	

Lab Sample ID: 570-129959-2 MSD
Matrix: Water
Analysis Batch: 309903

Client Sample ID: Outfall009_20230305_Comp_F
Prep Type: Dissolved

Analyte	Sample	Sample	Spike	MSD		Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier							
Antimony	4.2	BU MB	80.0	76.6	BU	ug/L		91	80 - 120	0	20	
Cadmium	ND	BU	80.0	73.5	BU	ug/L		92	80 - 120	4	20	
Copper	2.2	BU	80.0	76.5	BU	ug/L		93	80 - 120	1	20	
Lead	0.49	J,DX BU	80.0	73.5	BU	ug/L		91	80 - 120	3	20	
Nickel	1.5	J,DX BU	80.0	74.7	BU	ug/L		91	80 - 120	2	20	
Selenium	ND	BU	80.0	75.1	BU	ug/L		94	80 - 120	3	20	
Silver	0.43	J,DX BU	80.0	74.5	BU	ug/L		93	80 - 120	2	20	
Thallium	ND	BU	80.0	74.4	BU	ug/L		93	80 - 120	2	20	
Zinc	4.4	J,DX BU	80.0	74.5	BU	ug/L		88	80 - 120	2	20	

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-309760/1-A
Matrix: Water
Analysis Batch: 310041

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 309760

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil
	Result	Qualifier							
Mercury	ND		0.20	0.12	ug/L		03/07/23 21:21	03/08/23 17:06	1

Lab Sample ID: LCS 570-309760/2-A
Matrix: Water
Analysis Batch: 310041

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 309760

Analyte	Spike	LCS		Unit	D	%Rec	%Rec	Limits
		Result	Qualifier					
Mercury	8.00	9.39	LQ	ug/L		117	85 - 115	

Lab Sample ID: LCSD 570-309760/3-A
Matrix: Water
Analysis Batch: 310041

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 309760

Analyte	Spike	LCSD		Unit	D	%Rec	%Rec	Limits	RPD	Limit
		Result	Qualifier							
Mercury	8.00	9.54	LQ	ug/L		119	85 - 115	2	10	

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 570-129959-1 MS
Matrix: Water
Analysis Batch: 310041

Client Sample ID: Outfall009_20230305_Comp
Prep Type: Total/NA
Prep Batch: 309760

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND	LQ	8.00	9.45	LM	ug/L		118	85 - 115

Lab Sample ID: 570-129959-1 MSD
Matrix: Water
Analysis Batch: 310041

Client Sample ID: Outfall009_20230305_Comp
Prep Type: Total/NA
Prep Batch: 309760

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	ND	LQ	8.00	9.51	LM	ug/L		119	85 - 115	1	10

Lab Sample ID: MB 570-309367/1-B
Matrix: Water
Analysis Batch: 309665

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 309368

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/06/23 18:07	03/07/23 13:11	1

Lab Sample ID: LCS 570-309367/2-B
Matrix: Water
Analysis Batch: 309665

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 309368

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.47		ug/L		106	85 - 115

Lab Sample ID: LCSD 570-309367/3-B
Matrix: Water
Analysis Batch: 309665

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 309368

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	8.00	8.40		ug/L		105	85 - 115	1	10

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-312131/14
Matrix: Water
Analysis Batch: 312131

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			03/14/23 19:36	1

Lab Sample ID: LCS 570-312131/16
Matrix: Water
Analysis Batch: 312131

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	252		ug/L		101	90 - 110

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-1

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate (Continued)

Lab Sample ID: LCSD 570-312131/17
 Matrix: Water
 Analysis Batch: 312131

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	250	266		ug/L		107	90 - 110	5	20

Lab Sample ID: MRL 570-312131/13
 Matrix: Water
 Analysis Batch: 312131

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	5.00	6.06		ug/L		121	50 - 150

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-310438/1
 Matrix: Water
 Analysis Batch: 310438

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			03/09/23 18:08	1

Lab Sample ID: LCS 570-310438/2
 Matrix: Water
 Analysis Batch: 310438

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	994		mg/L		99	84 - 108

Lab Sample ID: LCSD 570-310438/3
 Matrix: Water
 Analysis Batch: 310438

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1000		mg/L		100	84 - 108	1	10

Lab Sample ID: 570-129959-1 DU
 Matrix: Water
 Analysis Batch: 310438

Client Sample ID: Outfall009_20230305_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	130		137		mg/L		3	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-310278/1
 Matrix: Water
 Analysis Batch: 310278

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			03/09/23 11:52	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCS 570-310278/2
Matrix: Water
Analysis Batch: 310278

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	97.0		mg/L		97	77 - 116

Lab Sample ID: LCSD 570-310278/3
Matrix: Water
Analysis Batch: 310278

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	96.0		mg/L		96	77 - 116	1	10



QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-1

HPLC/IC

Analysis Batch: 309420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-1	Outfall009_20230305_Comp	Total/NA	Water	300.0	
MB 570-309420/5	Method Blank	Total/NA	Water	300.0	
LCS 570-309420/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-309420/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 310704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-1	Outfall009_20230305_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Filtration Batch: 309367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-2	Outfall009_20230305_Comp_F	Dissolved	Water	Filtration	
MB 570-309367/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-309367/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-309367/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	

Prep Batch: 309368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-2	Outfall009_20230305_Comp_F	Dissolved	Water	245.1	309367
MB 570-309367/1-B	Method Blank	Dissolved	Water	245.1	309367
LCS 570-309367/2-B	Lab Control Sample	Dissolved	Water	245.1	309367
LCSD 570-309367/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	309367

Prep Batch: 309505

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-1	Outfall009_20230305_Comp	Total Recoverable	Water	200.8	
MB 570-309505/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-309505/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-309505/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-129959-1 MS	Outfall009_20230305_Comp	Total Recoverable	Water	200.8	
570-129959-1 MSD	Outfall009_20230305_Comp	Total Recoverable	Water	200.8	

Analysis Batch: 309648

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-1	Outfall009_20230305_Comp	Total Recoverable	Water	200.8	309505
MB 570-309505/1-A	Method Blank	Total Recoverable	Water	200.8	309505
LCS 570-309505/2-A	Lab Control Sample	Total Recoverable	Water	200.8	309505
LCSD 570-309505/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	309505
570-129959-1 MS	Outfall009_20230305_Comp	Total Recoverable	Water	200.8	309505
570-129959-1 MSD	Outfall009_20230305_Comp	Total Recoverable	Water	200.8	309505

Filtration Batch: 309651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-2	Outfall009_20230305_Comp_F	Dissolved	Water	Filtration	
MB 570-309651/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-309651/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-309651/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-129959-2 MS	Outfall009_20230305_Comp_F	Dissolved	Water	Filtration	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-1

Metals (Continued)

Filtration Batch: 309651 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-2 MSD	Outfall009_20230305_Comp_F	Dissolved	Water	Filtration	

Analysis Batch: 309665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-2	Outfall009_20230305_Comp_F	Dissolved	Water	245.1	309368
MB 570-309367/1-B	Method Blank	Dissolved	Water	245.1	309368
LCS 570-309367/2-B	Lab Control Sample	Dissolved	Water	245.1	309368
LCSD 570-309367/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	309368

Prep Batch: 309760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-1	Outfall009_20230305_Comp	Total/NA	Water	245.1	
MB 570-309760/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-309760/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-309760/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-129959-1 MS	Outfall009_20230305_Comp	Total/NA	Water	245.1	
570-129959-1 MSD	Outfall009_20230305_Comp	Total/NA	Water	245.1	

Analysis Batch: 309903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-2	Outfall009_20230305_Comp_F	Dissolved	Water	200.8	309651
MB 570-309651/1-A	Method Blank	Dissolved	Water	200.8	309651
LCS 570-309651/2-A	Lab Control Sample	Dissolved	Water	200.8	309651
LCSD 570-309651/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	309651
570-129959-2 MS	Outfall009_20230305_Comp_F	Dissolved	Water	200.8	309651
570-129959-2 MSD	Outfall009_20230305_Comp_F	Dissolved	Water	200.8	309651

Analysis Batch: 310041

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-1	Outfall009_20230305_Comp	Total/NA	Water	245.1	309760
MB 570-309760/1-A	Method Blank	Total/NA	Water	245.1	309760
LCS 570-309760/2-A	Lab Control Sample	Total/NA	Water	245.1	309760
LCSD 570-309760/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	309760
570-129959-1 MS	Outfall009_20230305_Comp	Total/NA	Water	245.1	309760
570-129959-1 MSD	Outfall009_20230305_Comp	Total/NA	Water	245.1	309760

General Chemistry

Analysis Batch: 310278

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-1	Outfall009_20230305_Comp	Total/NA	Water	SM 2540D	
MB 570-310278/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-310278/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-310278/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 310438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-1	Outfall009_20230305_Comp	Total/NA	Water	SM 2540C	
MB 570-310438/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-310438/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Eurofins Calscience

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129959-1

General Chemistry (Continued)

Analysis Batch: 310438 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 570-310438/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
570-129959-1 DU	Outfall009_20230305_Comp	Total/NA	Water	SM 2540C	

Analysis Batch: 312131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-1	Outfall009_20230305_Comp	Total/NA	Water	Kelada 01	
MB 570-312131/14	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-312131/16	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-312131/17	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-312131/13	Lab Control Sample	Total/NA	Water	Kelada 01	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-1

Client Sample ID: Outfall009_20230305_Comp

Lab Sample ID: 570-129959-1

Date Collected: 03/05/23 07:30

Matrix: Water

Date Received: 03/06/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	4 mL	4 mL	309420	03/07/23 05:37	PS	EET CAL 4
Instrument ID: IC7										
Total/NA	Analysis	NO2NO3 Calc		1			310704	03/10/23 16:06	WH6J	EET CAL 4
Instrument ID: NOEQUIP										
Total Recoverable	Prep	200.8			50 mL	50 mL	309505	03/07/23 09:05	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			309648	03/07/23 12:55	Y2WS	EET CAL 4
Instrument ID: ICPMS10										
Total/NA	Prep	245.1			25 mL	50 mL	309760	03/07/23 21:21	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			310041	03/08/23 17:16	COYH	EET CAL 4
Instrument ID: HG8										
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	312131	03/14/23 19:36	GG0B	EET CAL 4
Instrument ID: LACHAT01										
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	310438	03/09/23 18:08	ZL7L	EET CAL 4
Instrument ID: NOEQUIP										
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	310278	03/09/23 11:52	WVA4	EET CAL 4
Instrument ID: BAL71										

Client Sample ID: Outfall009_20230305_Comp_F

Lab Sample ID: 570-129959-2

Date Collected: 03/05/23 07:30

Matrix: Water

Date Received: 03/06/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	309651	03/07/23 14:28	ECX6	EET CAL 4
Dissolved	Analysis	200.8		1			309903	03/08/23 10:29	Y2WS	EET CAL 4
Instrument ID: ICPMS09										
Dissolved	Filtration	Filtration			25 mL	25 mL	309367	03/06/23 17:48	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	309368	03/06/23 18:07	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			309665	03/07/23 14:08	COYH	EET CAL 4
Instrument ID: HG8										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129959-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23



Method Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4

Protocol References:

- EPA = US Environmental Protection Agency
- None = None
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

- EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129959-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129959-1	Outfall009_20230305_Comp	Water	03/05/23 07:30	03/06/23 17:00
570-129959-2	Outfall009_20230305_Comp_F	Water	03/05/23 07:30	03/06/23 17:00

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Patel, Virendra		Carrier Tracking No(s):		COC No: 570-209419.1	
Client Contact: Shipping/Receiving		E-Mail: Virendra.Patel@et.eurofins.com		State of Origin: California		Page: Page 1 of 1	
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program California		Job #:		570-129959-1	
Address: 13715 Rider Trail North,		Due Date Requested: 3/16/2023		TAT Requested (days):		Preservation Codes:	
City: Earth City		PO #:		MO: 63045		A HCL M None N NaOH O AsNaO2 P Na2OAS Q Na2SO3 R Na2SO4 S H2SO4 T TSP Dodecahydrate U Acetone V MCAA W pH 4-5 Y Trizma Z other (specify)	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		WG #:		Project #:		Other	
Email:		Project #:		57013187			
Client Name: Boeing NPDES SSFL Routine Outfall 009 Comp		SSOW#:					
Site:		Sample Date		3/5/23			
Sample Identification - Client ID (Lab ID)		Sample Time		07:30 Pacific			
Outfall009_20230305_Comp (570-129959-1)		Sample Type (C=Comp, G=grab)		Water			
Matrix (W=water, S=solid, O=material, etc.-Please Add)		Preservation Code:					
Field Filled Sample (Yes or No)		Perform MS/MSD (Yes or No)		900.0/Evaporation Gross Alpha/Beta		X	
900.0/Evaporation Gross Alpha/Beta		900.0/SC_Dist_Susp Tritium		905.0/PreSep_21 Radium-226		X	
904.0/PreSep_0 Radium-228		A01R_MexChrom_Actin Total Uranium		901.1_Ca/Fill_Geo_0 K-40 and Cesium-137		X	
Total Number of Containers		2		Boeing SSFL, DO NOT FILTER; use prep date from preservation		Special Instructions/Note:	

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV Other (specify) Primary Deliverable Rank: 2

Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: *[Signature]* Date/Time: 02/07/23 10:30 AM Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: _____ Custody Seal No. _____
 Δ Yes Δ No

Method of Shipment: _____
 Received by: _____ Date/Time: _____ Company: _____
 Received by: _____ Date/Time: _____ Company: _____
 Received by: _____ Date/Time: _____ Company: _____
 Cooler Temperature(s) °C and Other Remarks: _____

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements:



ICOC No.
570-209419

Containers
Count

Container Type

Preservative

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13**
- 14

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129959-1

Login Number: 129959

List Source: Eurofins Calscience

List Number: 1

Creator: Cruise, Noel

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 009 - Comp

JOB NUMBER

570-129959-2

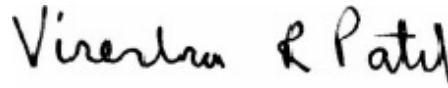
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129959-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Comp

Job ID: 570-129959-2

Job ID: 570-129959-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-129959-2

Comments

No additional comments.

Receipt

The samples were received on 3/6/2023 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.1° C and 2.4° C.

Receipt Exceptions

The reference method requires samples to have a pH of <2. The following samples were received with a pH of 7: <Affected Samples>. The samples were adjusted to the appropriate pH in the laboratory.

Dioxin

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument 12D5 exceeded this criteria: Outfall009_20230305_Comp (570-129959-1), (CCV 320-662732/2), (LCS 320-661244/2-A), (LCSD 320-661244/3-A) and (MB 320-661244/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-2

Client Sample ID: Outfall009_20230305_Comp

Lab Sample ID: 570-129959-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,7,8-PeCDF	0.00000046	J,DX q	0.000048	0.00000028	ug/L	1		1613B	Total/NA
1,2,3,4,7,8-HxCDD	0.0000016	J,DX q MB	0.000048	0.00000044	ug/L	1		1613B	Total/NA
1,2,3,6,7,8-HxCDD	0.00000063	J,DX MB	0.000048	0.00000043	ug/L	1		1613B	Total/NA
1,2,3,7,8,9-HxCDF	0.00000058	J,DX MB	0.000048	0.00000031	ug/L	1		1613B	Total/NA
2,3,4,6,7,8-HxCDF	0.00000046	J,DX	0.000048	0.00000027	ug/L	1		1613B	Total/NA
1,2,3,4,6,7,8-HpCDD	0.0000024	J,DX MB	0.000048	0.00000046	ug/L	1		1613B	Total/NA
1,2,3,4,6,7,8-HpCDF	0.0000019	J,DX q MB	0.000048	0.00000043	ug/L	1		1613B	Total/NA
OCDD	0.000013	J,DX MB	0.000095	0.00000039	ug/L	1		1613B	Total/NA
OCDF	0.0000033	J,DX MB	0.000095	0.00000054	ug/L	1		1613B	Total/NA
Total TCDD	0.0000025	J,DX q MB	0.0000095	0.00000082	ug/L	1		1613B	Total/NA
Total PeCDF	0.00000046	J,DX q	0.000048	0.00000028	ug/L	1		1613B	Total/NA
Total HxCDD	0.0000022	J,DX q MB	0.000048	0.00000038	ug/L	1		1613B	Total/NA
Total HxCDF	0.0000010	J,DX MB	0.000048	0.00000027	ug/L	1		1613B	Total/NA
Total HpCDD	0.0000046	J,DX q MB	0.000048	0.00000046	ug/L	1		1613B	Total/NA
Total HpCDF	0.0000031	J,DX q MB	0.000048	0.00000043	ug/L	1		1613B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall009_20230305_Comp

Date Collected: 03/05/23 07:30

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129959-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000095	0.0000008	ug/L		03/16/23 07:03	03/23/23 03:32	1
2,3,7,8-TCDF	ND		0.0000095	0.0000003	ug/L		03/16/23 07:03	03/23/23 03:32	1
1,2,3,7,8-PeCDD	ND		0.000048	0.0000004	ug/L		03/16/23 07:03	03/23/23 03:32	1
1,2,3,7,8-PeCDF	0.00000046	J,DX q	0.000048	0.0000002	ug/L		03/16/23 07:03	03/23/23 03:32	1
2,3,4,7,8-PeCDF	ND		0.000048	0.0000003	ug/L		03/16/23 07:03	03/23/23 03:32	1
1,2,3,4,7,8-HxCDD	0.0000016	J,DX q MB	0.000048	0.0000004	ug/L		03/16/23 07:03	03/23/23 03:32	1
1,2,3,6,7,8-HxCDD	0.00000063	J,DX MB	0.000048	0.0000004	ug/L		03/16/23 07:03	03/23/23 03:32	1
1,2,3,7,8,9-HxCDD	ND		0.000048	0.0000003	ug/L		03/16/23 07:03	03/23/23 03:32	1
1,2,3,4,7,8-HxCDF	ND		0.000048	0.0000003	ug/L		03/16/23 07:03	03/23/23 03:32	1
1,2,3,6,7,8-HxCDF	ND		0.000048	0.0000003	ug/L		03/16/23 07:03	03/23/23 03:32	1
1,2,3,7,8,9-HxCDF	0.00000058	J,DX MB	0.000048	0.0000003	ug/L		03/16/23 07:03	03/23/23 03:32	1
2,3,4,6,7,8-HxCDF	0.00000046	J,DX	0.000048	0.0000002	ug/L		03/16/23 07:03	03/23/23 03:32	1
1,2,3,4,6,7,8-HpCDD	0.0000024	J,DX MB	0.000048	0.0000004	ug/L		03/16/23 07:03	03/23/23 03:32	1
1,2,3,4,6,7,8-HpCDF	0.0000019	J,DX q MB	0.000048	0.0000004	ug/L		03/16/23 07:03	03/23/23 03:32	1
1,2,3,4,7,8,9-HpCDF	ND		0.000048	0.0000004	ug/L		03/16/23 07:03	03/23/23 03:32	1
OCDD	0.000013	J,DX MB	0.000095	0.0000003	ug/L		03/16/23 07:03	03/23/23 03:32	1
OCDF	0.0000033	J,DX MB	0.000095	0.0000005	ug/L		03/16/23 07:03	03/23/23 03:32	1
Total TCDD	0.0000025	J,DX q MB	0.0000095	0.0000008	ug/L		03/16/23 07:03	03/23/23 03:32	1
Total TCDF	ND		0.0000095	0.0000003	ug/L		03/16/23 07:03	03/23/23 03:32	1
Total PeCDD	ND		0.000048	0.0000004	ug/L		03/16/23 07:03	03/23/23 03:32	1
Total PeCDF	0.00000046	J,DX q	0.000048	0.0000002	ug/L		03/16/23 07:03	03/23/23 03:32	1
Total HxCDD	0.0000022	J,DX q MB	0.000048	0.0000003	ug/L		03/16/23 07:03	03/23/23 03:32	1
Total HxCDF	0.0000010	J,DX MB	0.000048	0.0000002	ug/L		03/16/23 07:03	03/23/23 03:32	1
Total HpCDD	0.0000046	J,DX q MB	0.000048	0.0000004	ug/L		03/16/23 07:03	03/23/23 03:32	1
Total HpCDF	0.0000031	J,DX q MB	0.000048	0.0000004	ug/L		03/16/23 07:03	03/23/23 03:32	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	60		25 - 164				03/16/23 07:03	03/23/23 03:32	1
13C-2,3,7,8-TCDF	61		24 - 169				03/16/23 07:03	03/23/23 03:32	1
13C-1,2,3,7,8-PeCDD	60		25 - 181				03/16/23 07:03	03/23/23 03:32	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall009_20230305_Comp

Date Collected: 03/05/23 07:30

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129959-1

Matrix: Water

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-1,2,3,7,8-PeCDF	63		24 - 185	03/16/23 07:03	03/23/23 03:32	1
13C-2,3,4,7,8-PeCDF	60		21 - 178	03/16/23 07:03	03/23/23 03:32	1
13C-1,2,3,4,7,8-HxCDD	50		32 - 141	03/16/23 07:03	03/23/23 03:32	1
13C-1,2,3,6,7,8-HxCDD	59		28 - 130	03/16/23 07:03	03/23/23 03:32	1
13C-1,2,3,4,7,8-HxCDF	50		26 - 152	03/16/23 07:03	03/23/23 03:32	1
13C-1,2,3,6,7,8-HxCDF	58		26 - 123	03/16/23 07:03	03/23/23 03:32	1
13C-1,2,3,7,8,9-HxCDF	67		29 - 147	03/16/23 07:03	03/23/23 03:32	1
13C-2,3,4,6,7,8-HxCDF	66		28 - 136	03/16/23 07:03	03/23/23 03:32	1
13C-1,2,3,4,6,7,8-HpCDD	60		23 - 140	03/16/23 07:03	03/23/23 03:32	1
13C-1,2,3,4,6,7,8-HpCDF	53		28 - 143	03/16/23 07:03	03/23/23 03:32	1
13C-1,2,3,4,7,8,9-HpCDF	63		26 - 138	03/16/23 07:03	03/23/23 03:32	1
13C-OCDD	68		17 - 157	03/16/23 07:03	03/23/23 03:32	1
13C-OCDF	71		17 - 157	03/16/23 07:03	03/23/23 03:32	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	71		35 - 197	03/16/23 07:03	03/23/23 03:32	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129959-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-129959-1	Outfall009_20230305_Comp	71
MB 320-661244/1-A	Method Blank	85

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-661244/2-A	Lab Control Sample	87
LCSD 320-661244/3-A	Lab Control Sample Dup	82

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-129959-1	Outfall009_20230305_Comp	60	61	60	63	60	50	59	50
MB 320-661244/1-A	Method Blank	70	73	72	76	73	66	69	61

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-129959-1	Outfall009_20230305_Comp	58	67	66	60	53	63	68	71
MB 320-661244/1-A	Method Blank	73	83	81	67	62	72	82	85

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- OCDD = 13C-OCDD
- OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-661244/2-A	Lab Control Sample	71	72	68	73	70	65	69	65
LCSD 320-661244/3-A	Lab Control Sample Dup	70	73	71	75	71	61	69	60

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-661244/2-A	Lab Control Sample	72	83	78	69	63	75	82	84
LCSD 320-661244/3-A	Lab Control Sample Dup	70	81	79	71	62	76	85	88

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129959-2

Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

HxDF = 13C-1,2,3,6,7,8-HxCDF

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-661244/1-A
Matrix: Water
Analysis Batch: 662732

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 661244

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8-PeCDD	72		25 - 181	03/16/23 07:03	03/22/23 23:34	1
13C-1,2,3,7,8-PeCDF	76		24 - 185	03/16/23 07:03	03/22/23 23:34	1
13C-2,3,4,7,8-PeCDF	73		21 - 178	03/16/23 07:03	03/22/23 23:34	1
13C-1,2,3,4,7,8-HxCDD	66		32 - 141	03/16/23 07:03	03/22/23 23:34	1
13C-1,2,3,6,7,8-HxCDD	69		28 - 130	03/16/23 07:03	03/22/23 23:34	1
13C-1,2,3,4,7,8-HxCDF	61		26 - 152	03/16/23 07:03	03/22/23 23:34	1
13C-1,2,3,6,7,8-HxCDF	73		26 - 123	03/16/23 07:03	03/22/23 23:34	1
13C-1,2,3,7,8,9-HxCDF	83		29 - 147	03/16/23 07:03	03/22/23 23:34	1
13C-2,3,4,6,7,8-HxCDF	81		28 - 136	03/16/23 07:03	03/22/23 23:34	1
13C-1,2,3,4,6,7,8-HpCDD	67		23 - 140	03/16/23 07:03	03/22/23 23:34	1
13C-1,2,3,4,6,7,8-HpCDF	62		28 - 143	03/16/23 07:03	03/22/23 23:34	1
13C-1,2,3,4,7,8,9-HpCDF	72		26 - 138	03/16/23 07:03	03/22/23 23:34	1
13C-OCDD	82		17 - 157	03/16/23 07:03	03/22/23 23:34	1
13C-OCDF	85		17 - 157	03/16/23 07:03	03/22/23 23:34	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	85		35 - 197	03/16/23 07:03	03/22/23 23:34	1

Lab Sample ID: LCS 320-661244/2-A
Matrix: Water
Analysis Batch: 662732

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 661244

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,3,7,8-TCDF	0.000200	0.000214		ug/L		107	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000953		ug/L		95	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000964		ug/L		96	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000969		ug/L		97	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000918		ug/L		92	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.000980		ug/L		98	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.00101		ug/L		101	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000941		ug/L		94	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000963		ug/L		96	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000940		ug/L		94	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000945		ug/L		95	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000963		ug/L		96	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.00100		ug/L		100	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000960		ug/L		96	78 - 138
OCDD	0.00200	0.00199		ug/L		99	78 - 144
OCDF	0.00200	0.00200		ug/L		100	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	71		20 - 175
13C-2,3,7,8-TCDF	72		22 - 152
13C-1,2,3,7,8-PeCDD	68		21 - 227
13C-1,2,3,7,8-PeCDF	73		21 - 192
13C-2,3,4,7,8-PeCDF	70		13 - 328

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-661244/2-A
Matrix: Water
Analysis Batch: 662732

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 661244

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C-1,2,3,4,7,8-HxCDD	65		21 - 193
13C-1,2,3,6,7,8-HxCDD	69		25 - 163
13C-1,2,3,4,7,8-HxCDF	65		19 - 202
13C-1,2,3,6,7,8-HxCDF	72		21 - 159
13C-1,2,3,7,8,9-HxCDF	83		17 - 205
13C-2,3,4,6,7,8-HxCDF	78		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	69		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	63		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	75		20 - 186
13C-OCDD	82		13 - 199
13C-OCDF	84		13 - 199

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
37Cl4-2,3,7,8-TCDD	87		31 - 191

Lab Sample ID: LCSD 320-661244/3-A
Matrix: Water
Analysis Batch: 662732

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 661244

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
2,3,7,8-TCDD	0.000200	0.000196		ug/L		98	67 - 158	2	50
2,3,7,8-TCDF	0.000200	0.000212		ug/L		106	75 - 158	1	50
1,2,3,7,8-PeCDD	0.00100	0.000938		ug/L		94	70 - 142	2	50
1,2,3,7,8-PeCDF	0.00100	0.000953		ug/L		95	80 - 134	1	50
2,3,4,7,8-PeCDF	0.00100	0.000974		ug/L		97	68 - 160	0	50
1,2,3,4,7,8-HxCDD	0.00100	0.000929		ug/L		93	70 - 164	1	50
1,2,3,6,7,8-HxCDD	0.00100	0.000948		ug/L		95	76 - 134	3	50
1,2,3,7,8,9-HxCDD	0.00100	0.00105		ug/L		105	64 - 162	3	50
1,2,3,4,7,8-HxCDF	0.00100	0.000939		ug/L		94	72 - 134	0	50
1,2,3,6,7,8-HxCDF	0.00100	0.000954		ug/L		95	84 - 130	1	50
1,2,3,7,8,9-HxCDF	0.00100	0.000936		ug/L		94	78 - 130	0	50
2,3,4,6,7,8-HxCDF	0.00100	0.000947		ug/L		95	70 - 156	0	50
1,2,3,4,6,7,8-HpCDD	0.00100	0.000939		ug/L		94	70 - 140	3	50
1,2,3,4,6,7,8-HpCDF	0.00100	0.000996		ug/L		100	82 - 122	1	50
1,2,3,4,7,8,9-HpCDF	0.00100	0.000940		ug/L		94	78 - 138	2	50
OCDD	0.00200	0.00191		ug/L		95	78 - 144	4	50
OCDF	0.00200	0.00193		ug/L		96	63 - 170	4	50

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C-2,3,7,8-TCDD	70		20 - 175
13C-2,3,7,8-TCDF	73		22 - 152
13C-1,2,3,7,8-PeCDD	71		21 - 227
13C-1,2,3,7,8-PeCDF	75		21 - 192
13C-2,3,4,7,8-PeCDF	71		13 - 328
13C-1,2,3,4,7,8-HxCDD	61		21 - 193
13C-1,2,3,6,7,8-HxCDD	69		25 - 163
13C-1,2,3,4,7,8-HxCDF	60		19 - 202

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-661244/3-A

Client Sample ID: Lab Control Sample Dup

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 662732

Prep Batch: 661244

<i>Isotope Dilution</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C-1,2,3,6,7,8-HxCDF	70		21 - 159
13C-1,2,3,7,8,9-HxCDF	81		17 - 205
13C-2,3,4,6,7,8-HxCDF	79		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	71		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	62		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	76		20 - 186
13C-OCDD	85		13 - 199
13C-OCDF	88		13 - 199

<i>Surrogate</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
37Cl4-2,3,7,8-TCDD	82		31 - 191

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129959-2

Specialty Organics

Prep Batch: 661244

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-1	Outfall009_20230305_Comp	Total/NA	Water	1613B	
MB 320-661244/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-661244/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-661244/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 662732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-1	Outfall009_20230305_Comp	Total/NA	Water	1613B	661244
MB 320-661244/1-A	Method Blank	Total/NA	Water	1613B	661244
LCS 320-661244/2-A	Lab Control Sample	Total/NA	Water	1613B	661244
LCSD 320-661244/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	661244

Lab Chronicle

Client: Haley & Aldrich, Inc.

Job ID: 570-129959-2

Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Client Sample ID: Outfall009_20230305_Comp

Lab Sample ID: 570-129959-1

Date Collected: 03/05/23 07:30

Matrix: Water

Date Received: 03/06/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			1049.8 mL	20.0 uL	661244	03/16/23 07:03	FC	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	662732	03/23/23 03:32	DB	EET SAC

Instrument ID: 12D5

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-23 *
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	03-29-23
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-24
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442021-12	02-28-23 *
Virginia	NELAP	460278	03-14-24
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129959-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129959-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129959-1	Outfall009_20230305_Comp	Water	03/05/23 07:30	03/06/23 17:00

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

ICOC No.
570-209419

Containers
Count

Container Type

Preservative

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PM	Carrier Tracking No(s)	COC No:
Client Contact: Shipping/Receiving		Patel, Virendra	Patel, Virendra	State of Origin: California	570-209435.1
Company: Eurofins Environment Testing Northern Ca		E-Mail: Virendra.Patel@et.eurofins.com	Virendra.Patel@et.eurofins.com	Page 1 of 1	Job #: 570-129959-2
Address: 880 Riverside Parkway, West Sacramento State, Zip: CA, 95605 Phone: 916-373-5600(Tel) 916-372-1059(Fax) Email:		Accreditations Required (See note): State Program - California		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - NaHSO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma L - EDA Z - other (specify) Other:	
Due Date Requested: 3/22/2023 TAT Requested (days):		Analysis Requested			
PO #:	WO #:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P (MOD) Standard List w/	Totals
Project #: 57013187 SSOW#:	Sample Date: 3/5/23	Sample Time: 07:30 Pacific	Sample Type (C=Comp, G=grab)	Preservation Code: Water	Matrix (w=water, s=solid, o=water/oli, BT=Tissue, A=Air)
Project Name: Boeing NPDES SSFL - Routine Outfall 009 - Comp	Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type	Matrix
Site: Outfall009_20230305_Comp (570-129959-1)	Outfall009_20230305_Comp (570-129959-1)	3/5/23	07:30 Pacific	Water	Water
Special Instructions/Note: See QAS, Boeing_w/u to zero, ug/L, Use Boeing glassware.		Total Number of containers 2			
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience</p>					
Possible Hazard Identification		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:			
Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify)		Primary Deliverable Rank: 2			
Empty Kit Relinquished by:		Date:			
Relinquished by: <i>[Signature]</i>		Date/Time: 03/07/23 12:03			
Relinquished by:		Date/Time: Company: <i>[Signature]</i>			
Relinquished by:		Date/Time: Company: <i>[Signature]</i>			
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks: <i>15/7/14</i>			



Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab P#:	Carrier Tracking No(s):	COC No:
Client Contact: Shipping/Receiving		Patel, Virendra	E-Mail: Virendra.Patel@et.eurofins.com	State of Origin: California	570-209610.1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): State Program - California		Page: Page 1 of 1	Job #: 570-129959-2
Address: 880 Riverside Parkway, West Sacramento, CA, 95605		Due Date Requested: 3/22/2023		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Y - Trizma Z - other (specify) Other:	
City: West Sacramento		TAT Requested (days):		Analysis Requested:	
State, Zip: CA, 95605		PO #:		Total Number of containers	
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		WO #:		2	
Email:		Project #:		Special Instructions/Note:	
Project Name: Boeing NPDES SSFL - Routine Outfall 009 - Comp		57013187		See QAS, Boeing, w/u to zero, ug/L. Use Boeing glassware.	
Site:		SSOW#:			
Sample Identification - Client ID (Lab ID)		Sample Date		Field Filtered Sample (Yes or No)	
Outfall009_20230305_Comp_Extra (570-129959-3)		3/5/23		X	
Sample Type (C=Comp, G=grab)		Sample Time		Perform MS/MSD (Yes or No)	
G=grab		07:30 Pacific		X	
Matrix (W=Water, S=Solid, O=Organic)		Preservation Code:		1613B/1613B_Sox_Sep_P (MOD) Standard List w/ Totals (Hold)	
Water				X	

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: _____ Date/Time: 03/08/23 11:12 Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seal Intact: Yes No
 Custody Seal No.: _____
 Cooler Temperature(s) °C and Other Remarks: 1.79

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Special Instructions/QC Requirements:

Method of Shipment: _____
 Received by: _____ Date/Time: 3-9-23 9:15 Company: _____
 Received by: _____ Date/Time: _____ Company: _____
 Received by: _____ Date/Time: _____ Company: _____



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129959-2

Login Number: 129959

List Source: Eurofins Calscience

List Number: 1

Creator: Cruise, Noel

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129959-2

Login Number: 129959

List Number: 3

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 03/08/23 04:58 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	1517114
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.0c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129959-2

Login Number: 129959

List Number: 4

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 03/09/23 05:02 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.7c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 4/12/2023 7:18:03 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 009 - Comp

JOB NUMBER

570-129959-3

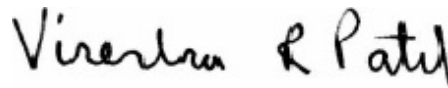
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494

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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129959-3

Qualifiers

Rad

Qualifier	Qualifier Description
F	MS/MSD Recovery and/or RPD exceeds the control limits
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Comp

Job ID: 570-129959-3

Job ID: 570-129959-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-129959-3

Comments

No additional comments.

Receipt

The samples were received on 3/6/2023 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.1° C and 2.4° C.

Receipt Exceptions

The reference method requires samples to have a pH of <2. The following samples were received with a pH of 7: <Affected Samples>. The samples were adjusted to the appropriate pH in the laboratory.

RAD

Method 900.0: Gross Alpha Beta prep batch 160-606236:

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 160-606326 and analytical batch 160-606671 were outside control limits for one or more analytes. In addition RER/RPD was also outside of control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 900.0: Gross Alpha Beta prep batch 160-606326:

The detection goal was not met for the following sample(s). The samples and batch QC were prepped at full volume. Matrix interferences are suspected because the method blank achieved the detection goal demonstrating acceptable sample preparation and instrument performance. (570-129852-R-1-F)

Method 900.0: Gross Alpha Beta prep batch 160-606326:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230305_Comp (570-129959-1), (LCS 160-606326/2-A), (LCSB 160-606326/3-A), (MB 160-606326/1-A), (570-129852-R-1-F), (570-129852-R-1-J MS), (570-129852-R-1-L MSBT), (570-129852-R-1-M MSBTD) and (570-129852-R-1-K MSD)

Method 901.1: Gamma Prep Batch 160-604032

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Comp

Job ID: 570-129959-3

Job ID: 570-129959-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

**The method blank (MB) Z-score is within limits and is located in the level IV raw data.

Outfall009_20230305_Comp (570-129959-1), (570-128840-R-1-D) and (570-128840-R-1-E DU)

Methods 903.0, 9315: Radium-226 batch 603854

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Methods 904.0, 9320: Radium-228 batch 603857

The LCS recovered at (128%). The limits in our LIMS system at 75-125 reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of (62-148%) per method requirements. The LCS passes, no further action is required

(LCSD 160-603857/25-A)

Methods 904.0, 9320: Radium-228 batch 603857

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230305_Comp (570-129959-1), (LCS 160-603857/2-A), (LCSD 160-603857/25-A), (MB 160-603857/1-A), (570-129852-R-1-B), (570-129852-L-1-C MS) and (570-129852-L-1-D MSD)

Method 905: Strontium-90 batch 604379

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230305_Comp (570-129959-1), (LCS 160-604379/2-A), (MB 160-604379/1-A), (570-129852-R-1-D), (570-129852-L-1-E MS) and (570-129852-L-1-F MSD)

Method 906.0: Tritium 605397

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230305_Comp (570-129959-1), (LCS 160-605397/2-A), (MB 160-605397/1-A), (570-129852-Q-1-B), (570-129852-K-1-D MS) and (570-129852-K-1-E MSD)

Method 906.0: The matrix spike duplicate (MSD) recovery was inadvertently not spiked. However the matrix spike (MS) was within range and all other QC was within limits. Per client, the data will be reported with this narrative. Outfall009_20230305_Comp (570-129959-1), (570-129852-Q-1-B), (570-129852-K-1-D MS) and (570-129852-K-1-E MSD)

Method A-01-R: Isotopic Uranium Batch 605724

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Comp

Job ID: 570-129959-3

Job ID: 570-129959-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230305_Comp (570-129959-1), (LCS 160-605724/2-A), (MB 160-605724/1-A), (570-129852-R-1-E), (570-129852-L-1-G MS) and (570-129852-L-1-H MSD)

Method ExtChrom: Uranium Prep Batch 160-605724:

The following sample was prepared at a reduced aliquot due to sediment and discoloration: Outfall009_20230305_Comp (570-129959-1).

Method PrecSep_0:

Method PrecSep-21:

Method PrecSep-7:

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129959-3

Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Client Sample ID: Outfall009_20230305_Comp

Lab Sample ID: 570-129959-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall009_20230305_Comp

Date Collected: 03/05/23 07:30

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129959-1

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.524	U F	0.997	0.999	3.00	1.74	pCi/L	04/06/23 10:28	04/11/23 06:07	1
Gross Beta	0.913	U	0.643	0.649	4.00	0.995	pCi/L	04/06/23 10:28	04/11/23 06:07	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129959-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall009_20230305_Comp

Date Collected: 03/05/23 07:30

Date Received: 03/06/23 17:00

Lab Sample ID: 570-129959-1

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	3.02	U	5.95	5.96	20.0	7.72	pCi/L	03/17/23 14:08	03/28/23 22:12	1
Potassium-40	-82.3	U	120	120		191	pCi/L	03/17/23 14:08	03/28/23 22:12	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall009_20230305_Comp
Date Collected: 03/05/23 07:30
Date Received: 03/06/23 17:00

Lab Sample ID: 570-129959-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0414	U	0.0741	0.0742	1.00	0.132	pCi/L	03/16/23 07:58	04/07/23 10:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.5		30 - 110					03/16/23 07:58	04/07/23 10:46	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall009_20230305_Comp
Date Collected: 03/05/23 07:30
Date Received: 03/06/23 17:00

Lab Sample ID: 570-129959-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.694	U	0.522	0.526	1.00	0.807	pCi/L	03/16/23 09:45	03/30/23 12:08	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.5		30 - 110					03/16/23 09:45	03/30/23 12:08	1
Y Carrier	82.2		30 - 110					03/16/23 09:45	03/30/23 12:08	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall009_20230305_Comp
Date Collected: 03/05/23 07:30
Date Received: 03/06/23 17:00

Lab Sample ID: 570-129959-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.112	U	0.354	0.354	3.00	0.669	pCi/L	03/20/23 13:22	03/29/23 16:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	78.7		30 - 110					03/20/23 13:22	03/29/23 16:06	1
Y Carrier	84.9		30 - 110					03/20/23 13:22	03/29/23 16:06	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall009_20230305_Comp
 Date Collected: 03/05/23 07:30
 Date Received: 03/06/23 17:00

Lab Sample ID: 570-129959-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	72.1	U F	153	153	500	271	pCi/L	03/29/23 11:02	04/04/23 20:14	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall009_20230305_Comp

Lab Sample ID: 570-129959-1

Date Collected: 03/05/23 07:30

Matrix: Water

Date Received: 03/06/23 17:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.422		0.274	0.275	1.00	0.261	pCi/L	03/30/23 15:31	04/04/23 20:40	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	87.5		30 - 110					03/30/23 15:31	04/04/23 20:40	1

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129959-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)							
570-129959-1	Outfall009_20230305_Comp	90.5							
LCS 160-603854/2-A	Lab Control Sample	94.8							
LCSD 160-603854/25-A	Lab Control Sample Dup	89.2							
MB 160-603854/1-A	Method Blank	91.5							

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)						
570-129959-1	Outfall009_20230305_Comp	90.5	82.2						
LCS 160-603857/2-A	Lab Control Sample	94.8	81.5						
LCSD 160-603857/25-A	Lab Control Sample Dup	89.2	87.5						
MB 160-603857/1-A	Method Blank	91.5	83.7						

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Sr (30-110)	Y (30-110)						
570-129959-1	Outfall009_20230305_Comp	78.7	84.9						
LCS 160-604379/2-A	Lab Control Sample	85.6	76.6						
MB 160-604379/1-A	Method Blank	79.3	70.3						

Tracer/Carrier Legend

Sr = Sr Carrier

Y = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	U-232 (30-110)							
570-129959-1	Outfall009_20230305_Comp	87.5							
LCS 160-605724/2-A	Lab Control Sample	92.1							
MB 160-605724/1-A	Method Blank	92.8							

Tracer/Carrier Legend

U-232 = Uranium-232

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-606326/1-A
Matrix: Water
Analysis Batch: 606671

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 606326

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)								
Gross Alpha	0.4133	U	0.657	0.658	3.00	1.12	pCi/L	04/06/23 10:28	04/10/23 20:47		1	
Gross Beta	0.02677	U	0.496	0.496	4.00	0.874	pCi/L	04/06/23 10:28	04/10/23 20:47		1	

Lab Sample ID: LCS 160-606326/2-A
Matrix: Water
Analysis Batch: 606895

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606326

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Alpha	50.5	51.96		7.62	3.00	2.05	pCi/L	103	75 - 125

Lab Sample ID: LCSB 160-606326/3-A
Matrix: Water
Analysis Batch: 606671

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606326

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Beta	73.4	74.51		7.98	4.00	0.927	pCi/L	102	75 - 125

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-604032/1-A
Matrix: Water
Analysis Batch: 604760

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604032

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)								
Cesium-137	-0.4655	U	10.3	10.3	20.0	12.1	pCi/L	03/17/23 14:08	03/22/23 19:49		1	
Potassium-40	12.53	U	78.9	78.9		135	pCi/L	03/17/23 14:08	03/22/23 19:49		1	

Lab Sample ID: LCS 160-604032/2-A
Matrix: Water
Analysis Batch: 604760

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604032

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Americium-241	135000	143200		17000		415	pCi/L	106	75 - 125
Cesium-137	40900	41780		4980	20.0	92.9	pCi/L	102	75 - 125
Cobalt-60	17800	18360		2190		50.3	pCi/L	103	75 - 125

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-3

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-603854/1-A
Matrix: Water
Analysis Batch: 606563

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 603854

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-0.006854	U	0.0481	0.0481	1.00	0.106	pCi/L	03/16/23 07:58	04/07/23 10:41	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	91.5		30 - 110					03/16/23 07:58	04/07/23 10:41	1

Lab Sample ID: LCS 160-603854/2-A
Matrix: Water
Analysis Batch: 606563

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 603854

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	11.41		1.18	1.00	0.0785	pCi/L	101	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits		Prepared	Analyzed	Dil Fac		
Ba Carrier	94.8		30 - 110					03/16/23 07:58	04/07/23 10:41

Lab Sample ID: LCSD 160-603854/25-A
Matrix: Water
Analysis Batch: 606587

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 603854

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
				Uncert. (2σ+/-)							
Radium-226	11.3	10.67		1.13	1.00	0.155	pCi/L	94	75 - 125	0.32	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits		Prepared	Analyzed	Dil Fac				
Ba Carrier	89.2		30 - 110					03/16/23 09:45	03/30/23 12:11	1	

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-603857/1-A
Matrix: Water
Analysis Batch: 605623

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 603857

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.4545		0.308	0.311	1.00	0.452	pCi/L	03/16/23 09:45	03/30/23 12:11	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	91.5		30 - 110					03/16/23 09:45	03/30/23 12:11	1
Y Carrier	83.7		30 - 110		03/16/23 09:45	03/30/23 12:11	1			

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-3

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-603857/2-A
Matrix: Water
Analysis Batch: 605623

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 603857

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-228	8.08	9.981		1.32	1.00	0.466	pCi/L	124	75 - 125	
Carrier	%Yield	LCS Qualifier	Limits							
Ba Carrier	94.8		30 - 110							
Y Carrier	81.5		30 - 110							

Lab Sample ID: LCSD 160-603857/25-A
Matrix: Water
Analysis Batch: 605624

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 603857

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228	8.08	10.32		1.36	1.00	0.479	pCi/L	128	75 - 125	0.13	1
Carrier	%Yield	LCSD Qualifier	Limits								
Ba Carrier	89.2		30 - 110								
Y Carrier	87.5		30 - 110								

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-604379/1-A
Matrix: Water
Analysis Batch: 605413

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604379

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.1030	U	0.268	0.268	3.00	0.492	pCi/L	03/20/23 13:22	03/29/23 15:59	1
Carrier	%Yield	MB Qualifier	Limits							
Sr Carrier	79.3		30 - 110							
Y Carrier	70.3		30 - 110							
								Prepared	Analyzed	Dil Fac
								03/20/23 13:22	03/29/23 15:59	1
								03/20/23 13:22	03/29/23 15:59	1

Lab Sample ID: LCS 160-604379/2-A
Matrix: Water
Analysis Batch: 605413

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604379

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Strontium-90	7.35	7.405		0.842	3.00	0.323	pCi/L	101	75 - 125
Carrier	%Yield	LCS Qualifier	Limits						
Sr Carrier	85.6		30 - 110						
Y Carrier	76.6		30 - 110						

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-3

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-605397/1-A
 Matrix: Water
 Analysis Batch: 606179

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 605397

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	81.53	U	151	151	500	263	pCi/L	03/29/23 11:02	04/04/23 16:05	1

Lab Sample ID: LCS 160-605397/2-A
 Matrix: Water
 Analysis Batch: 606179

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 605397

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Tritium	2090	1744		317	500	251	pCi/L	83	75 - 125

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-605724/1-A
 Matrix: Water
 Analysis Batch: 606117

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 605724

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Total Uranium	0.03149	U	0.08996	0.09003	1.00	0.148	pCi/L	03/30/23 15:31	04/04/23 20:40	1

Tracer	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	92.8		30 - 110	03/30/23 15:31	04/04/23 20:40	1

Lab Sample ID: LCS 160-605724/2-A
 Matrix: Water
 Analysis Batch: 606357

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 605724

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Uranium-234	12.7	13.25		1.55	1.00	0.113	pCi/L	104	75 - 125
Uranium-238	13.0	13.61		1.58	1.00	0.123	pCi/L	105	75 - 125

Tracer	LCS %Yield	LCS Qualifier	Limits
Uranium-232	92.1		30 - 110

QC Association Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129959-3

Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Rad

Prep Batch: 603854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-1	Outfall009_20230305_Comp	Total/NA	Water	PrecSep-21	
MB 160-603854/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-603854/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCS D 160-603854/25-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 603857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-1	Outfall009_20230305_Comp	Total/NA	Water	PrecSep_0	
MB 160-603857/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-603857/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCS D 160-603857/25-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 604032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-1	Outfall009_20230305_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-604032/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-604032/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	

Prep Batch: 604379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-1	Outfall009_20230305_Comp	Total/NA	Water	PrecSep-7	
MB 160-604379/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-604379/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	

Prep Batch: 605397

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-1	Outfall009_20230305_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-605397/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-605397/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 605724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-1	Outfall009_20230305_Comp	Total/NA	Water	ExtChrom	
MB 160-605724/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-605724/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	

Prep Batch: 606326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129959-1	Outfall009_20230305_Comp	Total/NA	Water	Evaporation	
MB 160-606326/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-606326/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCS B 160-606326/3-A	Lab Control Sample	Total/NA	Water	Evaporation	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-3

Client Sample ID: Outfall009_20230305_Comp

Lab Sample ID: 570-129959-1

Date Collected: 03/05/23 07:30

Matrix: Water

Date Received: 03/06/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			199.98 mL	1.0 g	606326	04/06/23 10:28	MST	EET SL
Total/NA	Analysis	900.0		1			606895	04/11/23 06:07	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	604032	03/17/23 14:08	SEH	EET SL
Total/NA	Analysis	901.1		1			605210	03/28/23 22:12	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			748.54 mL	1.0 g	603854	03/16/23 07:58	DJP	EET SL
Total/NA	Analysis	903.0		1	1.0 mL	1.0 mL	606587	04/07/23 10:46	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			748.54 mL	1.0 g	603857	03/16/23 09:45	DJP	EET SL
Total/NA	Analysis	904.0		1			605623	03/30/23 12:08	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep-7			498.81 mL	1.0 g	604379	03/20/23 13:22	DJP	EET SL
Total/NA	Analysis	905		1			605412	03/29/23 16:06	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	LSC_Dist_Susp			99.98 mL	1.0 g	605397	03/29/23 11:02	SEH	EET SL
Total/NA	Analysis	906.0		1			606179	04/04/23 20:14	REV	EET SL
Instrument ID: LSCAQUA										
Total/NA	Prep	ExtChrom			303.4 mL	1.0 mL	605724	03/30/23 15:31	CMM	EET SL
Total/NA	Analysis	A-01-R		1			606112	04/04/23 20:40	EJS	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
 Comp

Job ID: 570-129959-3

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	03-31-24
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	06-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129959-3

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Comp

Job ID: 570-129959-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129959-1	Outfall009_20230305_Comp	Water	03/05/23 07:30	03/06/23 17:00

1

2

3

4

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15

Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Patel, Virendra		Carrier Tracking No(s):		COC No: 570-209419.1	
Client Contact: Shipping/Receiving		E-Mail: Virendra.Patel@et.eurofins.com		State of Origin: California		Page: Page 1 of 1	
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program California		Job #:		570-129959-1	
Address: 13715 Rider Trail North,		Due Date Requested: 3/16/2023		TAT Requested (days):		Preservation Codes:	
City: Earth City		PO #:		MO: 63045		A HCL B NaOH C Zn Acetate D Nitric Acid E NaHSO4 F MeOH G Amchlor H Ascorbic Acid I Ice J DI Water K EDTA L EDA Other	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		W/O #:		Project #:		M Hexane N None O AsNaO2 P Na2OAS Q Na2SO3 R Na2SO4 S H2SO4 T TSP Dodecahydrate U Acetone V MCAA W pH 4-5 Y Trizma Z other (specify)	
Email:		Project Name: Boeing NPDES SSFL Routine Outfall 009 Comp		Site:		Special Instructions/Note:	
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Boeing SSFL, DO NOT FILTER; use prep date from preservation	
Outfall009_20230305_Comp (570-129959-1)		3/5/23		07:30 Pacific			
Sample Type (C=Comp, G=grab)		Sample Matrix (Water, Seawater, Other)		Preservation Code:			
G=grab		Water		Water			
Analysis Requested		Perform MS/MSD (Yes or No)		Field Filtered Sample (Yes or No)		Total Number of Containers	
900.0/Evaporation Gross Alpha/Beta		X		X		2	
906.0/SC_Dist_Susp Tritium		X		X			
905.0/PreSep_21 Radium-226		X		X			
904.0/PreSep_0 Radium-228		X		X			
A01R_Mexichrom_Actin Total Uranium		X		X			
901.1_Ca/Fill_Geo_0 K-40 and Cesium-137		X		X			

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV Other (specify) Primary Deliverable Rank: 2

Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: *[Signature]* Date/Time: 02/07/23 10:30 PM Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: _____ Custody Seal No. _____
 Δ Yes Δ No

Method of Shipment: _____
 Received by: _____ Date/Time: _____ Company: _____
 Received by: _____ Date/Time: _____ Company: _____
 Received by: _____ Date/Time: _____ Company: _____
 Cooler Temperature(s) °C and Other Remarks: _____



ICOC No.
570-209419

Containers
Count

Container Type

Preservative

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129959-3

Login Number: 129959

List Number: 1

Creator: Cruise, Noel

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129959-3

Login Number: 129959

List Number: 2

Creator: Worthington, Sierra M

List Source: Eurofins St. Louis

List Creation: 03/08/23 01:51 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	False	Refer to Job Narrative for details.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 3/12/2023 11:00:57 AM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall 009 - Grab

JOB NUMBER

570-129990-1

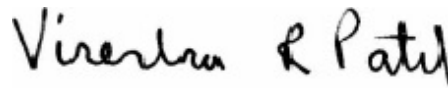
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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3/12/2023 11:00:57 AM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-129990-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grab

Job ID: 570-129990-1

Job ID: 570-129990-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-129990-1

Comments

No additional comments.

Receipt

The sample was received on 3/6/2023 5:00 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.8° C.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 1664A: The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-310236.

Method: 1664.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129990-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Client Sample ID: Outfall009_20230306_Grab

Lab Sample ID: 570-129990-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Job ID: 570-129990-1

General Chemistry

Client Sample ID: Outfall009_20230306_Grab
Date Collected: 03/06/23 07:30
Date Received: 03/06/23 17:00

Lab Sample ID: 570-129990-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease (1664A)	ND		0.99	0.50	mg/L		03/09/23 10:10	03/10/23 07:51	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Job ID: 570-129990-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-310236/1-A
Matrix: Water
Analysis Batch: 310507

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 310236

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	ND		1.0	0.51	mg/L		03/09/23 10:10	03/10/23 07:51	1

Lab Sample ID: LCS 570-310236/2-A
Matrix: Water
Analysis Batch: 310507

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 310236

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM: Oil and Grease	40.0	37.3		mg/L		93	78 - 114

Lab Sample ID: LCSD 570-310236/3-A
Matrix: Water
Analysis Batch: 310507

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 310236

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	38.7		mg/L		97	78 - 114	4	18

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Job ID: 570-129990-1

General Chemistry

Prep Batch: 310236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129990-1	Outfall009_20230306_Grab	Total/NA	Water	1664A	
MB 570-310236/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-310236/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-310236/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 310507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-129990-1	Outfall009_20230306_Grab	Total/NA	Water	1664A	310236
MB 570-310236/1-A	Method Blank	Total/NA	Water	1664A	310236
LCS 570-310236/2-A	Lab Control Sample	Total/NA	Water	1664A	310236
LCSD 570-310236/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	310236

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Job ID: 570-129990-1

Client Sample ID: Outfall009_20230306_Grab

Lab Sample ID: 570-129990-1

Date Collected: 03/06/23 07:30

Matrix: Water

Date Received: 03/06/23 17:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1664A			1013 mL	1000 mL	310236	03/09/23 10:10	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			310507	03/10/23 07:51	L6IE	EET CAL 4

Instrument ID: NO EQUIQ

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

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Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Job ID: 570-129990-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-129990-1

Project/Site: Boeing NPDES SSFL - Routine Outfall 009 - Grat

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall 009 -
Grab

Job ID: 570-129990-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-129990-1	Outfall009_20230306_Grab	Water	03/06/23 07:30	03/06/23 17:00

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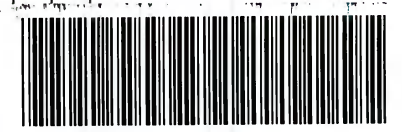
14

CHAIN OF CUSTODY FORM

129990

EDPBJ6UX

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108				Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall [003-007, 009, 010] Outfall 009 Grab					ANALYSIS REQUIRED										Field Readings		Meter serial #		
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187									Oil & Grease (E1684A-HEM)	X											Field Readings: (Include units)		
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement # 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.																					Time of Readings: 0730		
Sampler: Adrian Mobeka																					pH 7.38 pH unit		
Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)														Temp 45.2 °C									
Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)														Field readings QC									
														Checked by: <i>[Signature]</i>									
														Date/Time: 3-6-2023/0730									
														Comments									
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD															
Outfall 009	Outfall009_20230306_Grab	3/6/2023 1030	WM	1 L Glass Amber	2	HCl	15	No															



570-129990 Chain of Custody

Relinquished By: <i>[Signature]</i> Date/Time: 3-6-2023/1355 Company: H.A.			Received By: <i>[Signature]</i> Date/Time: 3/6/23 1355 EC			Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X 48 Hour: _____ 5 Day: _____ Normal: _____		
Relinquished By: <i>[Signature]</i> Date/Time: 3/6/23 1700 EC			Received By: <i>[Signature]</i> Date/Time: 3/6/23 1700			Sample Integrity: (Check) Intact: _____ On Ice: _____ Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X		

1.8/1.8 SC11

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-129990-1

Login Number: 129990

List Number: 1

Creator: Cruise, Noel

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 3/22/2023 7:34:56 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 009 - Comp

JOB NUMBER

570-130127-1

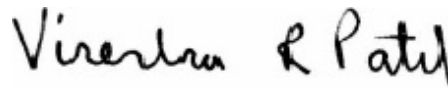
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



Generated
3/22/2023 7:34:56 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Qualifiers

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
IB	CCV recovery above limit; analyte not detected
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 - Comp

Job ID: 570-130127-1

Job ID: 570-130127-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-130127-1

Comments

No additional comments.

Receipt

The samples were received on 3/7/2023 6:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.7° C.

Receipt Exceptions

The reference method requires samples to have a pH of <2. The following samples were received with a pH of 7: <Affected Samples>. The samples were adjusted to the appropriate pH in the laboratory.

HPLC/IC

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

Methods 245.1, 7470A: The continuing calibration verification (CCV) associated with batch 570-310669 recovered above the upper control limit for Mercury. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: Outfall009_20230307_Comp_F (570-130127-2) and (CCV 570-310614/9-A).

Method Filtration: The following sample was not filtered within 15 minutes of sample collection as required by the method: Outfall009_20230307_Comp_F (570-130127-2). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall009_20230307_Comp_F (570-130127-2), Outfall009_20230307_Comp_F (570-130127-2[MS]) and Outfall009_20230307_Comp_F (570-130127-2[MSD]). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

Method Kelada 01: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 570-312131 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 - Comp

Client Sample ID: Outfall009_20230307_Comp

Lab Sample ID: 570-130127-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.3		1.0	0.36	mg/L	1		300.0	Total/NA
Sulfate	11		1.0	0.24	mg/L	1		300.0	Total/NA
Nitrate Nitrite as N	0.52		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Antimony	1.8	J,DX	2.0	0.36	ug/L	1		200.8	Total Recoverable
Copper	2.4		2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	0.12	J,DX	1.0	0.12	ug/L	1		200.8	Total Recoverable
Nickel	1.6	J,DX	2.0	0.17	ug/L	1		200.8	Total Recoverable
Total Dissolved Solids	130		10	8.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: Outfall009_20230307_Comp_F

Lab Sample ID: 570-130127-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	3.9	BU	2.0	0.36	ug/L	1		200.8	Dissolved
Copper	2.2	BU	2.0	0.32	ug/L	1		200.8	Dissolved
Lead	0.16	J,DX BU	1.0	0.12	ug/L	1		200.8	Dissolved
Nickel	1.4	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Selenium	0.85	J,DX BU	2.0	0.52	ug/L	1		200.8	Dissolved
Silver	0.39	J,DX BU	1.0	0.23	ug/L	1		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall009_20230307_Comp

Lab Sample ID: 570-130127-1

Date Collected: 03/07/23 10:00

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.3		1.0	0.36	mg/L			03/08/23 11:14	1
Sulfate	11		1.0	0.24	mg/L			03/08/23 11:14	1

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall009_20230307_Comp

Lab Sample ID: 570-130127-1

Date Collected: 03/07/23 10:00

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.52		0.10	0.020	mg/L			03/10/23 16:06	1

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- 2
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Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall009_20230307_Comp

Lab Sample ID: 570-130127-1

Date Collected: 03/07/23 10:00

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.8	J,DX	2.0	0.36	ug/L		03/08/23 08:49	03/08/23 11:57	1
Cadmium	ND		1.0	0.13	ug/L		03/08/23 08:49	03/08/23 11:57	1
Copper	2.4		2.0	0.32	ug/L		03/08/23 08:49	03/08/23 11:57	1
Lead	0.12	J,DX	1.0	0.12	ug/L		03/08/23 08:49	03/08/23 11:57	1
Nickel	1.6	J,DX	2.0	0.17	ug/L		03/08/23 08:49	03/08/23 11:57	1
Selenium	ND		2.0	0.52	ug/L		03/08/23 08:49	03/08/23 11:57	1
Silver	ND		1.0	0.23	ug/L		03/08/23 08:49	03/08/23 11:57	1
Thallium	ND		1.0	0.11	ug/L		03/08/23 08:49	03/08/23 11:57	1
Zinc	ND		20	2.8	ug/L		03/08/23 08:49	03/08/23 11:57	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Job ID: 570-130127-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall009_20230307_Comp_F

Date Collected: 03/07/23 10:00

Date Received: 03/07/23 18:00

Lab Sample ID: 570-130127-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	3.9	BU	2.0	0.36	ug/L			03/10/23 10:58	1
Cadmium	ND	BU	1.0	0.13	ug/L			03/10/23 10:58	1
Copper	2.2	BU	2.0	0.32	ug/L			03/10/23 10:58	1
Lead	0.16	J,DX BU	1.0	0.12	ug/L			03/10/23 10:58	1
Nickel	1.4	J,DX BU	2.0	0.17	ug/L			03/10/23 10:58	1
Selenium	0.85	J,DX BU	2.0	0.52	ug/L			03/10/23 10:58	1
Silver	0.39	J,DX BU	1.0	0.23	ug/L			03/10/23 10:58	1
Thallium	ND	BU	1.0	0.11	ug/L			03/10/23 10:58	1
Zinc	ND	BU	20	2.8	ug/L			03/10/23 10:58	1

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall009_20230307_Comp

Lab Sample ID: 570-130127-1

Date Collected: 03/07/23 10:00

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/08/23 22:22	03/10/23 13:02	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall009_20230307_Comp_F

Lab Sample ID: 570-130127-2

Date Collected: 03/07/23 10:00

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	IB	0.20	0.12	ug/L		03/08/23 17:10	03/10/23 14:23	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Job ID: 570-130127-1

General Chemistry

Client Sample ID: Outfall009_20230307_Comp

Date Collected: 03/07/23 10:00

Date Received: 03/07/23 18:00

Lab Sample ID: 570-130127-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			03/14/23 19:36	1
Total Dissolved Solids (SM 2540C)	130		10	8.7	mg/L			03/13/23 16:32	1
Total Suspended Solids (SM 2540D)	ND		1.0	0.83	mg/L			03/10/23 12:07	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-309794/5
Matrix: Water
Analysis Batch: 309794

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			03/08/23 06:05	1
Sulfate	ND		1.0	0.24	mg/L			03/08/23 06:05	1

Lab Sample ID: LCS 570-309794/6
Matrix: Water
Analysis Batch: 309794

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	47.3		mg/L		95	90 - 110
Sulfate	50.0	48.2		mg/L		96	90 - 110

Lab Sample ID: LCSD 570-309794/7
Matrix: Water
Analysis Batch: 309794

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	47.4		mg/L		95	90 - 110	0	15
Sulfate	50.0	48.2		mg/L		96	90 - 110	0	15

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-309830/1-A
Matrix: Water
Analysis Batch: 309984

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 309830

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.36	ug/L		03/08/23 08:49	03/08/23 11:45	1
Cadmium	ND		1.0	0.13	ug/L		03/08/23 08:49	03/08/23 11:45	1
Copper	ND		2.0	0.32	ug/L		03/08/23 08:49	03/08/23 11:45	1
Lead	ND		1.0	0.12	ug/L		03/08/23 08:49	03/08/23 11:45	1
Nickel	ND		2.0	0.17	ug/L		03/08/23 08:49	03/08/23 11:45	1
Selenium	ND		2.0	0.52	ug/L		03/08/23 08:49	03/08/23 11:45	1
Silver	ND		1.0	0.23	ug/L		03/08/23 08:49	03/08/23 11:45	1
Thallium	ND		1.0	0.11	ug/L		03/08/23 08:49	03/08/23 11:45	1
Zinc	ND		20	2.8	ug/L		03/08/23 08:49	03/08/23 11:45	1

Lab Sample ID: LCS 570-309830/2-A
Matrix: Water
Analysis Batch: 309984

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 309830

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	80.0	85.3		ug/L		107	85 - 115
Cadmium	80.0	81.1		ug/L		101	85 - 115
Copper	80.0	81.4		ug/L		102	85 - 115
Lead	80.0	83.3		ug/L		104	85 - 115
Nickel	80.0	81.4		ug/L		102	85 - 115
Selenium	80.0	80.9		ug/L		101	85 - 115
Silver	80.0	82.7		ug/L		103	85 - 115
Thallium	80.0	83.7		ug/L		105	85 - 115

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 570-309830/2-A
Matrix: Water
Analysis Batch: 309984

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 309830

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Zinc	80.0	78.8		ug/L		99	85 - 115

Lab Sample ID: LCSD 570-309830/3-A
Matrix: Water
Analysis Batch: 309984

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 309830

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	80.0	85.3		ug/L		107	85 - 115	0	20
Cadmium	80.0	79.3		ug/L		99	85 - 115	2	20
Copper	80.0	80.1		ug/L		100	85 - 115	2	20
Lead	80.0	82.1		ug/L		103	85 - 115	1	20
Nickel	80.0	80.3		ug/L		100	85 - 115	1	20
Selenium	80.0	77.9		ug/L		97	85 - 115	4	20
Silver	80.0	81.5		ug/L		102	85 - 115	2	20
Thallium	80.0	80.7		ug/L		101	85 - 115	4	20
Zinc	80.0	77.2		ug/L		96	85 - 115	2	20

Lab Sample ID: 570-130127-1 MS
Matrix: Water
Analysis Batch: 309984

Client Sample ID: Outfall009_20230307_Comp
Prep Type: Total Recoverable
Prep Batch: 309830

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	1.8	J,DX	80.0	87.3		ug/L		107	80 - 120
Cadmium	ND		80.0	79.9		ug/L		100	80 - 120
Copper	2.4		80.0	82.9		ug/L		101	80 - 120
Lead	0.12	J,DX	80.0	80.3		ug/L		100	80 - 120
Nickel	1.6	J,DX	80.0	81.0		ug/L		99	80 - 120
Selenium	ND		80.0	77.9		ug/L		97	80 - 120
Silver	ND		80.0	80.6		ug/L		101	80 - 120
Thallium	ND		80.0	79.5		ug/L		99	80 - 120
Zinc	ND		80.0	79.1		ug/L		99	80 - 120

Lab Sample ID: 570-130127-1 MSD
Matrix: Water
Analysis Batch: 309984

Client Sample ID: Outfall009_20230307_Comp
Prep Type: Total Recoverable
Prep Batch: 309830

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	1.8	J,DX	80.0	87.6		ug/L		107	80 - 120	0	20
Cadmium	ND		80.0	80.5		ug/L		101	80 - 120	1	20
Copper	2.4		80.0	83.0		ug/L		101	80 - 120	0	20
Lead	0.12	J,DX	80.0	80.2		ug/L		100	80 - 120	0	20
Nickel	1.6	J,DX	80.0	81.2		ug/L		99	80 - 120	0	20
Selenium	ND		80.0	77.1		ug/L		96	80 - 120	1	20
Silver	ND		80.0	80.8		ug/L		101	80 - 120	0	20
Thallium	ND		80.0	80.0		ug/L		100	80 - 120	1	20
Zinc	ND		80.0	78.3		ug/L		98	80 - 120	1	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 570-310572/1-A
Matrix: Water
Analysis Batch: 310644

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.36	ug/L			03/10/23 10:51	1
Cadmium	ND		1.0	0.13	ug/L			03/10/23 10:51	1
Copper	ND		2.0	0.32	ug/L			03/10/23 10:51	1
Lead	ND		1.0	0.12	ug/L			03/10/23 10:51	1
Nickel	ND		2.0	0.17	ug/L			03/10/23 10:51	1
Selenium	ND		2.0	0.52	ug/L			03/10/23 10:51	1
Silver	ND		1.0	0.23	ug/L			03/10/23 10:51	1
Thallium	ND		1.0	0.11	ug/L			03/10/23 10:51	1
Zinc	ND		20	2.8	ug/L			03/10/23 10:51	1

Lab Sample ID: LCS 570-310572/2-A
Matrix: Water
Analysis Batch: 310644

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	80.0	78.6		ug/L		98	85 - 115
Cadmium	80.0	76.5		ug/L		96	85 - 115
Copper	80.0	75.7		ug/L		95	85 - 115
Lead	80.0	76.3		ug/L		95	85 - 115
Nickel	80.0	76.4		ug/L		95	85 - 115
Selenium	80.0	76.9		ug/L		96	85 - 115
Silver	80.0	76.8		ug/L		96	85 - 115
Thallium	80.0	78.0		ug/L		97	85 - 115
Zinc	80.0	75.5		ug/L		94	85 - 115

Lab Sample ID: LCSD 570-310572/3-A
Matrix: Water
Analysis Batch: 310644

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	80.0	71.9		ug/L		90	85 - 115	9	20
Cadmium	80.0	71.0		ug/L		89	85 - 115	7	20
Copper	80.0	70.8		ug/L		88	85 - 115	7	20
Lead	80.0	69.2		ug/L		86	85 - 115	10	20
Nickel	80.0	71.6		ug/L		90	85 - 115	6	20
Selenium	80.0	68.1		ug/L		85	85 - 115	12	20
Silver	80.0	71.9		ug/L		90	85 - 115	7	20
Thallium	80.0	72.9		ug/L		91	85 - 115	7	20
Zinc	80.0	69.2		ug/L		87	85 - 115	9	20

Lab Sample ID: 570-130127-2 MS
Matrix: Water
Analysis Batch: 310644

Client Sample ID: Outfall009_20230307_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	3.9	BU	80.0	74.3	BU	ug/L		88	80 - 120
Cadmium	ND	BU	80.0	71.7	BU	ug/L		90	80 - 120
Copper	2.2	BU	80.0	73.4	BU	ug/L		89	80 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-130127-2 MS
Matrix: Water
Analysis Batch: 310644

Client Sample ID: Outfall009_20230307_Comp_F
Prep Type: Dissolved

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Result	Qualifier					
Lead	0.16	J,DX BU	80.0	69.9	BU	ug/L		87	80 - 120	
Nickel	1.4	J,DX BU	80.0	72.6	BU	ug/L		89	80 - 120	
Selenium	0.85	J,DX BU	80.0	73.2	BU	ug/L		90	80 - 120	
Silver	0.39	J,DX BU	80.0	72.1	BU	ug/L		90	80 - 120	
Thallium	ND	BU	80.0	74.2	BU	ug/L		93	80 - 120	
Zinc	ND	BU	80.0	74.9	BU	ug/L		94	80 - 120	

Lab Sample ID: 570-130127-2 MSD
Matrix: Water
Analysis Batch: 310644

Client Sample ID: Outfall009_20230307_Comp_F
Prep Type: Dissolved

Analyte	Sample	Sample	Spike	MSD		Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier							
Antimony	3.9	BU	80.0	72.9	BU	ug/L		86	80 - 120	2	20	
Cadmium	ND	BU	80.0	70.7	BU	ug/L		88	80 - 120	1	20	
Copper	2.2	BU	80.0	71.7	BU	ug/L		87	80 - 120	2	20	
Lead	0.16	J,DX BU	80.0	68.9	BU	ug/L		86	80 - 120	1	20	
Nickel	1.4	J,DX BU	80.0	71.4	BU	ug/L		88	80 - 120	2	20	
Selenium	0.85	J,DX BU	80.0	71.5	BU	ug/L		88	80 - 120	2	20	
Silver	0.39	J,DX BU	80.0	71.1	BU	ug/L		88	80 - 120	1	20	
Thallium	ND	BU	80.0	72.0	BU	ug/L		90	80 - 120	3	20	
Zinc	ND	BU	80.0	69.7	BU	ug/L		87	80 - 120	7	20	

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-310131/1-A
Matrix: Water
Analysis Batch: 310669

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 310131

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil
	Result	Qualifier							
Mercury	ND		0.20	0.12	ug/L		03/08/23 22:22	03/10/23 12:50	1

Lab Sample ID: LCS 570-310131/2-A
Matrix: Water
Analysis Batch: 310669

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 310131

Analyte	Spike	LCS		Unit	D	%Rec	%Rec	Limits
		Result	Qualifier					
Mercury	8.00	8.74		ug/L		109	85 - 115	

Lab Sample ID: LCSD 570-310131/3-A
Matrix: Water
Analysis Batch: 310669

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 310131

Analyte	Spike	LCSD		Unit	D	%Rec	%Rec	Limits	RPD	Limit
		Result	Qualifier							
Mercury	8.00	8.77		ug/L		110	85 - 115	0	10	

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 570-130127-1 MS
Matrix: Water
Analysis Batch: 310669

Client Sample ID: Outfall009_20230307_Comp
Prep Type: Total/NA
Prep Batch: 310131

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.37		ug/L		105	85 - 115

Lab Sample ID: 570-130127-1 MSD
Matrix: Water
Analysis Batch: 310669

Client Sample ID: Outfall009_20230307_Comp
Prep Type: Total/NA
Prep Batch: 310131

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	ND		8.00	8.54		ug/L		107	85 - 115	2	10

Lab Sample ID: MB 570-309778/1-B
Matrix: Water
Analysis Batch: 310669

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 309780

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/08/23 17:10	03/10/23 14:10	1

Lab Sample ID: LCS 570-309778/2-B
Matrix: Water
Analysis Batch: 310669

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 309780

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.29		ug/L		104	85 - 115

Lab Sample ID: LCSD 570-309778/3-B
Matrix: Water
Analysis Batch: 310669

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 309780

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	8.00	8.64		ug/L		108	85 - 115	4	10

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-312131/14
Matrix: Water
Analysis Batch: 312131

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			03/14/23 19:36	1

Lab Sample ID: LCS 570-312131/16
Matrix: Water
Analysis Batch: 312131

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	252		ug/L		101	90 - 110

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-1

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate (Continued)

Lab Sample ID: LCSD 570-312131/17
 Matrix: Water
 Analysis Batch: 312131

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	250	266		ug/L		107	90 - 110	5	20

Lab Sample ID: MRL 570-312131/13
 Matrix: Water
 Analysis Batch: 312131

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	5.00	6.06		ug/L		121	50 - 150		

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-311135/1
 Matrix: Water
 Analysis Batch: 311135

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			03/13/23 16:32	1

Lab Sample ID: LCS 570-311135/2
 Matrix: Water
 Analysis Batch: 311135

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	980		mg/L		98	84 - 108		

Lab Sample ID: LCSD 570-311135/3
 Matrix: Water
 Analysis Batch: 311135

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	972		mg/L		97	84 - 108	1	10

Lab Sample ID: 570-130127-1 DU
 Matrix: Water
 Analysis Batch: 311135

Client Sample ID: Outfall009_20230307_Comp
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	130		136		mg/L		6	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-310629/1
 Matrix: Water
 Analysis Batch: 310629

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			03/10/23 12:07	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCS 570-310629/2
 Matrix: Water
 Analysis Batch: 310629

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	102		mg/L		102	77 - 116

Lab Sample ID: LCSD 570-310629/3
 Matrix: Water
 Analysis Batch: 310629

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	101		mg/L		101	77 - 116	1	10

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-1

HPLC/IC

Analysis Batch: 309794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-1	Outfall009_20230307_Comp	Total/NA	Water	300.0	
MB 570-309794/5	Method Blank	Total/NA	Water	300.0	
LCS 570-309794/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-309794/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 310704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-1	Outfall009_20230307_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Filtration Batch: 309778

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-2	Outfall009_20230307_Comp_F	Dissolved	Water	Filtration	
MB 570-309778/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-309778/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-309778/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	

Prep Batch: 309780

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-2	Outfall009_20230307_Comp_F	Dissolved	Water	245.1	309778
MB 570-309778/1-B	Method Blank	Dissolved	Water	245.1	309778
LCS 570-309778/2-B	Lab Control Sample	Dissolved	Water	245.1	309778
LCSD 570-309778/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	309778

Prep Batch: 309830

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-1	Outfall009_20230307_Comp	Total Recoverable	Water	200.8	
MB 570-309830/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-309830/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-309830/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-130127-1 MS	Outfall009_20230307_Comp	Total Recoverable	Water	200.8	
570-130127-1 MSD	Outfall009_20230307_Comp	Total Recoverable	Water	200.8	

Analysis Batch: 309984

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-1	Outfall009_20230307_Comp	Total Recoverable	Water	200.8	309830
MB 570-309830/1-A	Method Blank	Total Recoverable	Water	200.8	309830
LCS 570-309830/2-A	Lab Control Sample	Total Recoverable	Water	200.8	309830
LCSD 570-309830/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	309830
570-130127-1 MS	Outfall009_20230307_Comp	Total Recoverable	Water	200.8	309830
570-130127-1 MSD	Outfall009_20230307_Comp	Total Recoverable	Water	200.8	309830

Prep Batch: 310131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-1	Outfall009_20230307_Comp	Total/NA	Water	245.1	
MB 570-310131/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-310131/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-310131/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-130127-1 MS	Outfall009_20230307_Comp	Total/NA	Water	245.1	

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-1

Metals (Continued)

Prep Batch: 310131 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-1 MSD	Outfall009_20230307_Comp	Total/NA	Water	245.1	

Filtration Batch: 310572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-2	Outfall009_20230307_Comp_F	Dissolved	Water	Filtration	
MB 570-310572/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-310572/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-310572/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-130127-2 MS	Outfall009_20230307_Comp_F	Dissolved	Water	Filtration	
570-130127-2 MSD	Outfall009_20230307_Comp_F	Dissolved	Water	Filtration	

Analysis Batch: 310644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-2	Outfall009_20230307_Comp_F	Dissolved	Water	200.8	310572
MB 570-310572/1-A	Method Blank	Dissolved	Water	200.8	310572
LCS 570-310572/2-A	Lab Control Sample	Dissolved	Water	200.8	310572
LCSD 570-310572/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	310572
570-130127-2 MS	Outfall009_20230307_Comp_F	Dissolved	Water	200.8	310572
570-130127-2 MSD	Outfall009_20230307_Comp_F	Dissolved	Water	200.8	310572

Analysis Batch: 310669

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-1	Outfall009_20230307_Comp	Total/NA	Water	245.1	310131
570-130127-2	Outfall009_20230307_Comp_F	Dissolved	Water	245.1	309780
MB 570-309778/1-B	Method Blank	Dissolved	Water	245.1	309780
MB 570-310131/1-A	Method Blank	Total/NA	Water	245.1	310131
LCS 570-309778/2-B	Lab Control Sample	Dissolved	Water	245.1	309780
LCS 570-310131/2-A	Lab Control Sample	Total/NA	Water	245.1	310131
LCSD 570-309778/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	309780
LCSD 570-310131/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	310131
570-130127-1 MS	Outfall009_20230307_Comp	Total/NA	Water	245.1	310131
570-130127-1 MSD	Outfall009_20230307_Comp	Total/NA	Water	245.1	310131

General Chemistry

Analysis Batch: 310629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-1	Outfall009_20230307_Comp	Total/NA	Water	SM 2540D	
MB 570-310629/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-310629/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-310629/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 311135

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-1	Outfall009_20230307_Comp	Total/NA	Water	SM 2540C	
MB 570-311135/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-311135/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-311135/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
570-130127-1 DU	Outfall009_20230307_Comp	Total/NA	Water	SM 2540C	

QC Association Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

General Chemistry

Analysis Batch: 312131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-1	Outfall009_20230307_Comp	Total/NA	Water	Kelada 01	
MB 570-312131/14	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-312131/16	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-312131/17	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-312131/13	Lab Control Sample	Total/NA	Water	Kelada 01	

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- 14

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-1

Client Sample ID: Outfall009_20230307_Comp

Lab Sample ID: 570-130127-1

Date Collected: 03/07/23 10:00

Matrix: Water

Date Received: 03/07/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	4 mL	4 mL	309794	03/08/23 11:14	UIP1	EET CAL 4
Instrument ID: IC7										
Total/NA	Analysis	NO2NO3 Calc		1			310704	03/10/23 16:06	WH6J	EET CAL 4
Instrument ID: NOEQUIP										
Total Recoverable	Prep	200.8			50 mL	50 mL	309830	03/08/23 08:49	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			309984	03/08/23 11:57	Y2WS	EET CAL 4
Instrument ID: ICPMS10										
Total/NA	Prep	245.1			25 mL	50 mL	310131	03/08/23 22:22	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			310669	03/10/23 13:02	C0YH	EET CAL 4
Instrument ID: HG8										
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	312131	03/14/23 19:36	GG0B	EET CAL 4
Instrument ID: LACHAT01										
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	311135	03/13/23 16:32	ZL7L	EET CAL 4
Instrument ID: NOEQUIP										
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	310629	03/10/23 12:07	WVA4	EET CAL 4
Instrument ID: BAL71										

Client Sample ID: Outfall009_20230307_Comp_F

Lab Sample ID: 570-130127-2

Date Collected: 03/07/23 10:00

Matrix: Water

Date Received: 03/07/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	310572	03/10/23 09:48	JP8N	EET CAL 4
Dissolved	Analysis	200.8		1			310644	03/10/23 10:58	Y2WS	EET CAL 4
Instrument ID: ICPMS09										
Dissolved	Filtration	Filtration			25 mL	25 mL	309778	03/08/23 00:17	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	309780	03/08/23 17:10	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			310669	03/10/23 14:23	C0YH	EET CAL 4
Instrument ID: HG8										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Job ID: 570-130127-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23



Method Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4

Protocol References:

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Job ID: 570-130127-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130127-1	Outfall009_20230307_Comp	Water	03/07/23 10:00	03/07/23 18:00
570-130127-2	Outfall009_20230307_Comp_F	Water	03/07/23 10:00	03/07/23 18:00

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- 14

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130127-1

Login Number: 130127

List Number: 1

Creator: Cruise, Noel

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 009 - Comp

JOB NUMBER

570-130127-2

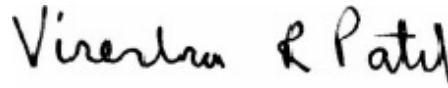
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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4/3/2023 3:07:21 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 - Comp

Job ID: 570-130127-2

Job ID: 570-130127-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-130127-2

Comments

No additional comments.

Receipt

The samples were received on 3/7/2023 6:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.7° C.

Receipt Exceptions

The reference method requires samples to have a pH of <2. The following samples were received with a pH of 7: <Affected Samples>. The samples were adjusted to the appropriate pH in the laboratory.

Dioxin

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: Outfall009_20230307_Comp (570-130127-1), (CCV 320-664654/2), (LCS 320-663889/2-A), (LCSD 320-663889/3-A) and (MB 320-663889/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-2

Client Sample ID: Outfall009_20230307_Comp

Lab Sample ID: 570-130127-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,7,8-HxCDD	0.0000012	J,DX q MB	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				50					
1,2,3,6,7,8-HxCDD	0.0000059	J,DX q	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				50					
1,2,3,7,8,9-HxCDF	0.0000082	J,DX	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				72					
2,3,4,6,7,8-HxCDF	0.0000052	J,DX q	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				65					
1,2,3,4,6,7,8-HpCDD	0.0000013	J,DX q MB	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				38					
1,2,3,4,6,7,8-HpCDF	0.0000012	J,DX q MB	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				84					
OCDD	0.000011	J,DX MB	0.000095	0.0000000	ug/L	1		1613B	Total/NA
				87					
Total PeCDD	0.0000013	J,DX q	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				64					
Total HxCDD	0.0000018	J,DX q MB	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				45					
Total HxCDF	0.0000013	J,DX q MB	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				65					
Total HpCDD	0.0000024	J,DX q MB	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				38					
Total HpCDF	0.0000012	J,DX q MB	0.000048	0.0000000	ug/L	1		1613B	Total/NA
				84					

This Detection Summary does not include radiochemical test results.

Eurofins Calscience



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall009_20230307_Comp

Date Collected: 03/07/23 10:00

Date Received: 03/07/23 18:00

Lab Sample ID: 570-130127-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000095	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				38					
2,3,7,8-TCDF	ND		0.0000095	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				071					
1,2,3,7,8-PeCDD	ND		0.000048	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				64					
1,2,3,7,8-PeCDF	ND		0.000048	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				18					
2,3,4,7,8-PeCDF	ND		0.000048	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				21					
1,2,3,4,7,8-HxCDD	0.0000012	J,DX q MB	0.000048	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				50					
1,2,3,6,7,8-HxCDD	0.00000059	J,DX q	0.000048	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				50					
1,2,3,7,8,9-HxCDD	ND		0.000048	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				45					
1,2,3,4,7,8-HxCDF	ND		0.000048	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				71					
1,2,3,6,7,8-HxCDF	ND		0.000048	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				67					
1,2,3,7,8,9-HxCDF	0.00000082	J,DX	0.000048	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				72					
2,3,4,6,7,8-HxCDF	0.00000052	J,DX q	0.000048	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				65					
1,2,3,4,6,7,8-HpCDD	0.0000013	J,DX q MB	0.000048	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				38					
1,2,3,4,6,7,8-HpCDF	0.0000012	J,DX q MB	0.000048	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				84					
1,2,3,4,7,8,9-HpCDF	ND		0.000048	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				87					
OCDD	0.000011	J,DX MB	0.000095	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				87					
OCDF	ND		0.000095	0.0000001	ug/L		03/28/23 14:11	03/31/23 01:46	1
				6					
Total TCDD	ND		0.0000095	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				38					
Total TCDF	ND		0.0000095	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				071					
Total PeCDD	0.0000013	J,DX q	0.000048	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				64					
Total PeCDF	ND		0.000048	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				18					
Total HxCDD	0.0000018	J,DX q MB	0.000048	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				45					
Total HxCDF	0.0000013	J,DX q MB	0.000048	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				65					
Total HpCDD	0.0000024	J,DX q MB	0.000048	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				38					
Total HpCDF	0.0000012	J,DX q MB	0.000048	0.0000000	ug/L		03/28/23 14:11	03/31/23 01:46	1
				84					
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	69		25 - 164				03/28/23 14:11	03/31/23 01:46	1
13C-2,3,7,8-TCDF	65		24 - 169				03/28/23 14:11	03/31/23 01:46	1
13C-1,2,3,7,8-PeCDD	68		25 - 181				03/28/23 14:11	03/31/23 01:46	1

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Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall009_20230307_Comp

Lab Sample ID: 570-130127-1

Date Collected: 03/07/23 10:00

Matrix: Water

Date Received: 03/07/23 18:00

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-1,2,3,7,8-PeCDF	63		24 - 185	03/28/23 14:11	03/31/23 01:46	1
13C-2,3,4,7,8-PeCDF	63		21 - 178	03/28/23 14:11	03/31/23 01:46	1
13C-1,2,3,4,7,8-HxCDD	66		32 - 141	03/28/23 14:11	03/31/23 01:46	1
13C-1,2,3,6,7,8-HxCDD	67		28 - 130	03/28/23 14:11	03/31/23 01:46	1
13C-1,2,3,4,7,8-HxCDF	62		26 - 152	03/28/23 14:11	03/31/23 01:46	1
13C-1,2,3,6,7,8-HxCDF	66		26 - 123	03/28/23 14:11	03/31/23 01:46	1
13C-1,2,3,7,8,9-HxCDF	65		29 - 147	03/28/23 14:11	03/31/23 01:46	1
13C-2,3,4,6,7,8-HxCDF	67		28 - 136	03/28/23 14:11	03/31/23 01:46	1
13C-1,2,3,4,6,7,8-HpCDD	68		23 - 140	03/28/23 14:11	03/31/23 01:46	1
13C-1,2,3,4,6,7,8-HpCDF	56		28 - 143	03/28/23 14:11	03/31/23 01:46	1
13C-1,2,3,4,7,8,9-HpCDF	63		26 - 138	03/28/23 14:11	03/31/23 01:46	1
13C-OCDD	62		17 - 157	03/28/23 14:11	03/31/23 01:46	1
13C-OCDF	60		17 - 157	03/28/23 14:11	03/31/23 01:46	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	93		35 - 197	03/28/23 14:11	03/31/23 01:46	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Job ID: 570-130127-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-130127-1	Outfall009_20230307_Comp	93
MB 320-663889/1-A	Method Blank	93

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-663889/2-A	Lab Control Sample	93
LCSD 320-663889/3-A	Lab Control Sample Dup	95

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-130127-1	Outfall009_20230307_Comp	69	65	68	63	63	66	67	62
MB 320-663889/1-A	Method Blank	66	65	70	61	59	62	61	59

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-130127-1	Outfall009_20230307_Comp	66	65	67	68	56	63	62	60
MB 320-663889/1-A	Method Blank	59	65	64	68	57	65	65	63

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
 TCDF = 13C-2,3,7,8-TCDF
 PeCDD = 13C-1,2,3,7,8-PeCDD
 PeCDF = 13C-1,2,3,7,8-PeCDF
 PeCF = 13C-2,3,4,7,8-PeCDF
 HxCDD = 13C-1,2,3,4,7,8-HxCDD
 HxDD = 13C-1,2,3,6,7,8-HxCDD
 HxCDF = 13C-1,2,3,4,7,8-HxCDF
 HxDF = 13C-1,2,3,6,7,8-HxCDF
 HxCF = 13C-1,2,3,7,8,9-HxCDF
 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
 HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
 HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
 HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
 OCDD = 13C-OCDD
 OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-663889/2-A	Lab Control Sample	65	52	69	62	61	60	60	58
LCSD 320-663889/3-A	Lab Control Sample Dup	75	69	82	77	73	74	75	69

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-663889/2-A	Lab Control Sample	57	63	62	69	46	65	67	67
LCSD 320-663889/3-A	Lab Control Sample Dup	70	76	75	85	68	79	82	80

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
 TCDF = 13C-2,3,7,8-TCDF
 PeCDD = 13C-1,2,3,7,8-PeCDD
 PeCDF = 13C-1,2,3,7,8-PeCDF
 PeCF = 13C-2,3,4,7,8-PeCDF
 HxCDD = 13C-1,2,3,4,7,8-HxCDD
 HxDD = 13C-1,2,3,6,7,8-HxCDD
 HxCDF = 13C-1,2,3,4,7,8-HxCDF

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

HxDF = 13C-1,2,3,6,7,8-HxCDF

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-663889/1-A
Matrix: Water
Analysis Batch: 664654

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 663889

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000000	ug/L		03/28/23 14:11	03/30/23 21:45	1
				93					
2,3,7,8-TCDF	ND		0.000010	0.0000000	ug/L		03/28/23 14:11	03/30/23 21:45	1
				059					
1,2,3,7,8-PeCDD	ND		0.000050	0.0000000	ug/L		03/28/23 14:11	03/30/23 21:45	1
				65					
1,2,3,7,8-PeCDF	ND		0.000050	0.0000000	ug/L		03/28/23 14:11	03/30/23 21:45	1
				29					
2,3,4,7,8-PeCDF	ND		0.000050	0.0000000	ug/L		03/28/23 14:11	03/30/23 21:45	1
				33					
1,2,3,4,7,8-HxCDD	0.00000214	J,DX	0.000050	0.0000000	ug/L		03/28/23 14:11	03/30/23 21:45	1
				52					
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000000	ug/L		03/28/23 14:11	03/30/23 21:45	1
				55					
1,2,3,7,8,9-HxCDD	ND		0.000050	0.0000000	ug/L		03/28/23 14:11	03/30/23 21:45	1
				49					
1,2,3,4,7,8-HxCDF	0.000000586	J,DX q	0.000050	0.0000001	ug/L		03/28/23 14:11	03/30/23 21:45	1
				0					
1,2,3,6,7,8-HxCDF	ND		0.000050	0.0000001	ug/L		03/28/23 14:11	03/30/23 21:45	1
				0					
1,2,3,7,8,9-HxCDF	ND		0.000050	0.0000000	ug/L		03/28/23 14:11	03/30/23 21:45	1
				99					
2,3,4,6,7,8-HxCDF	ND		0.000050	0.0000000	ug/L		03/28/23 14:11	03/30/23 21:45	1
				90					
1,2,3,4,6,7,8-HpCDD	0.00000179	J,DX q	0.000050	0.0000000	ug/L		03/28/23 14:11	03/30/23 21:45	1
				91					
1,2,3,4,6,7,8-HpCDF	0.00000167	J,DX q	0.000050	0.0000001	ug/L		03/28/23 14:11	03/30/23 21:45	1
				7					
1,2,3,4,7,8,9-HpCDF	0.00000117	J,DX q	0.000050	0.0000001	ug/L		03/28/23 14:11	03/30/23 21:45	1
				8					
OCDD	0.0000102	J,DX q	0.00010	0.0000004	ug/L		03/28/23 14:11	03/30/23 21:45	1
				0					
OCDF	0.00000355	J,DX	0.00010	0.0000006	ug/L		03/28/23 14:11	03/30/23 21:45	1
				5					
Total TCDD	0.00000241	J,DX q	0.000010	0.0000000	ug/L		03/28/23 14:11	03/30/23 21:45	1
				93					
Total TCDF	ND		0.000010	0.0000000	ug/L		03/28/23 14:11	03/30/23 21:45	1
				059					
Total PeCDD	ND		0.000050	0.0000000	ug/L		03/28/23 14:11	03/30/23 21:45	1
				65					
Total PeCDF	ND		0.000050	0.0000000	ug/L		03/28/23 14:11	03/30/23 21:45	1
				29					
Total HxCDD	0.00000214	J,DX	0.000050	0.0000000	ug/L		03/28/23 14:11	03/30/23 21:45	1
				49					
Total HxCDF	0.000000586	J,DX q	0.000050	0.0000000	ug/L		03/28/23 14:11	03/30/23 21:45	1
				90					
Total HpCDD	0.00000330	J,DX q	0.000050	0.0000000	ug/L		03/28/23 14:11	03/30/23 21:45	1
				91					
Total HpCDF	0.00000285	J,DX q	0.000050	0.0000001	ug/L		03/28/23 14:11	03/30/23 21:45	1
				7					
	MB	MB							
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	66		25 - 164				03/28/23 14:11	03/30/23 21:45	1
13C-2,3,7,8-TCDF	65		24 - 169				03/28/23 14:11	03/30/23 21:45	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-663889/1-A
Matrix: Water
Analysis Batch: 664654

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 663889

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8-PeCDD	70		25 - 181	03/28/23 14:11	03/30/23 21:45	1
13C-1,2,3,7,8-PeCDF	61		24 - 185	03/28/23 14:11	03/30/23 21:45	1
13C-2,3,4,7,8-PeCDF	59		21 - 178	03/28/23 14:11	03/30/23 21:45	1
13C-1,2,3,4,7,8-HxCDD	62		32 - 141	03/28/23 14:11	03/30/23 21:45	1
13C-1,2,3,6,7,8-HxCDD	61		28 - 130	03/28/23 14:11	03/30/23 21:45	1
13C-1,2,3,4,7,8-HxCDF	59		26 - 152	03/28/23 14:11	03/30/23 21:45	1
13C-1,2,3,6,7,8-HxCDF	59		26 - 123	03/28/23 14:11	03/30/23 21:45	1
13C-1,2,3,7,8,9-HxCDF	65		29 - 147	03/28/23 14:11	03/30/23 21:45	1
13C-2,3,4,6,7,8-HxCDF	64		28 - 136	03/28/23 14:11	03/30/23 21:45	1
13C-1,2,3,4,6,7,8-HpCDD	68		23 - 140	03/28/23 14:11	03/30/23 21:45	1
13C-1,2,3,4,6,7,8-HpCDF	57		28 - 143	03/28/23 14:11	03/30/23 21:45	1
13C-1,2,3,4,7,8,9-HpCDF	65		26 - 138	03/28/23 14:11	03/30/23 21:45	1
13C-OCDD	65		17 - 157	03/28/23 14:11	03/30/23 21:45	1
13C-OCDF	63		17 - 157	03/28/23 14:11	03/30/23 21:45	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	93		35 - 197	03/28/23 14:11	03/30/23 21:45	1

Lab Sample ID: LCS 320-663889/2-A
Matrix: Water
Analysis Batch: 664654

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 663889

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,3,7,8-TCDF	0.000200	0.000208		ug/L		104	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000888		ug/L		89	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000890		ug/L		89	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000886		ug/L		89	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000905		ug/L		91	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.000921		ug/L		92	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.000949		ug/L		95	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000911		ug/L		91	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000915		ug/L		92	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000907		ug/L		91	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000907		ug/L		91	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000845		ug/L		85	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.000961		ug/L		96	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000898		ug/L		90	78 - 138
OCDD	0.00200	0.00183		ug/L		91	78 - 144
OCDF	0.00200	0.00184		ug/L		92	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	65		20 - 175
13C-2,3,7,8-TCDF	52		22 - 152
13C-1,2,3,7,8-PeCDD	69		21 - 227
13C-1,2,3,7,8-PeCDF	62		21 - 192
13C-2,3,4,7,8-PeCDF	61		13 - 328

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-663889/2-A
Matrix: Water
Analysis Batch: 664654

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 663889

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,4,7,8-HxCDD	60		21 - 193
13C-1,2,3,6,7,8-HxCDD	60		25 - 163
13C-1,2,3,4,7,8-HxCDF	58		19 - 202
13C-1,2,3,6,7,8-HxCDF	57		21 - 159
13C-1,2,3,7,8,9-HxCDF	63		17 - 205
13C-2,3,4,6,7,8-HxCDF	62		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	69		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	46		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	65		20 - 186
13C-OCDD	67		13 - 199
13C-OCDF	67		13 - 199

Surrogate	LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	93		31 - 191

Lab Sample ID: LCSD 320-663889/3-A
Matrix: Water
Analysis Batch: 664654

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 663889

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,3,7,8-TCDD	0.000200	0.000195		ug/L		97	67 - 158	0	50
2,3,7,8-TCDF	0.000200	0.000211		ug/L		105	75 - 158	1	50
1,2,3,7,8-PeCDD	0.00100	0.000922		ug/L		92	70 - 142	4	50
1,2,3,7,8-PeCDF	0.00100	0.000887		ug/L		89	80 - 134	0	50
2,3,4,7,8-PeCDF	0.00100	0.000898		ug/L		90	68 - 160	1	50
1,2,3,4,7,8-HxCDD	0.00100	0.000889		ug/L		89	70 - 164	2	50
1,2,3,6,7,8-HxCDD	0.00100	0.000942		ug/L		94	76 - 134	2	50
1,2,3,7,8,9-HxCDD	0.00100	0.000940		ug/L		94	64 - 162	1	50
1,2,3,4,7,8-HxCDF	0.00100	0.000945		ug/L		94	72 - 134	4	50
1,2,3,6,7,8-HxCDF	0.00100	0.000930		ug/L		93	84 - 130	2	50
1,2,3,7,8,9-HxCDF	0.00100	0.000927		ug/L		93	78 - 130	2	50
2,3,4,6,7,8-HxCDF	0.00100	0.000925		ug/L		92	70 - 156	2	50
1,2,3,4,6,7,8-HpCDD	0.00100	0.000845		ug/L		85	70 - 140	0	50
1,2,3,4,6,7,8-HpCDF	0.00100	0.000933		ug/L		93	82 - 122	3	50
1,2,3,4,7,8,9-HpCDF	0.00100	0.000904		ug/L		90	78 - 138	1	50
OCDD	0.00200	0.00184		ug/L		92	78 - 144	1	50
OCDF	0.00200	0.00188		ug/L		94	63 - 170	2	50

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	75		20 - 175
13C-2,3,7,8-TCDF	69		22 - 152
13C-1,2,3,7,8-PeCDD	82		21 - 227
13C-1,2,3,7,8-PeCDF	77		21 - 192
13C-2,3,4,7,8-PeCDF	73		13 - 328
13C-1,2,3,4,7,8-HxCDD	74		21 - 193
13C-1,2,3,6,7,8-HxCDD	75		25 - 163
13C-1,2,3,4,7,8-HxCDF	69		19 - 202

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-663889/3-A

Matrix: Water

Analysis Batch: 664654

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 663889

<i>Isotope Dilution</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C-1,2,3,6,7,8-HxCDF	70		21 - 159
13C-1,2,3,7,8,9-HxCDF	76		17 - 205
13C-2,3,4,6,7,8-HxCDF	75		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	85		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	68		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	79		20 - 186
13C-OCDD	82		13 - 199
13C-OCDF	80		13 - 199

<i>Surrogate</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
37Cl4-2,3,7,8-TCDD	95		31 - 191

QC Association Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Specialty Organics

Prep Batch: 663889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-1	Outfall009_20230307_Comp	Total/NA	Water	1613B	
MB 320-663889/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-663889/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-663889/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 664654

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-1	Outfall009_20230307_Comp	Total/NA	Water	1613B	663889
MB 320-663889/1-A	Method Blank	Total/NA	Water	1613B	663889
LCS 320-663889/2-A	Lab Control Sample	Total/NA	Water	1613B	663889
LCSD 320-663889/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	663889

Lab Chronicle

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Client Sample ID: Outfall009_20230307_Comp

Lab Sample ID: 570-130127-1

Date Collected: 03/07/23 10:00

Matrix: Water

Date Received: 03/07/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			1050 mL	20.0 uL	663889	03/28/23 14:11	CGB	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	664654	03/31/23 01:46	GRB	EET SAC

Instrument ID: DFS 1

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-23 *
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-24
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-24
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442021-12	02-28-23 *
Virginia	NELAP	460278	03-14-24
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins Calscience

Method Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

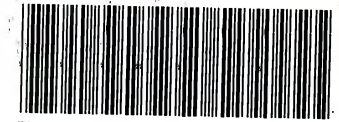
Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Job ID: 570-130127-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130127-1	Outfall009_20230307_Comp	Water	03/07/23 10:00	03/07/23 18:00

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

CHAIN OF CUSTODY FORM



570-130127 Chain of Custody

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall (003-007, 009, 010) Outfall 009 Comp				ANALYSIS REQUIRED																	
Eurofins Calscience Project Manager: Virendra Patel 2841 Dow Avenue, Suite #100 Tustin, CA 92780 Tel: 714-895-5494 ECI Project #57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)				Comments																	
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.																							
Sampler:																							
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.6): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (and all congeners) (E1613B)	Cl ⁻ , SO ₄ ⁻ , NO ₃ ⁻ , NO ₂ ⁻ (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.6): Ni, Zn (E200.8): Ag, Cd, Cu, Pb, Sb, Se, Ti	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E906.0), Sr-90 (E906.0), Total Combined Radium 226 (E906.0 or E903.1) & Radium 228 (E904.0), Uranium (E906.0), K-40, Cs-137 (E901.0 or E901.1)	Cyanide (SM4500-CN-E /E395.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))					
1 Outfall 009	Outfall009_20230307_Comp	3/7/2023 /1000	WM	500 mL Poly	1	HNO ₃	95	Yes	X														
			WM	1 L Glass Amber	2	None	110	No		X													
			WM	500 mL Poly	2	None	145	No			X											48 hours Holding Time NO ₃ & NO ₂	
			WM	500 mL Poly	1	None	155	No				X											
			WM	500 mL Poly	1	NaOH	220	No									X						
			WM	2.5 Gal Cube	1	None	225	No															Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	1 L Glass Amber	1	None	230	No															
	2 3	Outfall009_20230307_Comp_F	3/7/2023 /1000	WM	1 L Poly	1	None	185	No											X		Filter and preserve w/in 24hrs of receipt at lab	
				WM	1L Poly	1	None	205	Yes					X									
		Outfall009_20230307_Comp_Extra	3/7/2023 /1000	WM	borosilicate vials	1	None	320	No										X			Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.	
WM	1 L Glass Amber			2	None	110	No			H											Hold		
WM	500 mL Poly	2	None	145	No					H											Hold		

Legend: EP=Expert Panel, R=Routine

Relinquished By: <i>[Signature]</i> Date/Time: 3-7-2023/15:30 Company: HIA	Received By: <i>[Signature]</i> Date/Time: 3-7-23 15:30	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <input checked="" type="checkbox"/> X 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>[Signature]</i> Date/Time: 3-7-23 18:00 Company: EC	Received By: <i>[Signature]</i> Date/Time: 3-7-23 18:00	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <input checked="" type="checkbox"/> X

1.7/1.7 sc11

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130127-2

Login Number: 130127

List Number: 1

Creator: Cruise, Noel

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130127-2

Login Number: 130127

List Number: 3

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 03/09/23 05:02 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.1c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 4/12/2023 7:55:15 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 009 - Comp

JOB NUMBER

570-130127-3

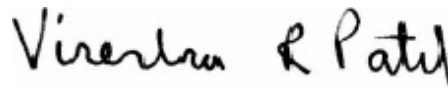
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization

 Generated
4/12/2023 7:55:15 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494

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Definitions/Glossary

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Qualifiers

Rad

Qualifier	Qualifier Description
F	MS/MSD Recovery and/or RPD exceeds the control limits
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 - Comp

Job ID: 570-130127-3

Job ID: 570-130127-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-130127-3

Comments

No additional comments.

Receipt

The samples were received on 3/7/2023 6:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.7° C.

Receipt Exceptions

The reference method requires samples to have a pH of <2. The following samples were received with a pH of 7: <Affected Samples>. The samples were adjusted to the appropriate pH in the laboratory.

RAD

Method 900.0: Gross Alpha Beta prep batch 160-606236:

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 160-606326 and analytical batch 160-606671 were outside control limits for one or more analytes. In addition RER/RPD was also outside of control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 900.0: Gross Alpha Beta prep batch 160-606326:

The detection goal was not met for the following sample(s). The samples and batch QC were prepped at full volume. Matrix interferences are suspected because the method blank achieved the detection goal demonstrating acceptable sample preparation and instrument performance. (570-129852-R-1-F)

Method 900.0: Gross Alpha Beta prep batch 160-606326:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230307_Comp (570-130127-1), (LCS 160-606326/2-A), (LCSB 160-606326/3-A), (MB 160-606326/1-A), (570-129852-R-1-F), (570-129852-R-1-J MS), (570-129852-R-1-L MSBT), (570-129852-R-1-M MSBTD) and (570-129852-R-1-K MSD)

Method 901.1: Gamma Prep Batch 160-604032

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 - Comp

Job ID: 570-130127-3

Job ID: 570-130127-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

**The method blank (MB) Z-score is within limits and is located in the level IV raw data.

Outfall009_20230307_Comp (570-130127-1), (570-128840-R-1-D) and (570-128840-R-1-E DU)

Methods 903.0, 9315: Radium-226 prep batch 160-604353:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230307_Comp (570-130127-1), (LCS 160-604353/2-A), (LCSD 160-604353/3-A) and (MB 160-604353/1-A)

Methods 904.0, 9320: Radium-228 batch 604358

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230307_Comp (570-130127-1), (LCS 160-604358/2-A), (LCSD 160-604358/3-A) and (MB 160-604358/1-A)

Method 905: Strontium-90 batch 604379

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230307_Comp (570-130127-1), (LCS 160-604379/2-A), (MB 160-604379/1-A), (570-129852-R-1-D), (570-129852-L-1-E MS) and (570-129852-L-1-F MSD)

Method 906.0: Tritium 605397

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230307_Comp (570-130127-1), (LCS 160-605397/2-A), (MB 160-605397/1-A), (570-129852-Q-1-B), (570-129852-K-1-D MS) and (570-129852-K-1-E MSD)

Method 906.0: The matrix spike duplicate (MSD) recovery was inadvertently not spiked. However the matrix spike (MS) was within range and all other QC was within limits. Per client, the data will be reported with this narrative. Outfall009_20230307_Comp (570-130127-1), (570-129852-Q-1-B), (570-129852-K-1-D MS) and (570-129852-K-1-E MSD)

Method A-01-R: Isotopic Uranium Batch 605724

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230307_Comp (570-130127-1), (LCS 160-605724/2-A), (MB 160-605724/1-A), (570-129852-R-1-E), (570-129852-L-1-G MS) and (570-129852-L-1-H MSD)

Method ExtChrom: Uranium Prep Batch 160-605724:

The following sample was prepared at a reduced aliquot due to sediment and discoloration: Outfall009_20230307_Comp

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 - Comp

Job ID: 570-130127-3

Job ID: 570-130127-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

(570-130127-1).

Method PrecSep_0: Radium-228 Prep Batch 160-604358

Insufficient sample volume was available to perform a sample duplicate for the following samples: Outfall009_20230307_Comp (570-130127-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium-226 Prep Batch 160-604353

Insufficient sample volume was available to perform a sample duplicate for the following samples: Outfall009_20230307_Comp (570-130127-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-7:

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Client Sample ID: Outfall009_20230307_Comp

Lab Sample ID: 570-130127-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall009_20230307_Comp
Date Collected: 03/07/23 10:00
Date Received: 03/07/23 18:00

Lab Sample ID: 570-130127-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.328	U F	0.991	0.991	3.00	1.78	pCi/L	04/06/23 15:43	04/11/23 06:09	1
Gross Beta	0.858	U	0.588	0.594	4.00	0.900	pCi/L	04/06/23 15:43	04/11/23 06:09	1

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Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall009_20230307_Comp

Lab Sample ID: 570-130127-1

Date Collected: 03/07/23 10:00

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	5.28	U	13.7	13.7	20.0	17.2	pCi/L	03/17/23 14:08	03/29/23 18:54	1
Potassium-40	-62.9	U	129	129		173	pCi/L	03/17/23 14:08	03/29/23 18:54	1



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall009_20230307_Comp
Date Collected: 03/07/23 10:00
Date Received: 03/07/23 18:00

Lab Sample ID: 570-130127-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0137	U	0.0674	0.0674	1.00	0.137	pCi/L	03/20/23 11:13	04/11/23 06:44	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.6		30 - 110					03/20/23 11:13	04/11/23 06:44	1



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall009_20230307_Comp
Date Collected: 03/07/23 10:00
Date Received: 03/07/23 18:00

Lab Sample ID: 570-130127-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0512	U	0.297	0.297	1.00	0.596	pCi/L	03/20/23 11:35	04/05/23 11:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.6		30 - 110					03/20/23 11:35	04/05/23 11:37	1
Y Carrier	80.7		30 - 110					03/20/23 11:35	04/05/23 11:37	1



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall009_20230307_Comp
Date Collected: 03/07/23 10:00
Date Received: 03/07/23 18:00

Lab Sample ID: 570-130127-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.271	U	0.409	0.409	3.00	0.791	pCi/L	03/20/23 13:22	03/29/23 16:08	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	80.7		30 - 110					03/20/23 13:22	03/29/23 16:08	1
Y Carrier	75.9		30 - 110					03/20/23 13:22	03/29/23 16:08	1



Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall009_20230307_Comp

Lab Sample ID: 570-130127-1

Date Collected: 03/07/23 10:00

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-7.66	U F	134	134	500	248	pCi/L	03/29/23 11:02	04/04/23 23:15	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall009_20230307_Comp

Lab Sample ID: 570-130127-1

Date Collected: 03/07/23 10:00

Matrix: Water

Date Received: 03/07/23 18:00

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.342		0.222	0.222	1.00	0.151	pCi/L	03/30/23 15:31	04/04/23 20:41	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	93.6		30 - 110					03/30/23 15:31	04/04/23 20:41	1

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)		
570-130127-1	Outfall009_20230307_Comp	87.6		
LCS 160-604353/2-A	Lab Control Sample	90.5		
LCSD 160-604353/3-A	Lab Control Sample Dup	93.6		
MB 160-604353/1-A	Method Blank	90.5		

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)		
570-130127-1	Outfall009_20230307_Comp	87.6	80.7		
LCS 160-604358/2-A	Lab Control Sample	90.5	90.8		
LCSD 160-604358/3-A	Lab Control Sample Dup	93.6	85.2		
MB 160-604358/1-A	Method Blank	90.5	86.4		

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Sr (30-110)	Y (30-110)		
570-130127-1	Outfall009_20230307_Comp	80.7	75.9		
LCS 160-604379/2-A	Lab Control Sample	85.6	76.6		
MB 160-604379/1-A	Method Blank	79.3	70.3		

Tracer/Carrier Legend

Sr = Sr Carrier

Y = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	U-232 (30-110)		
570-130127-1	Outfall009_20230307_Comp	93.6		
LCS 160-605724/2-A	Lab Control Sample	92.1		
MB 160-605724/1-A	Method Blank	92.8		

Tracer/Carrier Legend

U-232 = Uranium-232

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-606326/1-A
Matrix: Water
Analysis Batch: 606671

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 606326

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)								
Gross Alpha	0.4133	U	0.657	0.658	3.00	1.12	pCi/L	04/06/23 10:28	04/10/23 20:47		1	
Gross Beta	0.02677	U	0.496	0.496	4.00	0.874	pCi/L	04/06/23 10:28	04/10/23 20:47		1	

Lab Sample ID: LCS 160-606326/2-A
Matrix: Water
Analysis Batch: 606895

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606326

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Alpha	50.5	51.96		7.62	3.00	2.05	pCi/L	103	75 - 125

Lab Sample ID: LCSB 160-606326/3-A
Matrix: Water
Analysis Batch: 606671

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606326

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Beta	73.4	74.51		7.98	4.00	0.927	pCi/L	102	75 - 125

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-604032/1-A
Matrix: Water
Analysis Batch: 604760

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604032

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)								
Cesium-137	-0.4655	U	10.3	10.3	20.0	12.1	pCi/L	03/17/23 14:08	03/22/23 19:49		1	
Potassium-40	12.53	U	78.9	78.9		135	pCi/L	03/17/23 14:08	03/22/23 19:49		1	

Lab Sample ID: LCS 160-604032/2-A
Matrix: Water
Analysis Batch: 604760

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604032

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Americium-241	135000	143200		17000		415	pCi/L	106	75 - 125
Cesium-137	40900	41780		4980	20.0	92.9	pCi/L	102	75 - 125
Cobalt-60	17800	18360		2190		50.3	pCi/L	103	75 - 125

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-3

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-604353/1-A
Matrix: Water
Analysis Batch: 606895

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604353

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	-0.03495	U	0.0804	0.0804	1.00	0.172	pCi/L	03/20/23 11:13	04/11/23 06:30	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	90.5		30 - 110		03/20/23 11:13	04/11/23 06:30	1			

Lab Sample ID: LCS 160-604353/2-A
Matrix: Water
Analysis Batch: 606896

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604353

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	11.56		1.21	1.00	0.118	pCi/L	102	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	90.5		30 - 110						

Lab Sample ID: LCSD 160-604353/3-A
Matrix: Water
Analysis Batch: 606896

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 604353

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
				Uncert. (2σ+/-)							
Radium-226	11.3	11.64		1.22	1.00	0.130	pCi/L	103	75 - 125	0.03	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Ba Carrier	93.6		30 - 110								

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-604358/1-A
Matrix: Water
Analysis Batch: 606261

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604358

Analyte	MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	MB Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.09792	U	0.271	0.272	1.00	0.484	pCi/L	03/20/23 11:35	04/05/23 11:42	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	90.5		30 - 110		03/20/23 11:35	04/05/23 11:42	1			
Y Carrier	86.4		30 - 110		03/20/23 11:35	04/05/23 11:42	1			

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-3

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-604358/2-A
Matrix: Water
Analysis Batch: 606261

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604358

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	
Radium-228	8.06	8.920		1.20	1.00	0.395	pCi/L	111	75 - 125	
Carrier	%Yield	LCS Qualifier	Limits							
Ba Carrier	90.5		30 - 110							
Y Carrier	90.8		30 - 110							

Lab Sample ID: LCSD 160-604358/3-A
Matrix: Water
Analysis Batch: 606261

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 604358

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228	8.06	8.860		1.20	1.00	0.421	pCi/L	110	75 - 125	0.03	1
Carrier	%Yield	LCSD Qualifier	Limits								
Ba Carrier	93.6		30 - 110								
Y Carrier	85.2		30 - 110								

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-604379/1-A
Matrix: Water
Analysis Batch: 605413

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604379

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.1030	U	0.268	0.268	3.00	0.492	pCi/L	03/20/23 13:22	03/29/23 15:59	1
Carrier	%Yield	MB Qualifier	Limits							
Sr Carrier	79.3		30 - 110							
Y Carrier	70.3		30 - 110							

Lab Sample ID: LCS 160-604379/2-A
Matrix: Water
Analysis Batch: 605413

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604379

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Strontium-90	7.35	7.405		0.842	3.00	0.323	pCi/L	101	75 - 125
Carrier	%Yield	LCS Qualifier	Limits						
Sr Carrier	85.6		30 - 110						
Y Carrier	76.6		30 - 110						

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-3

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-605397/1-A
 Matrix: Water
 Analysis Batch: 606179

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 605397

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	81.53	U	151	151	500	263	pCi/L	03/29/23 11:02	04/04/23 16:05	1

Lab Sample ID: LCS 160-605397/2-A
 Matrix: Water
 Analysis Batch: 606179

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 605397

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Tritium	2090	1744		317	500	251	pCi/L	83	75 - 125

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-605724/1-A
 Matrix: Water
 Analysis Batch: 606117

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 605724

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Total Uranium	0.03149	U	0.08996	0.09003	1.00	0.148	pCi/L	03/30/23 15:31	04/04/23 20:40	1

Tracer	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Yield	Qualifier				
Uranium-232	92.8		30 - 110	03/30/23 15:31	04/04/23 20:40	1

Lab Sample ID: LCS 160-605724/2-A
 Matrix: Water
 Analysis Batch: 606357

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 605724

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Uranium-234	12.7	13.25		1.55	1.00	0.113	pCi/L	104	75 - 125
Uranium-238	13.0	13.61		1.58	1.00	0.123	pCi/L	105	75 - 125

Tracer	LCS	LCS	Limits
	%Yield	Qualifier	
Uranium-232	92.1		30 - 110

QC Association Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Rad

Prep Batch: 604032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-1	Outfall009_20230307_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-604032/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-604032/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	

Prep Batch: 604353

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-1	Outfall009_20230307_Comp	Total/NA	Water	PrecSep-21	
MB 160-604353/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-604353/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-604353/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 604358

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-1	Outfall009_20230307_Comp	Total/NA	Water	PrecSep_0	
MB 160-604358/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-604358/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-604358/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 604379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-1	Outfall009_20230307_Comp	Total/NA	Water	PrecSep-7	
MB 160-604379/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-604379/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	

Prep Batch: 605397

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-1	Outfall009_20230307_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-605397/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-605397/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 605724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-1	Outfall009_20230307_Comp	Total/NA	Water	ExtChrom	
MB 160-605724/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-605724/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	

Prep Batch: 606326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130127-1	Outfall009_20230307_Comp	Total/NA	Water	Evaporation	
MB 160-606326/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-606326/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-606326/3-A	Lab Control Sample	Total/NA	Water	Evaporation	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
 Comp

Job ID: 570-130127-3

Client Sample ID: Outfall009_20230307_Comp

Lab Sample ID: 570-130127-1

Date Collected: 03/07/23 10:00

Matrix: Water

Date Received: 03/07/23 18:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			199.96 mL	1.0 g	606326	04/06/23 15:43	MST	EET SL
Total/NA	Analysis	900.0		1			606895	04/11/23 06:09	SCB	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	604032	03/17/23 14:08	SEH	EET SL
Total/NA	Analysis	901.1		1			605378	03/29/23 18:54	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			759.99 mL	1.0 g	604353	03/20/23 11:13	DJP	EET SL
Total/NA	Analysis	903.0		1			606893	04/11/23 06:44	SCB	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			759.99 mL	1.0 g	604358	03/20/23 11:35	DJP	EET SL
Total/NA	Analysis	904.0		1			606157	04/05/23 11:37	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	PrecSep-7			495.59 mL	1.0 g	604379	03/20/23 13:22	DJP	EET SL
Total/NA	Analysis	905		1			605412	03/29/23 16:08	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	LSC_Dist_Susp			95.73 mL	1.0 g	605397	03/29/23 11:02	SEH	EET SL
Total/NA	Analysis	906.0		1			606179	04/04/23 23:15	REV	EET SL
Instrument ID: LSCAQUA										
Total/NA	Prep	ExtChrom			306.9 mL	1.0 mL	605724	03/30/23 15:31	CMM	EET SL
Total/NA	Analysis	A-01-R		1			606121	04/04/23 20:41	EJS	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	03-31-24
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	06-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins Calscience

Method Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-130127-3

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy

EPA = US Environmental Protection Agency

None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 -
Comp

Job ID: 570-130127-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130127-1	Outfall009_20230307_Comp	Water	03/07/23 10:00	03/07/23 18:00

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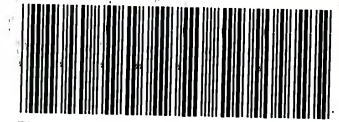
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CHAIN OF CUSTODY FORM



570-130127 Chain of Custody

Client Name/Address:		Project:		ANALYSIS REQUIRED															
Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Boeing-SSFL NPDES Permit 2023 Routine Outfall (003-007, 009, 010) Outfall 009 Comp		Total Recoverable Metals: (E200.6); Ni, Zn (E200.8); Ag, Cd, Cu, Pb, Sb, Se, Ti	TCCD (and all congeners) (E1613B)	Cl ⁻ , SO ₄ ⁻ , NO ₃ ⁻ , NO ₂ ⁻ (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.6); Ni, Zn (E200.8); Ag, Cd, Cu, Pb, Sb, Se, Ti	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E906.0), Sr-90 (E906.0), Total Combined Radium 226 (E906.0 or E906.1) & Radium 228 (E904.0), Uranium (E906.0), K-40, Cs-137 (E901.0 or E901.1)	Cyanide (SM4500-CN-E /E395.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))	Comments					
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD											
1 Outfall 009	Outfall009_20230307_Comp	3/7/2023 10:00	WM	500 mL Poly	1	HNO ₃	95	Yes	X										
			WM	1 L Glass Amber	2	None	110	No		X									
			WM	500 mL Poly	2	None	145	No			X							48 hours Holding Time NO ₃ & NO ₂	
			WM	500 mL Poly	1	None	155	No				X							
			WM	500 mL Poly	1	NaOH	220	No					X						
			WM	2.5 Gal Cube	1	None	225	No							X				Unfiltered and unpreserved analysis, Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	1 L Glass Amber	1	None	230	No								X			
2	Outfall009_20230307_Comp_F	3/7/2023 10:00	WM	1 L Poly	1	None	185	No						X			Filter and preserve w/in 24hrs of receipt at lab		
			WM	1L Poly	1	None	205	Yes			X								
3	Outfall009_20230307_Comp_Extra	3/7/2023 10:00	WM	borosilicate vials	1	None	320	No						X			Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.		
			WM	1 L Glass Amber	2	None	110	No			H							Hold	
WM	500 mL Poly	2	None	145	No					H							Hold		

Legend: EP=Expert Panel, R=Routine			
Relinquished By: <i>[Signature]</i>	Date/Time: 3-7-2023/ 15:30	Company: HIA	Received By: <i>[Signature]</i> Date/Time: 3-7-23 15:30
Relinquished By: <i>[Signature]</i>	Date/Time: 3-7-23 18:00	Company: EC	Received By: <i>[Signature]</i> Date/Time: 3-7-23 18:00
Relinquished By: <i>[Signature]</i>	Date/Time: 3-7-23 18:00	Company: EC	Received By: <i>[Signature]</i> Date/Time: 3-7-23 18:00

1.7/1.7 sc11

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Patel, Virendra		Lab PM: Patel, Virendra		Carrier Tracking No(s): 570-209583.1		COC No: 570-209583.1	
Company: TestAmerica Laboratories, Inc.		Phone:		E-Mail: Virendra.Patel@et.eurofins.com		State of Origin: California		Page: Page 1 of 1	
Address: 13715 Rider Trail North,		Due Date Requested: 3/17/2023		Accreditations Required (See note): State Program - California		Job #: 570-130127-1		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify) Other:	
City: Earth City		TAT Requested (days):		Analysis Requested		Total Number of Containers		Special Instructions/Note:	
State, Zip: MO, 63045		PO #:		900.0/Evaporation Gross Alpha/Beta		906.0/SC_Dist_Susp Tritium		Boeing SSFL; DO NOT FILTER, use prep date from preservation	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)		WO #:		905.5/90/PreSep_7 Strontium-90		903.0/PreSep_21 Radium-226			
Email:		Project #:		904.0/PreSep_0 Radium-228		901.1_Ca/Fill_Geo_0 K-40 and Cesium-137			
Project Name: Boeing NPDES SSFL - Routine Outfall - 009 - Comp		57013187		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)			
Site:		SSOW#:		Matrix (Water, Solid, Overstabil)		Preservation Code:			
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Special Instructions/Note:	
Outfall009_20230307_Comp (570-130127-1)		3/17/23		10:00 Pacific		Water		Boeing SSFL; DO NOT FILTER, use prep date from preservation	

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Unconfirmed		Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <input type="checkbox"/> Months	
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:	
Empty Kit Relinquished by:		Method of Shipment:	
Date/Time: 03/08/23 9:28		Date/Time: FED EX	
Relinquished by: [Signature]		Received by: [Signature]	
Date/Time: [Signature]		Date/Time: MAR 09 2023 16:10	
Relinquished by: [Signature]		Received by: [Signature]	
Date/Time: [Signature]		Date/Time: [Signature]	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130127-3

Login Number: 130127

List Number: 1

Creator: Cruise, Noel

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130127-3

Login Number: 130127

List Number: 2

Creator: Worthington, Sierra M

List Source: Eurofins St. Louis

List Creation: 03/09/23 03:21 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	False	Refer to Job Narrative for details.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 3/22/2023 7:53:17 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 009

JOB NUMBER

570-130856-1

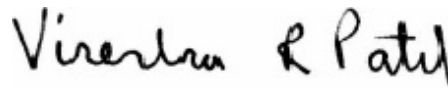
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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3/22/2023 7:53:17 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009

Job ID: 570-130856-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009

Job ID: 570-130856-1

Job ID: 570-130856-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-130856-1

Comments

No additional comments.

Receipt

The samples were received on 3/13/2023 7:25 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.8° C.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 1664A: The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-311356.

Method: 1664.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009

Job ID: 570-130856-1

Client Sample ID: Outfall009_20230310_Grab

Lab Sample ID: 570-130856-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
HEM (Oil & Grease)	0.79	J,DX	0.99	0.50	mg/L	1		1664A	Total/NA

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009

Job ID: 570-130856-1

General Chemistry

Client Sample ID: Outfall009_20230310_Grab
Date Collected: 03/10/23 08:40
Date Received: 03/13/23 19:25

Lab Sample ID: 570-130856-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	0.79	J,DX	0.99	0.50	mg/L		03/14/23 10:20	03/14/23 14:08	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009

Job ID: 570-130856-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-311356/1-A
Matrix: Water
Analysis Batch: 311464

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 311356

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		1.0	0.51	mg/L		03/14/23 10:20	03/14/23 14:08	1

Lab Sample ID: LCS 570-311356/2-A
Matrix: Water
Analysis Batch: 311464

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 311356

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	38.2		mg/L		95	78 - 114

Lab Sample ID: LCSD 570-311356/3-A
Matrix: Water
Analysis Batch: 311464

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 311356

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	36.2		mg/L		91	78 - 114	5	18

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009

Job ID: 570-130856-1

General Chemistry

Prep Batch: 311356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130856-1	Outfall009_20230310_Grab	Total/NA	Water	1664A	
MB 570-311356/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-311356/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-311356/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 311464

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130856-1	Outfall009_20230310_Grab	Total/NA	Water	1664A	311356
MB 570-311356/1-A	Method Blank	Total/NA	Water	1664A	311356
LCS 570-311356/2-A	Lab Control Sample	Total/NA	Water	1664A	311356
LCSD 570-311356/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	311356



Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009

Job ID: 570-130856-1

Client Sample ID: Outfall009_20230310_Grab

Lab Sample ID: 570-130856-1

Date Collected: 03/10/23 08:40

Matrix: Water

Date Received: 03/13/23 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1664A			1011 mL	1000 mL	311356	03/14/23 10:20	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			311464	03/14/23 14:08	L6IE	EET CAL 4

Instrument ID: NO EQUIQ

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

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Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009

Job ID: 570-130856-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009

Job ID: 570-130856-1

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

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Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009

Job ID: 570-130856-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130856-1	Outfall009_20230310_Grab	Water	03/10/23 08:40	03/13/23 19:25

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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130856-1

Login Number: 130856

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 009 Comp

JOB NUMBER

570-130862-1

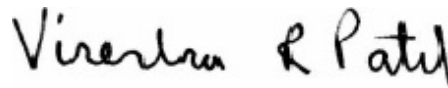
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-1

Qualifiers

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)
LQ	LCS/LCSD recovery above method control limits
MB	Analyte present in the method blank

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Comp

Job ID: 570-130862-1

Job ID: 570-130862-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-130862-1

Comments

No additional comments.

Receipt

The samples were received on 3/13/2023 7:25 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.1° C.

Receipt Exceptions

Method 300.0: The following sample was received outside of holding time: Outfall009_20230311_Comp (570-130862-1).

HPLC/IC

Method 300.0: The native sample, matrix spike, and matrix spike duplicate (MS/MSD) associated with analytical batch 570-311256 were performed at the same dilution. Due to the additional level of analyte present in the spiked samples, the concentration of Chloride and Sulfate in the MS/MSD was above the instrument calibration range. The data have been reported and qualified.

Method 300.0: Due to the high concentration of Sulfate, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 570-311256 could not be evaluated for accuracy and precision. The associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) met acceptance criteria.

Method 300.0: The following sample was received outside of holding time: Outfall009_20230311_Comp (570-130862-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

Method 200.8: The method blank for preparation batch 570-311681 and analytical batch 570-311853 contained Nickel above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 200.8: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-312120 and analytical batch 570-312206 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 245.1: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 570-311254, 570-311580 and 570-311609 and analytical batch 570-311965 recovered outside control limits for the following analytes: Mercury. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 245.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-311254 and 570-311580 and analytical batch 570-311965 were outside control limits. The samples associated with this MS/MSD were non-detects for the affected analytes; therefore, the data have been reported.

Method 245.1: The following samples were analyzed outside of analytical holding time : Outfall009_20230311_Comp_F (570-130862-2), Outfall009_20230311_Comp_F (570-130862-2[MS]) and Outfall009_20230311_Comp_F (570-130862-2[MSD]).

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall009_20230311_Comp_F (570-130862-2), Outfall009_20230311_Comp_F (570-130862-2[MS]) and Outfall009_20230311_Comp_F (570-130862-2[MSD]). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Comp

Job ID: 570-130862-1

Job ID: 570-130862-1 (Continued)

Laboratory: Eurofins Calscience (Continued)

General Chemistry

Method Kelada 01: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 570-312131 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-1

Client Sample ID: Outfall009_20230311_Comp

Lab Sample ID: 570-130862-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	3.3		1.0	0.36	mg/L	1		300.0	Total/NA
Sulfate	4.5		1.0	0.24	mg/L	1		300.0	Total/NA
Nitrate Nitrite as N	0.23		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Antimony	2.1		2.0	0.36	ug/L	1		200.8	Total Recoverable
Copper	2.8		2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	2.6		1.0	0.12	ug/L	1		200.8	Total Recoverable
Nickel	2.2	MB	2.0	0.17	ug/L	1		200.8	Total Recoverable
Zinc	10	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Total Dissolved Solids	62		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	11		1.0	0.83	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Outfall009_20230311_Comp_F

Lab Sample ID: 570-130862-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	1.9	J,DX BU	2.0	0.36	ug/L	1		200.8	Dissolved
Copper	1.9	J,DX BU	2.0	0.32	ug/L	1		200.8	Dissolved
Lead	0.32	J,DX BU	1.0	0.12	ug/L	1		200.8	Dissolved
Nickel	1.2	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Zinc	5.8	J,DX BU	20	2.8	ug/L	1		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall009_20230311_Comp

Date Collected: 03/11/23 07:35

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130862-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.3		1.0	0.36	mg/L			03/14/23 11:25	1
Sulfate	4.5		1.0	0.24	mg/L			03/14/23 11:25	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall009_20230311_Comp

Lab Sample ID: 570-130862-1

Date Collected: 03/11/23 07:35

Matrix: Water

Date Received: 03/13/23 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.23		0.10	0.020	mg/L			03/20/23 12:49	1

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Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-130862-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009

Comp

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall009_20230311_Comp

Lab Sample ID: 570-130862-1

Date Collected: 03/11/23 07:35

Matrix: Water

Date Received: 03/13/23 19:25

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	2.1		2.0	0.36	ug/L		03/15/23 08:38	03/15/23 11:44	1
Cadmium	ND		1.0	0.13	ug/L		03/15/23 08:38	03/15/23 11:44	1
Copper	2.8		2.0	0.32	ug/L		03/15/23 08:38	03/15/23 11:44	1
Lead	2.6		1.0	0.12	ug/L		03/15/23 08:38	03/15/23 11:44	1
Nickel	2.2	MB	2.0	0.17	ug/L		03/15/23 08:38	03/15/23 11:44	1
Selenium	ND		2.0	0.52	ug/L		03/15/23 08:38	03/15/23 11:44	1
Silver	ND		1.0	0.23	ug/L		03/15/23 08:38	03/15/23 11:44	1
Thallium	ND		1.0	0.11	ug/L		03/15/23 08:38	03/15/23 11:44	1
Zinc	10	J,DX	20	2.8	ug/L		03/15/23 08:38	03/15/23 11:44	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall009_20230311_Comp_F

Date Collected: 03/11/23 07:35

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130862-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.9	J,DX BU	2.0	0.36	ug/L			03/16/23 11:58	1
Cadmium	ND	BU	1.0	0.13	ug/L			03/16/23 11:58	1
Copper	1.9	J,DX BU	2.0	0.32	ug/L			03/16/23 11:58	1
Lead	0.32	J,DX BU	1.0	0.12	ug/L			03/16/23 11:58	1
Nickel	1.2	J,DX BU	2.0	0.17	ug/L			03/16/23 11:58	1
Selenium	ND	BU	2.0	0.52	ug/L			03/16/23 11:58	1
Silver	ND	BU	1.0	0.23	ug/L			03/16/23 11:58	1
Thallium	ND	BU	1.0	0.11	ug/L			03/16/23 11:58	1
Zinc	5.8	J,DX BU	20	2.8	ug/L			03/16/23 11:58	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall009_20230311_Comp

Date Collected: 03/11/23 07:35

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130862-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	LQ	0.20	0.12	ug/L		03/14/23 22:32	03/15/23 19:33	1

- 1
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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall009_20230311_Comp_F

Date Collected: 03/11/23 07:35

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130862-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU LQ	0.20	0.12	ug/L		03/14/23 19:37	03/15/23 20:01	1

- 1
- 2
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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-1

General Chemistry

Client Sample ID: Outfall009_20230311_Comp

Date Collected: 03/11/23 07:35

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130862-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			03/14/23 19:36	1
Total Dissolved Solids (SM 2540C)	62		10	8.7	mg/L			03/15/23 18:27	1
Total Suspended Solids (SM 2540D)	11		1.0	0.83	mg/L			03/15/23 18:42	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-311256/5
Matrix: Water
Analysis Batch: 311256

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			03/14/23 06:38	1
Sulfate	ND		1.0	0.24	mg/L			03/14/23 06:38	1

Lab Sample ID: LCS 570-311256/6
Matrix: Water
Analysis Batch: 311256

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	49.2		mg/L		98	90 - 110
Sulfate	50.0	49.4		mg/L		99	90 - 110

Lab Sample ID: LCSD 570-311256/7
Matrix: Water
Analysis Batch: 311256

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	49.2		mg/L		98	90 - 110	0	15
Sulfate	50.0	49.4		mg/L		99	90 - 110	0	15

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-311681/1-A
Matrix: Water
Analysis Batch: 311853

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 311681

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.36	ug/L		03/15/23 08:38	03/15/23 11:38	1
Cadmium	ND		1.0	0.13	ug/L		03/15/23 08:38	03/15/23 11:38	1
Copper	ND		2.0	0.32	ug/L		03/15/23 08:38	03/15/23 11:38	1
Lead	ND		1.0	0.12	ug/L		03/15/23 08:38	03/15/23 11:38	1
Nickel	0.320	J,DX	2.0	0.17	ug/L		03/15/23 08:38	03/15/23 11:38	1
Selenium	ND		2.0	0.52	ug/L		03/15/23 08:38	03/15/23 11:38	1
Silver	ND		1.0	0.23	ug/L		03/15/23 08:38	03/15/23 11:38	1
Thallium	ND		1.0	0.11	ug/L		03/15/23 08:38	03/15/23 11:38	1
Zinc	ND		20	2.8	ug/L		03/15/23 08:38	03/15/23 11:38	1

Lab Sample ID: LCS 570-311681/2-A
Matrix: Water
Analysis Batch: 311853

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 311681

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	80.0	79.3		ug/L		99	85 - 115
Cadmium	80.0	78.5		ug/L		98	85 - 115
Copper	80.0	78.8		ug/L		98	85 - 115
Lead	80.0	79.7		ug/L		100	85 - 115
Nickel	80.0	78.7		ug/L		98	85 - 115
Selenium	80.0	76.7		ug/L		96	85 - 115
Silver	80.0	79.6		ug/L		99	85 - 115
Thallium	80.0	78.6		ug/L		98	85 - 115

Eurolins Calscience

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 570-311681/2-A
Matrix: Water
Analysis Batch: 311853

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 311681

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Zinc	80.0	76.8		ug/L		96	85 - 115

Lab Sample ID: LCSD 570-311681/3-A
Matrix: Water
Analysis Batch: 311853

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 311681

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	80.0	79.9		ug/L		100	85 - 115	1	20
Cadmium	80.0	78.0		ug/L		98	85 - 115	1	20
Copper	80.0	78.2		ug/L		98	85 - 115	1	20
Lead	80.0	79.2		ug/L		99	85 - 115	1	20
Nickel	80.0	78.9		ug/L		99	85 - 115	0	20
Selenium	80.0	75.2		ug/L		94	85 - 115	2	20
Silver	80.0	78.9		ug/L		99	85 - 115	1	20
Thallium	80.0	77.6		ug/L		97	85 - 115	1	20
Zinc	80.0	76.2		ug/L		95	85 - 115	1	20

Lab Sample ID: 570-130862-1 MS
Matrix: Water
Analysis Batch: 311853

Client Sample ID: Outfall009_20230311_Comp
Prep Type: Total Recoverable
Prep Batch: 311681

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	2.1		80.0	82.0		ug/L		100	80 - 120
Cadmium	ND		80.0	79.1		ug/L		99	80 - 120
Copper	2.8		80.0	82.8		ug/L		100	80 - 120
Lead	2.6		80.0	82.0		ug/L		99	80 - 120
Nickel	2.2	MB	80.0	81.7		ug/L		99	80 - 120
Selenium	ND		80.0	74.2		ug/L		93	80 - 120
Silver	ND		80.0	80.1		ug/L		100	80 - 120
Thallium	ND		80.0	77.9		ug/L		97	80 - 120
Zinc	10	J,DX	80.0	86.1		ug/L		95	80 - 120

Lab Sample ID: 570-130862-1 MSD
Matrix: Water
Analysis Batch: 311853

Client Sample ID: Outfall009_20230311_Comp
Prep Type: Total Recoverable
Prep Batch: 311681

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	2.1		80.0	81.6		ug/L		99	80 - 120	0	20
Cadmium	ND		80.0	79.7		ug/L		100	80 - 120	1	20
Copper	2.8		80.0	83.6		ug/L		101	80 - 120	1	20
Lead	2.6		80.0	81.8		ug/L		99	80 - 120	0	20
Nickel	2.2	MB	80.0	81.5		ug/L		99	80 - 120	0	20
Selenium	ND		80.0	75.9		ug/L		95	80 - 120	2	20
Silver	ND		80.0	80.6		ug/L		101	80 - 120	1	20
Thallium	ND		80.0	77.9		ug/L		97	80 - 120	0	20
Zinc	10	J,DX	80.0	87.5		ug/L		97	80 - 120	2	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 570-312120/1-A
Matrix: Water
Analysis Batch: 312206

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.36	ug/L			03/16/23 11:52	1
Cadmium	ND		1.0	0.13	ug/L			03/16/23 11:52	1
Copper	ND		2.0	0.32	ug/L			03/16/23 11:52	1
Lead	ND		1.0	0.12	ug/L			03/16/23 11:52	1
Nickel	ND		2.0	0.17	ug/L			03/16/23 11:52	1
Selenium	ND		2.0	0.52	ug/L			03/16/23 11:52	1
Silver	ND		1.0	0.23	ug/L			03/16/23 11:52	1
Thallium	ND		1.0	0.11	ug/L			03/16/23 11:52	1
Zinc	ND		20	2.8	ug/L			03/16/23 11:52	1

Lab Sample ID: LCS 570-312120/2-A
Matrix: Water
Analysis Batch: 312206

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	80.0	77.4		ug/L		97	85 - 115
Cadmium	80.0	77.6		ug/L		97	85 - 115
Copper	80.0	77.9		ug/L		97	85 - 115
Lead	80.0	80.3		ug/L		100	85 - 115
Nickel	80.0	77.8		ug/L		97	85 - 115
Selenium	80.0	75.4		ug/L		94	85 - 115
Silver	80.0	77.7		ug/L		97	85 - 115
Thallium	80.0	77.2		ug/L		96	85 - 115
Zinc	80.0	75.1		ug/L		94	85 - 115

Lab Sample ID: LCSD 570-312120/3-A
Matrix: Water
Analysis Batch: 312206

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	80.0	79.8		ug/L		100	85 - 115	3	20
Cadmium	80.0	79.6		ug/L		99	85 - 115	3	20
Copper	80.0	79.2		ug/L		99	85 - 115	2	20
Lead	80.0	82.0		ug/L		102	85 - 115	2	20
Nickel	80.0	79.1		ug/L		99	85 - 115	2	20
Selenium	80.0	79.0		ug/L		99	85 - 115	5	20
Silver	80.0	79.8		ug/L		100	85 - 115	3	20
Thallium	80.0	79.5		ug/L		99	85 - 115	3	20
Zinc	80.0	76.9		ug/L		96	85 - 115	2	20

Lab Sample ID: 570-130862-2 MS
Matrix: Water
Analysis Batch: 312206

Client Sample ID: Outfall009_20230311_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	1.9	J,DX BU	80.0	60.1	BU LN	ug/L		73	80 - 120
Cadmium	ND	BU	80.0	66.8	BU	ug/L		83	80 - 120
Copper	1.9	J,DX BU	80.0	69.5	BU	ug/L		84	80 - 120

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-130862-2 MS
Matrix: Water
Analysis Batch: 312206

Client Sample ID: Outfall009_20230311_Comp_F
Prep Type: Dissolved

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Result	Qualifier					
Lead	0.32	J,DX BU	80.0	68.4	BU	ug/L		85	80 - 120	
Nickel	1.2	J,DX BU	80.0	67.4	BU	ug/L		83	80 - 120	
Selenium	ND	BU	80.0	64.5	BU	ug/L		81	80 - 120	
Silver	ND	BU	80.0	66.6	BU	ug/L		83	80 - 120	
Thallium	ND	BU	80.0	65.6	BU	ug/L		82	80 - 120	
Zinc	5.8	J,DX BU	80.0	70.0	BU	ug/L		80	80 - 120	

Lab Sample ID: 570-130862-2 MSD
Matrix: Water
Analysis Batch: 312206

Client Sample ID: Outfall009_20230311_Comp_F
Prep Type: Dissolved

Analyte	Sample	Sample	Spike	MSD		Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier							
Antimony	1.9	J,DX BU	80.0	57.8	BU LN	ug/L		70	80 - 120	4	20	
Cadmium	ND	BU	80.0	63.2	BU LN	ug/L		79	80 - 120	6	20	
Copper	1.9	J,DX BU	80.0	66.3	BU	ug/L		80	80 - 120	5	20	
Lead	0.32	J,DX BU	80.0	64.7	BU	ug/L		80	80 - 120	6	20	
Nickel	1.2	J,DX BU	80.0	64.3	BU LN	ug/L		79	80 - 120	5	20	
Selenium	ND	BU	80.0	62.2	BU LN	ug/L		78	80 - 120	4	20	
Silver	ND	BU	80.0	63.5	BU LN	ug/L		79	80 - 120	5	20	
Thallium	ND	BU	80.0	62.5	BU LN	ug/L		78	80 - 120	5	20	
Zinc	5.8	J,DX BU	80.0	66.3	BU LN	ug/L		76	80 - 120	5	20	

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-311609/1-A
Matrix: Water
Analysis Batch: 311965

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 311609

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil	Fac
	Result	Qualifier								
Mercury	ND		0.20	0.12	ug/L		03/14/23 22:32	03/15/23 19:03		1

Lab Sample ID: LCS 570-311609/2-A
Matrix: Water
Analysis Batch: 311965

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 311609

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec	Limits
Mercury	8.00	9.08		ug/L		113	85 - 115	

Lab Sample ID: LCSD 570-311609/3-A
Matrix: Water
Analysis Batch: 311965

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 311609

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec	Limits	RPD	Limit
Mercury	8.00	9.28	LQ	ug/L		116	85 - 115	2	10	

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 570-130862-1 MS
Matrix: Water
Analysis Batch: 311965

Client Sample ID: Outfall009_20230311_Comp
Prep Type: Total/NA
Prep Batch: 311609

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND	LQ	8.00	9.23		ug/L		115	85 - 115

Lab Sample ID: 570-130862-1 MSD
Matrix: Water
Analysis Batch: 311965

Client Sample ID: Outfall009_20230311_Comp
Prep Type: Total/NA
Prep Batch: 311609

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	ND	LQ	8.00	8.99		ug/L		112	85 - 115	3	10

Lab Sample ID: MB 570-311254/1-B
Matrix: Water
Analysis Batch: 311965

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 311580

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/14/23 19:37	03/15/23 19:56	1

Lab Sample ID: LCS 570-311254/2-B
Matrix: Water
Analysis Batch: 311965

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 311580

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	9.25	LQ	ug/L		116	85 - 115

Lab Sample ID: LCSD 570-311254/3-B
Matrix: Water
Analysis Batch: 311965

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 311580

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	8.00	9.03		ug/L		113	85 - 115	2	10

Lab Sample ID: 570-130862-2 MS
Matrix: Water
Analysis Batch: 311965

Client Sample ID: Outfall009_20230311_Comp_F
Prep Type: Dissolved
Prep Batch: 311580

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND	BU LQ	8.00	9.26	BU LM	ug/L		116	85 - 115

Lab Sample ID: 570-130862-2 MSD
Matrix: Water
Analysis Batch: 311965

Client Sample ID: Outfall009_20230311_Comp_F
Prep Type: Dissolved
Prep Batch: 311580

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	ND	BU LQ	8.00	9.16	BU	ug/L		114	85 - 115	1	10

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-1

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-312131/14
Matrix: Water
Analysis Batch: 312131

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			03/14/23 19:36	1

Lab Sample ID: LCS 570-312131/16
Matrix: Water
Analysis Batch: 312131

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	252		ug/L		101	90 - 110

Lab Sample ID: LCSD 570-312131/17
Matrix: Water
Analysis Batch: 312131

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	250	266		ug/L		107	90 - 110	5	20

Lab Sample ID: MRL 570-312131/13
Matrix: Water
Analysis Batch: 312131

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	5.00	6.06		ug/L		121	50 - 150

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-311975/1
Matrix: Water
Analysis Batch: 311975

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			03/15/23 18:27	1

Lab Sample ID: LCS 570-311975/2
Matrix: Water
Analysis Batch: 311975

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1030		mg/L		103	84 - 108

Lab Sample ID: LCSD 570-311975/3
Matrix: Water
Analysis Batch: 311975

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1040		mg/L		104	84 - 108	1	10

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-1

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-311979/1
Matrix: Water
Analysis Batch: 311979

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			03/15/23 18:42	1

Lab Sample ID: LCS 570-311979/2
Matrix: Water
Analysis Batch: 311979

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	95.0		mg/L		95	77 - 116

Lab Sample ID: LCSD 570-311979/3
Matrix: Water
Analysis Batch: 311979

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	98.0		mg/L		98	77 - 116	3	10

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-1

HPLC/IC

Analysis Batch: 311256

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-1	Outfall009_20230311_Comp	Total/NA	Water	300.0	
MB 570-311256/5	Method Blank	Total/NA	Water	300.0	
LCS 570-311256/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-311256/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 313055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-1	Outfall009_20230311_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Filtration Batch: 311254

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-2	Outfall009_20230311_Comp_F	Dissolved	Water	Filtration	
MB 570-311254/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-311254/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-311254/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-130862-2 MS	Outfall009_20230311_Comp_F	Dissolved	Water	Filtration	
570-130862-2 MSD	Outfall009_20230311_Comp_F	Dissolved	Water	Filtration	

Prep Batch: 311580

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-2	Outfall009_20230311_Comp_F	Dissolved	Water	245.1	311254
MB 570-311254/1-B	Method Blank	Dissolved	Water	245.1	311254
LCS 570-311254/2-B	Lab Control Sample	Dissolved	Water	245.1	311254
LCSD 570-311254/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	311254
570-130862-2 MS	Outfall009_20230311_Comp_F	Dissolved	Water	245.1	311254
570-130862-2 MSD	Outfall009_20230311_Comp_F	Dissolved	Water	245.1	311254

Prep Batch: 311609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-1	Outfall009_20230311_Comp	Total/NA	Water	245.1	
MB 570-311609/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-311609/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-311609/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-130862-1 MS	Outfall009_20230311_Comp	Total/NA	Water	245.1	
570-130862-1 MSD	Outfall009_20230311_Comp	Total/NA	Water	245.1	

Prep Batch: 311681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-1	Outfall009_20230311_Comp	Total Recoverable	Water	200.8	
MB 570-311681/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-311681/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-311681/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-130862-1 MS	Outfall009_20230311_Comp	Total Recoverable	Water	200.8	
570-130862-1 MSD	Outfall009_20230311_Comp	Total Recoverable	Water	200.8	

Analysis Batch: 311853

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-1	Outfall009_20230311_Comp	Total Recoverable	Water	200.8	311681

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-1

Metals (Continued)

Analysis Batch: 311853 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-311681/1-A	Method Blank	Total Recoverable	Water	200.8	311681
LCS 570-311681/2-A	Lab Control Sample	Total Recoverable	Water	200.8	311681
LCSD 570-311681/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	311681
570-130862-1 MS	Outfall009_20230311_Comp	Total Recoverable	Water	200.8	311681
570-130862-1 MSD	Outfall009_20230311_Comp	Total Recoverable	Water	200.8	311681

Analysis Batch: 311965

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-1	Outfall009_20230311_Comp	Total/NA	Water	245.1	311609
570-130862-2	Outfall009_20230311_Comp_F	Dissolved	Water	245.1	311580
MB 570-311254/1-B	Method Blank	Dissolved	Water	245.1	311580
MB 570-311609/1-A	Method Blank	Total/NA	Water	245.1	311609
LCS 570-311254/2-B	Lab Control Sample	Dissolved	Water	245.1	311580
LCS 570-311609/2-A	Lab Control Sample	Total/NA	Water	245.1	311609
LCSD 570-311254/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	311580
LCSD 570-311609/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	311609
570-130862-1 MS	Outfall009_20230311_Comp	Total/NA	Water	245.1	311609
570-130862-1 MSD	Outfall009_20230311_Comp	Total/NA	Water	245.1	311609
570-130862-2 MS	Outfall009_20230311_Comp_F	Dissolved	Water	245.1	311580
570-130862-2 MSD	Outfall009_20230311_Comp_F	Dissolved	Water	245.1	311580

Filtration Batch: 312120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-2	Outfall009_20230311_Comp_F	Dissolved	Water	Filtration	
MB 570-312120/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-312120/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-312120/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-130862-2 MS	Outfall009_20230311_Comp_F	Dissolved	Water	Filtration	
570-130862-2 MSD	Outfall009_20230311_Comp_F	Dissolved	Water	Filtration	

Analysis Batch: 312206

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-2	Outfall009_20230311_Comp_F	Dissolved	Water	200.8	312120
MB 570-312120/1-A	Method Blank	Dissolved	Water	200.8	312120
LCS 570-312120/2-A	Lab Control Sample	Dissolved	Water	200.8	312120
LCSD 570-312120/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	312120
570-130862-2 MS	Outfall009_20230311_Comp_F	Dissolved	Water	200.8	312120
570-130862-2 MSD	Outfall009_20230311_Comp_F	Dissolved	Water	200.8	312120

General Chemistry

Analysis Batch: 311975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-1	Outfall009_20230311_Comp	Total/NA	Water	SM 2540C	
MB 570-311975/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-311975/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-311975/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-1

General Chemistry

Analysis Batch: 311979

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-1	Outfall009_20230311_Comp	Total/NA	Water	SM 2540D	
MB 570-311979/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-311979/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-311979/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 312131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-1	Outfall009_20230311_Comp	Total/NA	Water	Kelada 01	
MB 570-312131/14	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-312131/16	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-312131/17	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-312131/13	Lab Control Sample	Total/NA	Water	Kelada 01	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-1

Client Sample ID: Outfall009_20230311_Comp

Lab Sample ID: 570-130862-1

Date Collected: 03/11/23 07:35

Matrix: Water

Date Received: 03/13/23 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	4 mL	4 mL	311256	03/14/23 11:25	PS	EET CAL 4
	Instrument ID: IC7									
Total/NA	Analysis	NO2NO3 Calc		1			313055	03/20/23 12:49	WH6J	EET CAL 4
	Instrument ID: NOEQUIP									
Total Recoverable	Prep	200.8			50 mL	50 mL	311681	03/15/23 08:38	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			311853	03/15/23 11:44	Y2WS	EET CAL 4
	Instrument ID: ICPMS10									
Total/NA	Prep	245.1			25 mL	50 mL	311609	03/14/23 22:32	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			311965	03/15/23 19:33	T1W	EET CAL 4
	Instrument ID: HG7									
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	312131	03/14/23 19:36	GG0B	EET CAL 4
	Instrument ID: LACHAT01									
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	311975	03/15/23 18:27	UWCT	EET CAL 4
	Instrument ID: NOEQUIP									
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	311979	03/15/23 18:42	WVA4	EET CAL 4
	Instrument ID: BAL71									

Client Sample ID: Outfall009_20230311_Comp_F

Lab Sample ID: 570-130862-2

Date Collected: 03/11/23 07:35

Matrix: Water

Date Received: 03/13/23 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	312120	03/16/23 10:02	JP8N	EET CAL 4
Dissolved	Analysis	200.8		1			312206	03/16/23 11:58	Y2WS	EET CAL 4
	Instrument ID: ICPMS10									
Dissolved	Filtration	Filtration			25 mL	25 mL	311254	03/14/23 04:21	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	311580	03/14/23 19:37	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			311965	03/15/23 20:01	T1W	EET CAL 4
	Instrument ID: HG7									

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4

Protocol References:

- EPA = US Environmental Protection Agency
- None = None
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

- EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130862-1	Outfall009_20230311_Comp	Water	03/11/23 07:35	03/13/23 19:25
570-130862-2	Outfall009_20230311_Comp_F	Water	03/11/23 07:35	03/13/23 19:25

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- 11
- 12
- 13
- 14

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130862-1

Login Number: 130862

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004
Generated 4/21/2023 8:10:07 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 009 Comp

JOB NUMBER

570-130862-2

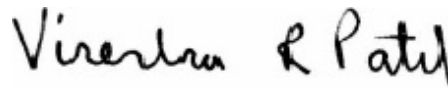
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Comp

Job ID: 570-130862-2

Job ID: 570-130862-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-130862-2

Comments

No additional comments.

Receipt

The samples were received on 3/13/2023 7:25 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.1° C.

Receipt Exceptions

The reference method requires samples to have a pH of <2. The following samples were received with a pH of 7: <Affected Samples>. The samples were preserved to the appropriate pH in the laboratory.

Dioxin

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: Outfall009_20230311_Comp (570-130862-1), (CCV 320-665897/1) and (MB 320-664640/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: (CCV 320-666484/2), (LCS 320-664640/2-A) and (LCSD 320-664640/3-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

Method 1613B: The method blank for preparation batch 320-664640 contained 1,2,3,4,6,7,8-HpCDF above the reporting limit (RL). None of the samples associated with this method blank contained the target compound over the RL; therefore, re-extraction and/or re-analysis of samples were not performed.

Method 1613B: The method blank for preparation batch 320-664640 and analytical batch 320-665897 contained OCDD above the reporting limit (RL). This compound is considered a common laboratory contaminant. The associated sample(s) was not re-extracted and/or re-analyzed because the concentration of the common lab contaminant in the method blank was less than 5 times the RL.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-2

Client Sample ID: Outfall009_20230311_Comp

Lab Sample ID: 570-130862-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,6,7,8-HpCDD	0.000020	J,DX MB	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				4					
1,2,3,4,6,7,8-HpCDF	0.0000070	J,DX MB	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				75					
1,2,3,4,7,8,9-HpCDF	0.0000013	J,DX MB	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				84					
OCDD	0.00023	MB	0.000094	0.0000017	ug/L	1		1613B	Total/NA
OCDF	0.000016	J,DX MB	0.000094	0.0000001	ug/L	1		1613B	Total/NA
				2					
Total HpCDD	0.000041	J,DX MB	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				4					
Total HpCDF	0.000013	J,DX q MB	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				75					

This Detection Summary does not include radiochemical test results.



Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall009_20230311_Comp

Date Collected: 03/11/23 07:35

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130862-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000094	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				60					
2,3,7,8-TCDF	ND		0.000094	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				14					
1,2,3,7,8-PeCDD	ND		0.000047	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				48					
1,2,3,7,8-PeCDF	ND		0.000047	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				16					
2,3,4,7,8-PeCDF	ND		0.000047	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				19					
1,2,3,4,7,8-HxCDD	ND		0.000047	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				54					
1,2,3,6,7,8-HxCDD	ND		0.000047	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				51					
1,2,3,7,8,9-HxCDD	ND		0.000047	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				48					
1,2,3,4,7,8-HxCDF	ND		0.000047	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				29					
1,2,3,6,7,8-HxCDF	ND		0.000047	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				29					
1,2,3,7,8,9-HxCDF	ND		0.000047	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				30					
2,3,4,6,7,8-HxCDF	ND		0.000047	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				27					
1,2,3,4,6,7,8-HpCDD	0.000020	J,DX MB	0.000047	0.000002	ug/L		03/31/23 06:24	04/06/23 20:59	1
				4					
1,2,3,4,6,7,8-HpCDF	0.000070	J,DX MB	0.000047	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				75					
1,2,3,4,7,8,9-HpCDF	0.000013	J,DX MB	0.000047	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				84					
OCDD	0.00023	MB	0.000094	0.000017	ug/L		03/31/23 06:24	04/06/23 20:59	1
OCDF	0.00016	J,DX MB	0.000094	0.000001	ug/L		03/31/23 06:24	04/06/23 20:59	1
				2					
Total TCDD	ND		0.000094	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				60					
Total TCDF	ND		0.000094	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				14					
Total PeCDD	ND		0.000047	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				48					
Total PeCDF	ND		0.000047	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				16					
Total HxCDD	ND		0.000047	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				48					
Total HxCDF	ND		0.000047	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				27					
Total HpCDD	0.000041	J,DX MB	0.000047	0.000002	ug/L		03/31/23 06:24	04/06/23 20:59	1
				4					
Total HpCDF	0.000013	J,DX q MB	0.000047	0.000000	ug/L		03/31/23 06:24	04/06/23 20:59	1
				75					
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
13C-2,3,7,8-TCDD	47		25 - 164			03/31/23 06:24	04/06/23 20:59	1	
13C-2,3,7,8-TCDF	42		24 - 169			03/31/23 06:24	04/06/23 20:59	1	
13C-1,2,3,7,8-PeCDD	46		25 - 181			03/31/23 06:24	04/06/23 20:59	1	
13C-1,2,3,7,8-PeCDF	43		24 - 185			03/31/23 06:24	04/06/23 20:59	1	

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall009_20230311_Comp

Date Collected: 03/11/23 07:35

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130862-1

Matrix: Water

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-2,3,4,7,8-PeCDF	41		21 - 178	03/31/23 06:24	04/06/23 20:59	1
13C-1,2,3,4,7,8-HxCDD	40		32 - 141	03/31/23 06:24	04/06/23 20:59	1
13C-1,2,3,6,7,8-HxCDD	46		28 - 130	03/31/23 06:24	04/06/23 20:59	1
13C-1,2,3,4,7,8-HxCDF	39		26 - 152	03/31/23 06:24	04/06/23 20:59	1
13C-1,2,3,6,7,8-HxCDF	42		26 - 123	03/31/23 06:24	04/06/23 20:59	1
13C-1,2,3,7,8,9-HxCDF	43		29 - 147	03/31/23 06:24	04/06/23 20:59	1
13C-2,3,4,6,7,8-HxCDF	42		28 - 136	03/31/23 06:24	04/06/23 20:59	1
13C-1,2,3,4,6,7,8-HpCDD	46		23 - 140	03/31/23 06:24	04/06/23 20:59	1
13C-1,2,3,4,6,7,8-HpCDF	38		28 - 143	03/31/23 06:24	04/06/23 20:59	1
13C-1,2,3,4,7,8,9-HpCDF	43		26 - 138	03/31/23 06:24	04/06/23 20:59	1
13C-OCDD	41		17 - 157	03/31/23 06:24	04/06/23 20:59	1
13C-OCDF	40		17 - 157	03/31/23 06:24	04/06/23 20:59	1
Surrogate						
37Cl4-2,3,7,8-TCDD	59		35 - 197	03/31/23 06:24	04/06/23 20:59	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-130862-1	Outfall009_20230311_Comp	59
MB 320-664640/1-A	Method Blank	57

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-664640/2-A	Lab Control Sample	68
LCSD 320-664640/3-A	Lab Control Sample Dup	70

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-130862-1	Outfall009_20230311_Comp	47	42	46	43	41	40	46	39
MB 320-664640/1-A	Method Blank	41	37	42	39	38	35	36	35

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-130862-1	Outfall009_20230311_Comp	42	43	42	46	38	43	41	40
MB 320-664640/1-A	Method Blank	34	36	33	39	31	37	35	32

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
 TCDF = 13C-2,3,7,8-TCDF
 PeCDD = 13C-1,2,3,7,8-PeCDD
 PeCDF = 13C-1,2,3,7,8-PeCDF
 PeCF = 13C-2,3,4,7,8-PeCDF
 HxCDD = 13C-1,2,3,4,7,8-HxCDD
 HxDD = 13C-1,2,3,6,7,8-HxCDD
 HxCDF = 13C-1,2,3,4,7,8-HxCDF
 HxDF = 13C-1,2,3,6,7,8-HxCDF
 HxCF = 13C-1,2,3,7,8,9-HxCDF
 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
 HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
 HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
 HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
 OCDD = 13C-OCDD
 OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-664640/2-A	Lab Control Sample	56	54	60	56	56	54	58	55
LCSD 320-664640/3-A	Lab Control Sample Dup	59	56	59	56	55	54	56	52

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-664640/2-A	Lab Control Sample	57	56	56	63	51	59	54	56
LCSD 320-664640/3-A	Lab Control Sample Dup	55	56	55	59	50	53	53	52

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
 TCDF = 13C-2,3,7,8-TCDF
 PeCDD = 13C-1,2,3,7,8-PeCDD
 PeCDF = 13C-1,2,3,7,8-PeCDF
 PeCF = 13C-2,3,4,7,8-PeCDF
 HxCDD = 13C-1,2,3,4,7,8-HxCDD
 HxDD = 13C-1,2,3,6,7,8-HxCDD
 HxCDF = 13C-1,2,3,4,7,8-HxCDF

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009

Comp

HxDF = 13C-1,2,3,6,7,8-HxCDF

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

Job ID: 570-130862-2

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-664640/1-A
Matrix: Water
Analysis Batch: 665897

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 664640

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8-PeCDD	42		25 - 181	03/31/23 06:24	04/06/23 12:58	1
13C-1,2,3,7,8-PeCDF	39		24 - 185	03/31/23 06:24	04/06/23 12:58	1
13C-2,3,4,7,8-PeCDF	38		21 - 178	03/31/23 06:24	04/06/23 12:58	1
13C-1,2,3,4,7,8-HxCDD	35		32 - 141	03/31/23 06:24	04/06/23 12:58	1
13C-1,2,3,6,7,8-HxCDD	36		28 - 130	03/31/23 06:24	04/06/23 12:58	1
13C-1,2,3,4,7,8-HxCDF	35		26 - 152	03/31/23 06:24	04/06/23 12:58	1
13C-1,2,3,6,7,8-HxCDF	34		26 - 123	03/31/23 06:24	04/06/23 12:58	1
13C-1,2,3,7,8,9-HxCDF	36		29 - 147	03/31/23 06:24	04/06/23 12:58	1
13C-2,3,4,6,7,8-HxCDF	33		28 - 136	03/31/23 06:24	04/06/23 12:58	1
13C-1,2,3,4,6,7,8-HpCDD	39		23 - 140	03/31/23 06:24	04/06/23 12:58	1
13C-1,2,3,4,6,7,8-HpCDF	31		28 - 143	03/31/23 06:24	04/06/23 12:58	1
13C-1,2,3,4,7,8,9-HpCDF	37		26 - 138	03/31/23 06:24	04/06/23 12:58	1
13C-OCDD	35		17 - 157	03/31/23 06:24	04/06/23 12:58	1
13C-OCDF	32		17 - 157	03/31/23 06:24	04/06/23 12:58	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	57		35 - 197	03/31/23 06:24	04/06/23 12:58	1

Lab Sample ID: LCS 320-664640/2-A
Matrix: Water
Analysis Batch: 666484

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 664640

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,3,7,8-TCDF	0.000200	0.000199		ug/L		100	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000847		ug/L		85	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000818		ug/L		82	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000828		ug/L		83	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000852		ug/L		85	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.000869		ug/L		87	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.000851		ug/L		85	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000873		ug/L		87	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000880		ug/L		88	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000880		ug/L		88	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000877		ug/L		88	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000803		ug/L		80	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.000919		ug/L		92	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000853		ug/L		85	78 - 138
OCDD	0.00200	0.00192		ug/L		96	78 - 144
OCDF	0.00200	0.00182		ug/L		91	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	56		20 - 175
13C-2,3,7,8-TCDF	54		22 - 152
13C-1,2,3,7,8-PeCDD	60		21 - 227
13C-1,2,3,7,8-PeCDF	56		21 - 192
13C-2,3,4,7,8-PeCDF	56		13 - 328

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-664640/2-A
Matrix: Water
Analysis Batch: 666484

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 664640

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,4,7,8-HxCDD	54		21 - 193
13C-1,2,3,6,7,8-HxCDD	58		25 - 163
13C-1,2,3,4,7,8-HxCDF	55		19 - 202
13C-1,2,3,6,7,8-HxCDF	57		21 - 159
13C-1,2,3,7,8,9-HxCDF	56		17 - 205
13C-2,3,4,6,7,8-HxCDF	56		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	63		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	51		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	59		20 - 186
13C-OCDD	54		13 - 199
13C-OCDF	56		13 - 199

Surrogate	LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	68		31 - 191

Lab Sample ID: LCSD 320-664640/3-A
Matrix: Water
Analysis Batch: 666484

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 664640

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
2,3,7,8-TCDD	0.000200	0.000171		ug/L		86	67 - 158	4	50	
2,3,7,8-TCDF	0.000200	0.000189		ug/L		95	75 - 158	5	50	
1,2,3,7,8-PeCDD	0.00100	0.000821		ug/L		82	70 - 142	3	50	
1,2,3,7,8-PeCDF	0.00100	0.000814		ug/L		81	80 - 134	0	50	
2,3,4,7,8-PeCDF	0.00100	0.000814		ug/L		81	68 - 160	2	50	
1,2,3,4,7,8-HxCDD	0.00100	0.000745		ug/L		74	70 - 164	13	50	
1,2,3,6,7,8-HxCDD	0.00100	0.000848		ug/L		85	76 - 134	2	50	
1,2,3,7,8,9-HxCDD	0.00100	0.000811		ug/L		81	64 - 162	5	50	
1,2,3,4,7,8-HxCDF	0.00100	0.000829		ug/L		83	72 - 134	5	50	
1,2,3,6,7,8-HxCDF	0.00100	0.000837		ug/L		84	84 - 130	5	50	
1,2,3,7,8,9-HxCDF	0.00100	0.000811		ug/L		81	78 - 130	8	50	
2,3,4,6,7,8-HxCDF	0.00100	0.000817		ug/L		82	70 - 156	7	50	
1,2,3,4,6,7,8-HpCDD	0.00100	0.000756		ug/L		76	70 - 140	6	50	
1,2,3,4,6,7,8-HpCDF	0.00100	0.000829		ug/L		83	82 - 122	10	50	
1,2,3,4,7,8,9-HpCDF	0.00100	0.000814		ug/L		81	78 - 138	5	50	
OCDD	0.00200	0.00166		ug/L		83	78 - 144	14	50	
OCDF	0.00200	0.00168		ug/L		84	63 - 170	8	50	

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	59		20 - 175
13C-2,3,7,8-TCDF	56		22 - 152
13C-1,2,3,7,8-PeCDD	59		21 - 227
13C-1,2,3,7,8-PeCDF	56		21 - 192
13C-2,3,4,7,8-PeCDF	55		13 - 328
13C-1,2,3,4,7,8-HxCDD	54		21 - 193
13C-1,2,3,6,7,8-HxCDD	56		25 - 163
13C-1,2,3,4,7,8-HxCDF	52		19 - 202

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-664640/3-A

Client Sample ID: Lab Control Sample Dup

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 666484

Prep Batch: 664640

<i>Isotope Dilution</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C-1,2,3,6,7,8-HxCDF	55		21 - 159
13C-1,2,3,7,8,9-HxCDF	56		17 - 205
13C-2,3,4,6,7,8-HxCDF	55		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	59		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	50		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	53		20 - 186
13C-OCDD	53		13 - 199
13C-OCDF	52		13 - 199

<i>Surrogate</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
37Cl4-2,3,7,8-TCDD	70		31 - 191

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-2

Specialty Organics

Prep Batch: 664640

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-1	Outfall009_20230311_Comp	Total/NA	Water	1613B	
MB 320-664640/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-664640/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-664640/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 665897

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-1	Outfall009_20230311_Comp	Total/NA	Water	1613B	664640
MB 320-664640/1-A	Method Blank	Total/NA	Water	1613B	664640

Analysis Batch: 666484

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 320-664640/2-A	Lab Control Sample	Total/NA	Water	1613B	664640
LCSD 320-664640/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	664640

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-2

Client Sample ID: Outfall009_20230311_Comp

Lab Sample ID: 570-130862-1

Date Collected: 03/11/23 07:35

Matrix: Water

Date Received: 03/13/23 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			1059.8 mL	20.0 uL	664640	03/31/23 06:24	FC	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	665897	04/06/23 20:59	GRB	EET SAC

Instrument ID: DFS 1

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	06-01-23
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-24
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-24
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442021-12	02-28-23 *
Virginia	NELAP	460278	03-14-24
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130862-1	Outfall009_20230311_Comp	Water	03/11/23 07:35	03/13/23 19:25

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Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:
Client Contact: Shipping/Receiving		Patel, Virendra	Patel, Virendra	570-210461.1	570-210461.1
Company: Eurofins Environment Testing Northern Ca		Phone:	E-Mail:	State of Origin:	Page:
Address: 880 Riverside Parkway,		Virendra.Patel@et.eurofins.com	Virendra.Patel@et.eurofins.com	California	Page 1 of 1
City: West Sacramento		Accreditations Required (See note): State Program - California		Job #:	570-130862-2
State, Zip CA, 95605		Due Date Requested: 3/29/2023		Preservation Codes:	
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		TAT Requested (days):		A - HCL M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
Email:		PO #:		Other:	
Project Name: Boeing NPDES SSFL - Routine Outfall - 009 Comp		WO #:		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA	
Site:		Project #: 57013187		Other: Z - other (specify)	
SSOW#:		Sample Date		Field Filtered Sample (Yes or No)	
Sample Identification - Client ID (Lab ID)		Sample Time		Perform MS/MSD (Yes or No)	
Outfall009_20230311_Comp (570-130862-1)		07:35 Pacific		1613B/1613B_Sox_Sep_P (MOD) Standard List w/	
Sample Date		3/11/23		Totals	
Sample Type (C=Comp, G=grab)		Matrix (W=Water, S=Solid, O=Seawater, I=Ice, T=Tissue, A=Air)		Total Number of Containers	
Preservation Code		Water		2	
Special Instructions/Note:		See QAS, Boeing_wlu to zero, ug/L, Use Boeing glassware.			

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Unconfirmed		Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <input type="checkbox"/> Months	
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:	
Primary Deliverable Rank: 2		Method of Shipment:	
Empty Kit Relinquished by:		Time:	
Relinquished by: <i>[Signature]</i>		Date: 03/19/23 9:40	
Relinquished by:		Date/Time: 03/15/23 09:00	
Relinquished by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks: 36	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130862-2

Login Number: 130862

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130862-2

Login Number: 130862

List Number: 3

Creator: Oropeza, Salvador

List Source: Eurofins Sacramento

List Creation: 03/15/23 01:24 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.6C, 4.5C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004
Generated 4/17/2023 2:54:10 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 009 Comp

JOB NUMBER

570-130862-3

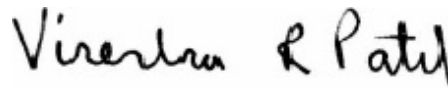
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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4/17/2023 2:54:10 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494

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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-3

Qualifiers

Rad

Qualifier	Qualifier Description
F	MS/MSD Recovery and/or RPD exceeds the control limits
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Comp

Job ID: 570-130862-3

Job ID: 570-130862-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-130862-3

Comments

No additional comments.

Receipt

The samples were received on 3/13/2023 7:25 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.1° C.

Receipt Exceptions

The reference method requires samples to have a pH of <2. The following samples were received with a pH of 7: <Affected Samples>. The samples were preserved to the appropriate pH in the laboratory.

RAD

Method 900.0: Gross Alpha Beta prep batch 160-606236:

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 160-606326 and analytical batch 160-606671 were outside control limits for one or more analytes. In addition RER/RPD was also outside of control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 900.0: Gross Alpha Beta prep batch 160-606326:

The detection goal was not met for the following sample(s). The samples and batch QC were prepped at full volume. Matrix interferences are suspected because the method blank achieved the detection goal demonstrating acceptable sample preparation and instrument performance. (570-129852-R-1-F)

Method 900.0: Gross Alpha Beta prep batch 160-606326:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230311_Comp (570-130862-1), (LCS 160-606326/2-A), (LCSB 160-606326/3-A), (MB 160-606326/1-A), (570-129852-R-1-F), (570-129852-R-1-J MS), (570-129852-R-1-L MSBT), (570-129852-R-1-M MSBTD) and (570-129852-R-1-K MSD)

Method 901.1: Gamma Prep Batch 160-604735

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Comp

Job ID: 570-130862-3

Job ID: 570-130862-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230311_Comp (570-130862-1), (570-129084-R-1-F) and (570-129084-R-1-H DU)

Methods 903.0, 9315: Radium-226 batch 604617

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230311_Comp (570-130862-1), (LCS 160-604617/2-A), (MB 160-604617/1-A), (280-173679-B-6-A), (280-173679-B-6-B MS) and (280-173679-B-6-C MSD)

Methods 904.0, 9320: Radium-228 prep batch 160-604706:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230311_Comp (570-130862-1), (LCS 160-604706/2-A), (MB 160-604706/1-A), (280-173679-B-6-D), (280-173679-B-6-E MS) and (280-173679-B-6-F MSD)

Method 905: Strontium-90 batch 605090

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230311_Comp (570-130862-1), (LCS 160-605090/2-A), (MB 160-605090/1-A), (380-41106-B-1-A) and (380-41106-C-1-A DU)

Method 906.0: Tritium 606188

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230311_Comp (570-130862-1), (LCS 160-606188/2-A), (MB 160-606188/1-A), (570-130861-J-1-A), (570-130861-J-1-B DU) and (570-130862-I-1-B MS)

Method A-01-R: Isotopic Uranium batch 605729

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230311_Comp (570-130862-1), (LCS 160-605729/2-A), (MB 160-605729/1-A), (570-131449-AX-1-B) and (570-131449-AX-1-C DU)

Method ExtChrom: Uranium Prep Batch 160-605729:

The following sample was prepared at a reduced aliquot due to discoloration: Outfall009_20230311_Comp (570-130862-1).

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Comp

Job ID: 570-130862-3

Job ID: 570-130862-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Method PrecSep_0:

Method PrecSep-21:

Method PrecSep-7: Strontium 90 Prep Batch 160-605090

The following sample was prepared at a reduced aliquot due to Matrix: Outfall009_20230311_Comp (570-130862-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-3

Client Sample ID: Outfall009_20230311_Comp

Lab Sample ID: 570-130862-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall009_20230311_Comp

Date Collected: 03/11/23 07:35

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130862-1

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.571	U F	0.821	0.823	3.00	1.39	pCi/L	04/06/23 10:28	04/10/23 20:49	1
Gross Beta	0.0464	U	0.420	0.420	4.00	0.741	pCi/L	04/06/23 10:28	04/10/23 20:49	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall009_20230311_Comp

Date Collected: 03/11/23 07:35

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130862-1

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	5.99	U	11.5	11.6	20.0	14.5	pCi/L	03/22/23 16:26	03/30/23 09:41	1
Potassium-40	0.566	U	168	168		237	pCi/L	03/22/23 16:26	03/30/23 09:41	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall009_20230311_Comp
 Date Collected: 03/11/23 07:35
 Date Received: 03/13/23 19:25

Lab Sample ID: 570-130862-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0231	U	0.0994	0.0994	1.00	0.230	pCi/L	03/22/23 11:47	04/14/23 14:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.2		30 - 110					03/22/23 11:47	04/14/23 14:43	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall009_20230311_Comp
Date Collected: 03/11/23 07:35
Date Received: 03/13/23 19:25

Lab Sample ID: 570-130862-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.495	U	0.402	0.404	1.00	0.620	pCi/L	03/22/23 12:28	04/12/23 12:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.2		30 - 110					03/22/23 12:28	04/12/23 12:00	1
Y Carrier	92.3		30 - 110					03/22/23 12:28	04/12/23 12:00	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall009_20230311_Comp
Date Collected: 03/11/23 07:35
Date Received: 03/13/23 19:25

Lab Sample ID: 570-130862-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.0249	U	0.331	0.331	3.00	0.602	pCi/L	03/27/23 13:47	04/10/23 16:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	83.3		30 - 110					03/27/23 13:47	04/10/23 16:36	1
Y Carrier	81.1		30 - 110					03/27/23 13:47	04/10/23 16:36	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall009_20230311_Comp
Date Collected: 03/11/23 07:35
Date Received: 03/13/23 19:25

Lab Sample ID: 570-130862-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	66.7	U	140	140	500	244	pCi/L	04/05/23 13:01	04/06/23 12:55	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall009_20230311_Comp

Date Collected: 03/11/23 07:35

Date Received: 03/13/23 19:25

Lab Sample ID: 570-130862-1

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.299		0.226	0.227	1.00	0.204	pCi/L	03/30/23 16:34	04/05/23 22:09	1
Tracer	%Yield	Qualifier	Limits							
Uranium-232	90.7		30 - 110	Prepared	Analyzed	Dil Fac				
				03/30/23 16:34	04/05/23 22:09	1				

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)							
570-130862-1	Outfall009_20230311_Comp	83.2							
LCS 160-604617/2-A	Lab Control Sample	96.1							
MB 160-604617/1-A	Method Blank	91.5							

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)						
570-130862-1	Outfall009_20230311_Comp	83.2	92.3						
LCS 160-604706/2-A	Lab Control Sample	96.1	80.4						
MB 160-604706/1-A	Method Blank	91.5	81.5						

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Sr (30-110)	Y (30-110)						
570-130862-1	Outfall009_20230311_Comp	83.3	81.1						
LCS 160-605090/2-A	Lab Control Sample	83.8	75.9						
MB 160-605090/1-A	Method Blank	83.0	70.3						

Tracer/Carrier Legend

Sr = Sr Carrier

Y = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	U-232 (30-110)							
570-130862-1	Outfall009_20230311_Comp	90.7							
LCS 160-605729/2-A	Lab Control Sample	38.1							
MB 160-605729/1-A	Method Blank	46.2							

Tracer/Carrier Legend

U-232 = Uranium-232

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-606326/1-A
Matrix: Water
Analysis Batch: 606671

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 606326

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)								
Gross Alpha	0.4133	U	0.657	0.658	3.00	1.12	pCi/L	04/06/23 10:28	04/10/23 20:47		1	
Gross Beta	0.02677	U	0.496	0.496	4.00	0.874	pCi/L	04/06/23 10:28	04/10/23 20:47		1	

Lab Sample ID: LCS 160-606326/2-A
Matrix: Water
Analysis Batch: 606895

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606326

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec	Limits
				Uncert. (2σ+/-)					Limits	
Gross Alpha	50.5	51.96		7.62	3.00	2.05	pCi/L	103	75 - 125	

Lab Sample ID: LCSB 160-606326/3-A
Matrix: Water
Analysis Batch: 606671

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606326

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec	Limits
				Uncert. (2σ+/-)					Limits	
Gross Beta	73.4	74.51		7.98	4.00	0.927	pCi/L	102	75 - 125	

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-604735/1-A
Matrix: Water
Analysis Batch: 605378

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604735

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)								
Cesium-137	5.575	U	11.5	11.5	20.0	14.5	pCi/L	03/22/23 16:26	03/29/23 21:25		1	
Potassium-40	-139.9	U	180	180		285	pCi/L	03/22/23 16:26	03/29/23 21:25		1	

Lab Sample ID: LCS 160-604735/2-A
Matrix: Water
Analysis Batch: 605376

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604735

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec	Limits
				Uncert. (2σ+/-)					Limits	
Americium-241	135000	135500		16100		443	pCi/L	100	75 - 125	
Cesium-137	40800	42170		5030	20.0	105	pCi/L	103	75 - 125	
Cobalt-60	17800	18660		2230		54.8	pCi/L	105	75 - 125	

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-3

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-604617/1-A
Matrix: Water
Analysis Batch: 607421

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604617

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.03823	U	0.0834	0.0834	1.00	0.155	pCi/L	03/22/23 11:47	04/14/23 14:41	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	91.5		30 - 110					03/22/23 11:47	04/14/23 14:41	1

Lab Sample ID: LCS 160-604617/2-A
Matrix: Water
Analysis Batch: 607421

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604617

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	10.43		1.18	1.00	0.142	pCi/L	92	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits		Prepared	Analyzed	Dil Fac		
Ba Carrier	96.1		30 - 110					03/22/23 11:47	04/14/23 14:41

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-604706/1-A
Matrix: Water
Analysis Batch: 607021

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 604706

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	-0.02768	U	0.257	0.257	1.00	0.494	pCi/L	03/22/23 12:28	04/12/23 11:59	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	91.5		30 - 110					03/22/23 12:28	04/12/23 11:59	1
Y Carrier	81.5		30 - 110		03/22/23 12:28	04/12/23 11:59	1			

Lab Sample ID: LCS 160-604706/2-A
Matrix: Water
Analysis Batch: 607021

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 604706

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-228	8.04	8.045		1.13	1.00	0.409	pCi/L	100	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits		Prepared	Analyzed	Dil Fac		
Ba Carrier	96.1		30 - 110					03/22/23 12:28	04/12/23 11:59
Y Carrier	80.4		30 - 110		03/22/23 12:28	04/12/23 11:59	1		

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-3

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-605090/1-A
Matrix: Water
Analysis Batch: 606669

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605090

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium-90	0.09802	U	0.194	0.194	3.00	0.333	pCi/L	03/27/23 13:47	04/10/23 16:12	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Sr Carrier	83.0		30 - 110					03/27/23 13:47	04/10/23 16:12	1
Y Carrier	70.3		30 - 110		03/27/23 13:47	04/10/23 16:12	1			

Lab Sample ID: LCS 160-605090/2-A
Matrix: Water
Analysis Batch: 606671

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605090

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Strontium-90	7.34	7.184		0.800	3.00	0.317	pCi/L	98	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits		Prepared	Analyzed	Dil Fac		
Sr Carrier	83.8		30 - 110						
Y Carrier	75.9		30 - 110						

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-606188/1-A
Matrix: Water
Analysis Batch: 606654

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 606188

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	63.06	U	138	138	500	240	pCi/L	04/05/23 13:01	04/06/23 11:02	1

Lab Sample ID: LCS 160-606188/2-A
Matrix: Water
Analysis Batch: 606654

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606188

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Tritium	2090	1960		355	500	247	pCi/L	94	75 - 125

Lab Sample ID: 570-130862-1 MS
Matrix: Water
Analysis Batch: 606654

Client Sample ID: Outfall009_20230311_Comp
Prep Type: Total/NA
Prep Batch: 606188

Analyte	Sample	Sample	Spike	MS	MS	Total	RL	MDC	Unit	%Rec	%Rec Limits
	Result	Qual	Added	Result	Qual	Uncert. (2σ+/-)					
Tritium	66.7	U	2010	2009		358	500	242	pCi/L	97	60 - 140

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-3

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-605729/1-A
Matrix: Water
Analysis Batch: 605912

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605729

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Total Uranium	0.1686	U	0.206	0.207	1.00	0.300	pCi/L	03/30/23 16:34	04/03/23 20:56	1
Tracer	MB	MB	Limits		Prepared	Analyzed	Dil Fac			
Uranium-232	%Yield	Qualifier	30 - 110							

Lab Sample ID: LCS 160-605729/2-A
Matrix: Water
Analysis Batch: 605927

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605729

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Uranium-234	12.7	13.57		1.98	1.00	0.356	pCi/L	107	75 - 125
Uranium-238	13.0	13.66		1.99	1.00	0.311	pCi/L	105	75 - 125
Tracer	LCS	LCS	Limits		Prepared	Analyzed	Dil Fac		
Uranium-232	%Yield	Qualifier	30 - 110						

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-3

Rad

Prep Batch: 604617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-1	Outfall009_20230311_Comp	Total/NA	Water	PrecSep-21	
MB 160-604617/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-604617/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 604706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-1	Outfall009_20230311_Comp	Total/NA	Water	PrecSep_0	
MB 160-604706/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-604706/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Prep Batch: 604735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-1	Outfall009_20230311_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-604735/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-604735/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	

Prep Batch: 605090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-1	Outfall009_20230311_Comp	Total/NA	Water	PrecSep-7	
MB 160-605090/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-605090/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	

Prep Batch: 605729

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-1	Outfall009_20230311_Comp	Total/NA	Water	ExtChrom	
MB 160-605729/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-605729/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	

Prep Batch: 606188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-1	Outfall009_20230311_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-606188/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-606188/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
570-130862-1 MS	Outfall009_20230311_Comp	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 606326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-130862-1	Outfall009_20230311_Comp	Total/NA	Water	Evaporation	
MB 160-606326/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-606326/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-606326/3-A	Lab Control Sample	Total/NA	Water	Evaporation	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-3

Client Sample ID: Outfall009_20230311_Comp

Lab Sample ID: 570-130862-1

Date Collected: 03/11/23 07:35

Matrix: Water

Date Received: 03/13/23 19:25

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.04 mL	1.0 g	606326	04/06/23 10:28	MST	EET SL
Total/NA	Analysis	900.0		1			606668	04/10/23 20:49	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	604735	03/22/23 16:26	SEH	EET SL
Total/NA	Analysis	901.1		1			605597	03/30/23 09:41	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			759.55 mL	1.0 g	604617	03/22/23 11:47	DJP	EET SL
Total/NA	Analysis	903.0		1			607421	04/14/23 14:43	SCB	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	PrecSep_0			759.55 mL	1.0 g	604706	03/22/23 12:28	DJP	EET SL
Total/NA	Analysis	904.0		1			607021	04/12/23 12:00	FLC	EET SL
Instrument ID: GFPCORANGE										
Total/NA	Prep	PrecSep-7			489.39 mL	1.0 g	605090	03/27/23 13:47	DJP	EET SL
Total/NA	Analysis	905		1			606671	04/10/23 16:36	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	LSC_Dist_Susp			103.02 mL	1.0 g	606188	04/05/23 13:01	SEH	EET SL
Total/NA	Analysis	906.0		1			606654	04/06/23 12:55	REV	EET SL
Instrument ID: LSCTEAL										
Total/NA	Prep	ExtChrom			305.9 mL	1.0 mL	605729	03/30/23 16:34	CMM	EET SL
Total/NA	Analysis	A-01-R		1			606258	04/05/23 22:09	FLC	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-130862-3

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	03-31-24
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	06-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-3

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-130862-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-130862-1	Outfall009_20230311_Comp	Water	03/11/23 07:35	03/13/23 19:25

1

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Chain of Custody Record



Client Information (Sub Contract Lab)		Lab PM: Patel, Virendra	Carrier Tracking No(s): 570-210457.1
Client Contact Shipping/Receiving		E-Mail: Virendra.Patel@et.eurofins.com	Page Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California	Job # 570-130862-3
Address: 13715 Rider Trail North, City: Earth City State, Zip MO, 63045 Phone: 314-298-8566(Tel) 314-298-8757(Fax) Email:		Analysis Requested	
Due Date Requested: 4/13/2023		Total Number of containers	
TAT Requested (days):		2	
PO #:	WO #:	901.1_Ca/Fill_Geo_0_K-40 and Cesium-137	Special Instructions/Note: Boeing SSFL: DO NOT FILTER, use prep date from preservation. OK to Preserve
Project #: 57013187	SSOW#:	904.0/PrecSep_0 Radium-228	
Site: Boeing NPDES SSFL - Routine Outfall - 009 Comp		903.0/PrecSep_21 Radium-226	
		905.590/PrecSep_7 Strontium-90	
		906.0/LSC_Dist_Susp Tritium	
		900.0/Evaporation Gross Alpha/Beta	
		909.0/MS/MSD (Yes or No)	
		Field Filtered Sample (Yes or No)	
		Perform MS/MSD (Yes or No)	
		901.1_Ca/Fill_Geo_0_K-40 and Cesium-137	
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time
Outfall009_20230311_Comp (570-130862-1)		3/11/23	07:35 Pacific
Matrix (Water, Sewage, Snow/Ice, Urine, Tissue, Air)		Preservation Code:	Water

Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.

Possible Hazard Identification		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months	
Unconfirmed		Special Instructions/OC Requirements:	
Deliverable Requested: I, II, III, IV, Other (specify)		Primary Deliverable Rank: 2	
Empty Kit Relinquished by:		Time:	
Relinquished by: <i>[Signature]</i>		Date:	3/15/23
Relinquished by: FED EX		Date/Time:	09:00
Relinquished by:		Date/Time:	
Custody Seals Intact:		Cooler Temperature(s) °C and Other Remarks	
<input type="checkbox"/> Yes <input type="checkbox"/> No			



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130862-3

Login Number: 130862

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-130862-3

Login Number: 130862

List Number: 2

Creator: Worthington, Sierra M

List Source: Eurofins St. Louis

List Creation: 03/15/23 12:27 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	Refer to Job Narrative for details.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 4/7/2023 3:31:30 PM

JOB DESCRIPTION

Boeing -SSFL NPDES- Routine Outfall - 009 Grab

JOB NUMBER

570-131814-1

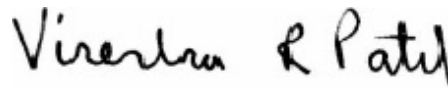
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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4/7/2023 3:31:30 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing -SSFL NPDES- Routine Outfall - 009 Grat

Job ID: 570-131814-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing -SSFL NPDES- Routine Outfall - 009 Grab

Job ID: 570-131814-1

Job ID: 570-131814-1

Laboratory: Eurofins Calscience

Narrative

**Job Narrative
570-131814-1**

Comments

No additional comments.

Receipt

The sample was received on 3/20/2023 6:45 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.7° C.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 1664A: The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-313432.

Method: 1664.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-131814-1

Project/Site: Boeing -SSFL NPDES- Routine Outfall - 009 Grat

Client Sample ID: Outfall009_20230320_Grab

Lab Sample ID: 570-131814-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
HEM (Oil & Grease)	2.6		0.99	0.50	mg/L	1		1664A	Total/NA

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing -SSFL NPDES- Routine Outfall - 009 Grat

Job ID: 570-131814-1

General Chemistry

Client Sample ID: Outfall009_20230320_Grab

Date Collected: 03/20/23 12:15

Date Received: 03/20/23 18:45

Lab Sample ID: 570-131814-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664A)	2.6		0.99	0.50	mg/L		03/22/23 07:00	03/22/23 09:35	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing -SSFL NPDES- Routine Outfall - 009 Grat

Job ID: 570-131814-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-313432/1-A
Matrix: Water
Analysis Batch: 313715

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 313432

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		1.0	0.51	mg/L		03/22/23 07:00	03/22/23 09:35	1

Lab Sample ID: LCS 570-313432/2-A
Matrix: Water
Analysis Batch: 313715

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 313432

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	36.8		mg/L		92	78 - 114

Lab Sample ID: LCSD 570-313432/3-A
Matrix: Water
Analysis Batch: 313715

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 313432

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM (Oil & Grease)	40.0	38.3		mg/L		96	78 - 114	4	18

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing -SSFL NPDES- Routine Outfall - 009 Grat

Job ID: 570-131814-1

General Chemistry

Prep Batch: 313432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131814-1	Outfall009_20230320_Grab	Total/NA	Water	1664A	
MB 570-313432/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-313432/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-313432/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 313715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131814-1	Outfall009_20230320_Grab	Total/NA	Water	1664A	313432
MB 570-313432/1-A	Method Blank	Total/NA	Water	1664A	313432
LCS 570-313432/2-A	Lab Control Sample	Total/NA	Water	1664A	313432
LCSD 570-313432/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	313432



Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing -SSFL NPDES- Routine Outfall - 009 Grat

Job ID: 570-131814-1

Client Sample ID: Outfall009_20230320_Grab

Lab Sample ID: 570-131814-1

Date Collected: 03/20/23 12:15

Matrix: Water

Date Received: 03/20/23 18:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1664A			1011 mL	1000 mL	313432	03/22/23 07:00	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			313715	03/22/23 09:35	L6IE	EET CAL 4

Instrument ID: NO EQUIQ

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

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Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing -SSFL NPDES- Routine Outfall - 009 Grat

Job ID: 570-131814-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-131814-1

Project/Site: Boeing -SSFL NPDES- Routine Outfall - 009 Grat

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing -SSFL NPDES- Routine Outfall - 009
Grab

Job ID: 570-131814-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-131814-1	Outfall009_20230320_Grab	Water	03/20/23 12:15	03/20/23 18:45

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- 2
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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-131814-1

Login Number: 131814

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 4/7/2023 3:57:10 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 009 Comp

JOB NUMBER

570-131938-1

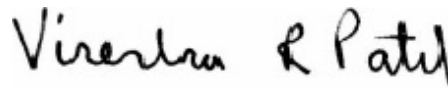
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization

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4/7/2023 3:57:10 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-131938-1

Qualifiers

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFI	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Comp

Job ID: 570-131938-1

Job ID: 570-131938-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-131938-1

Comments

No additional comments.

Receipt

The samples were received on 3/21/2023 5:10 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.3° C.

HPLC/IC

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals

Method 200.8: The method blank for preparation batch 570-313657 and analytical batch 570-313776 contained Antimony above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method:

Outfall009_20230321_Comp_F (570-131938-2), Outfall009_20230321_Comp_F (570-131938-2[MS]) and Outfall009_20230321_Comp_F (570-131938-2[MSD]). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method:

Outfall009_20230321_Comp_F (570-131938-2), Outfall009_20230321_Comp_F (570-131938-2[MS]) and Outfall009_20230321_Comp_F (570-131938-2[MSD]). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

Method SM 2540D: The sample duplicate (DUP) precision for analytical batch 570-314596 was outside control limits. Sample non-homogeneity is suspected.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-131938-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009

Comp

Client Sample ID: Outfall009_20230321_Comp

Lab Sample ID: 570-131938-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.3		1.0	0.36	mg/L	1		300.0	Total/NA
Sulfate	14		1.0	0.24	mg/L	1		300.0	Total/NA
Nitrate Nitrite as N	0.52		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Antimony	1.3	J,DX MB	2.0	0.36	ug/L	1		200.8	Total Recoverable
Copper	2.4		2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	0.16	J,DX	1.0	0.12	ug/L	1		200.8	Total Recoverable
Nickel	0.87	J,DX	2.0	0.17	ug/L	1		200.8	Total Recoverable
Selenium	0.95	J,DX	2.0	0.52	ug/L	1		200.8	Total Recoverable
Zinc	3.2	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Total Dissolved Solids	150		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	1.3		1.0	0.83	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Outfall009_20230321_Comp_F

Lab Sample ID: 570-131938-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	2.1	BU	2.0	0.36	ug/L	1		200.8	Dissolved
Copper	2.3	BU	2.0	0.32	ug/L	1		200.8	Dissolved
Lead	0.12	J,DX BU	1.0	0.12	ug/L	1		200.8	Dissolved
Nickel	1.5	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Zinc	2.9	J,DX BU	20	2.8	ug/L	1		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-131938-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall009_20230321_Comp

Date Collected: 03/21/23 11:25

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131938-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.3		1.0	0.36	mg/L			03/22/23 07:18	1
Sulfate	14		1.0	0.24	mg/L			03/22/23 07:18	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-131938-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall009_20230321_Comp

Lab Sample ID: 570-131938-1

Date Collected: 03/21/23 11:25

Matrix: Water

Date Received: 03/21/23 17:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.52		0.10	0.020	mg/L			03/24/23 10:42	1

- 1
- 2
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Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-131938-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009

Comp

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall009_20230321_Comp

Lab Sample ID: 570-131938-1

Date Collected: 03/21/23 11:25

Matrix: Water

Date Received: 03/21/23 17:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.3	J,DX MB	2.0	0.36	ug/L		03/22/23 06:39	03/22/23 11:15	1
Cadmium	ND		1.0	0.13	ug/L		03/22/23 06:39	03/22/23 11:15	1
Copper	2.4		2.0	0.32	ug/L		03/22/23 06:39	03/22/23 11:15	1
Lead	0.16	J,DX	1.0	0.12	ug/L		03/22/23 06:39	03/22/23 11:15	1
Nickel	0.87	J,DX	2.0	0.17	ug/L		03/22/23 06:39	03/22/23 11:15	1
Selenium	0.95	J,DX	2.0	0.52	ug/L		03/22/23 06:39	03/22/23 11:15	1
Silver	ND		1.0	0.23	ug/L		03/22/23 06:39	03/22/23 11:15	1
Thallium	ND		1.0	0.11	ug/L		03/22/23 06:39	03/22/23 11:15	1
Zinc	3.2	J,DX	20	2.8	ug/L		03/22/23 06:39	03/22/23 11:15	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-131938-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall009_20230321_Comp_F

Date Collected: 03/21/23 11:25

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131938-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	2.1	BU	2.0	0.36	ug/L			03/22/23 13:11	1
Cadmium	ND	BU	1.0	0.13	ug/L			03/22/23 13:11	1
Copper	2.3	BU	2.0	0.32	ug/L			03/22/23 13:11	1
Lead	0.12	J,DX BU	1.0	0.12	ug/L			03/22/23 13:11	1
Nickel	1.5	J,DX BU	2.0	0.17	ug/L			03/22/23 13:11	1
Selenium	ND	BU	2.0	0.52	ug/L			03/22/23 13:11	1
Silver	ND	BU	1.0	0.23	ug/L			03/22/23 13:11	1
Thallium	ND	BU	1.0	0.11	ug/L			03/22/23 13:11	1
Zinc	2.9	J,DX BU	20	2.8	ug/L			03/22/23 13:11	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-131938-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall009_20230321_Comp

Date Collected: 03/21/23 11:25

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131938-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/22/23 18:00	03/23/23 17:10	1

- 1
- 2
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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-131938-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall009_20230321_Comp_F

Date Collected: 03/21/23 11:25

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131938-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU	0.20	0.12	ug/L		03/23/23 06:08	03/23/23 18:59	1

- 1
- 2
- 3
- 4
- 5
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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-131938-1

General Chemistry

Client Sample ID: Outfall009_20230321_Comp

Date Collected: 03/21/23 11:25

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131938-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			03/27/23 15:39	1
Total Dissolved Solids (SM 2540C)	150		10	8.7	mg/L			03/23/23 17:37	1
Total Suspended Solids (SM 2540D)	1.3		1.0	0.83	mg/L			03/24/23 16:00	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-131938-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-313628/5
Matrix: Water
Analysis Batch: 313628

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			03/22/23 03:56	1
Sulfate	ND		1.0	0.24	mg/L			03/22/23 03:56	1

Lab Sample ID: LCS 570-313628/6
Matrix: Water
Analysis Batch: 313628

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	49.2		mg/L		98	90 - 110
Sulfate	50.0	49.3		mg/L		99	90 - 110

Lab Sample ID: LCSD 570-313628/7
Matrix: Water
Analysis Batch: 313628

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	49.3		mg/L		99	90 - 110	0	15
Sulfate	50.0	49.3		mg/L		99	90 - 110	0	15

Lab Sample ID: 570-131938-1 MS
Matrix: Water
Analysis Batch: 313628

Client Sample ID: Outfall009_20230321_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	7.3		50.0	59.5		mg/L		105	80 - 120
Sulfate	14		50.0	66.1		mg/L		105	80 - 120

Lab Sample ID: 570-131938-1 MSD
Matrix: Water
Analysis Batch: 313628

Client Sample ID: Outfall009_20230321_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	7.3		50.0	59.7		mg/L		105	80 - 120	0	20
Sulfate	14		50.0	66.3		mg/L		105	80 - 120	0	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-313657/1-A
Matrix: Water
Analysis Batch: 313776

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 313657

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.521	J,DX	2.0	0.36	ug/L		03/22/23 06:39	03/22/23 10:40	1
Cadmium	ND		1.0	0.13	ug/L		03/22/23 06:39	03/22/23 10:40	1
Copper	ND		2.0	0.32	ug/L		03/22/23 06:39	03/22/23 10:40	1
Lead	ND		1.0	0.12	ug/L		03/22/23 06:39	03/22/23 10:40	1
Nickel	ND		2.0	0.17	ug/L		03/22/23 06:39	03/22/23 10:40	1
Selenium	ND		2.0	0.52	ug/L		03/22/23 06:39	03/22/23 10:40	1
Silver	ND		1.0	0.23	ug/L		03/22/23 06:39	03/22/23 10:40	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-131938-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 570-313657/1-A
Matrix: Water
Analysis Batch: 313776

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 313657

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		1.0	0.11	ug/L		03/22/23 06:39	03/22/23 10:40	1
Zinc	ND		20	2.8	ug/L		03/22/23 06:39	03/22/23 10:40	1

Lab Sample ID: LCS 570-313657/2-A
Matrix: Water
Analysis Batch: 313776

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 313657

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	80.0	76.2		ug/L		95	85 - 115
Cadmium	80.0	77.4		ug/L		97	85 - 115
Copper	80.0	74.8		ug/L		94	85 - 115
Lead	80.0	72.5		ug/L		91	85 - 115
Nickel	80.0	74.1		ug/L		93	85 - 115
Selenium	80.0	79.4		ug/L		99	85 - 115
Silver	80.0	76.6		ug/L		96	85 - 115
Thallium	80.0	78.4		ug/L		98	85 - 115
Zinc	80.0	74.3		ug/L		93	85 - 115

Lab Sample ID: LCSD 570-313657/3-A
Matrix: Water
Analysis Batch: 313776

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 313657

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	80.0	78.8		ug/L		98	85 - 115	3	20
Cadmium	80.0	78.4		ug/L		98	85 - 115	1	20
Copper	80.0	76.3		ug/L		95	85 - 115	2	20
Lead	80.0	74.8		ug/L		93	85 - 115	3	20
Nickel	80.0	76.4		ug/L		95	85 - 115	3	20
Selenium	80.0	75.4		ug/L		94	85 - 115	5	20
Silver	80.0	77.8		ug/L		97	85 - 115	2	20
Thallium	80.0	78.9		ug/L		99	85 - 115	1	20
Zinc	80.0	74.4		ug/L		93	85 - 115	0	20

Lab Sample ID: 570-131938-1 MS
Matrix: Water
Analysis Batch: 313776

Client Sample ID: Outfall009_20230321_Comp
Prep Type: Total Recoverable
Prep Batch: 313657

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	1.3	J,DX MB	80.0	83.4		ug/L		103	80 - 120
Cadmium	ND		80.0	75.8		ug/L		95	80 - 120
Copper	2.4		80.0	77.5		ug/L		94	80 - 120
Lead	0.16	J,DX	80.0	73.2		ug/L		91	80 - 120
Nickel	0.87	J,DX	80.0	75.7		ug/L		94	80 - 120
Selenium	0.95	J,DX	80.0	75.5		ug/L		93	80 - 120
Silver	ND		80.0	75.4		ug/L		94	80 - 120
Thallium	ND		80.0	76.4		ug/L		95	80 - 120
Zinc	3.2	J,DX	80.0	75.9		ug/L		91	80 - 120

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-131938-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-131938-1 MSD

Matrix: Water
 Analysis Batch: 313776

Client Sample ID: Outfall009_20230321_Comp

Prep Type: Total Recoverable
 Prep Batch: 313657

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier		Added	Result				Qualifier		
Antimony	1.3	J,DX MB	80.0	81.8		ug/L		101	80 - 120	2	20
Cadmium	ND		80.0	74.8		ug/L		93	80 - 120	1	20
Copper	2.4		80.0	75.7		ug/L		92	80 - 120	2	20
Lead	0.16	J,DX	80.0	71.4		ug/L		89	80 - 120	3	20
Nickel	0.87	J,DX	80.0	74.1		ug/L		92	80 - 120	2	20
Selenium	0.95	J,DX	80.0	72.8		ug/L		90	80 - 120	4	20
Silver	ND		80.0	73.8		ug/L		92	80 - 120	2	20
Thallium	ND		80.0	74.5		ug/L		93	80 - 120	2	20
Zinc	3.2	J,DX	80.0	74.1		ug/L		89	80 - 120	2	20

Lab Sample ID: MB 570-313762/1-A

Matrix: Water
 Analysis Batch: 313835

Client Sample ID: Method Blank

Prep Type: Dissolved

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil	Fac
	Result	Qualifier								
Antimony	ND		2.0	0.36	ug/L			03/22/23 13:05		1
Cadmium	ND		1.0	0.13	ug/L			03/22/23 13:05		1
Copper	ND		2.0	0.32	ug/L			03/22/23 13:05		1
Lead	ND		1.0	0.12	ug/L			03/22/23 13:05		1
Nickel	ND		2.0	0.17	ug/L			03/22/23 13:05		1
Selenium	ND		2.0	0.52	ug/L			03/22/23 13:05		1
Silver	ND		1.0	0.23	ug/L			03/22/23 13:05		1
Thallium	ND		1.0	0.11	ug/L			03/22/23 13:05		1
Zinc	ND		20	2.8	ug/L			03/22/23 13:05		1

Lab Sample ID: LCS 570-313762/2-A

Matrix: Water
 Analysis Batch: 313835

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec	RPD	Limit
		Added	Result				Qualifier		
Antimony	80.0	80.6		ug/L		101	85 - 115		
Cadmium	80.0	81.1		ug/L		101	85 - 115		
Copper	80.0	77.1		ug/L		96	85 - 115		
Lead	80.0	77.2		ug/L		96	85 - 115		
Nickel	80.0	77.4		ug/L		97	85 - 115		
Selenium	80.0	77.1		ug/L		96	85 - 115		
Silver	80.0	81.7		ug/L		102	85 - 115		
Thallium	80.0	74.0		ug/L		93	85 - 115		
Zinc	80.0	79.2		ug/L		99	85 - 115		

Lab Sample ID: LCSD 570-313762/3-A

Matrix: Water
 Analysis Batch: 313835

Client Sample ID: Lab Control Sample Dup

Prep Type: Dissolved

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec	RPD	Limit
		Added	Result				Qualifier		
Antimony	80.0	80.8		ug/L		101	85 - 115	0	20
Cadmium	80.0	81.7		ug/L		102	85 - 115	1	20
Copper	80.0	78.9		ug/L		99	85 - 115	2	20

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-131938-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 570-313762/3-A
Matrix: Water
Analysis Batch: 313835

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD		Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
		Result	Qualifier						
Lead	80.0	77.3		ug/L		97	85 - 115	0	20
Nickel	80.0	79.1		ug/L		99	85 - 115	2	20
Selenium	80.0	76.9		ug/L		96	85 - 115	0	20
Silver	80.0	81.5		ug/L		102	85 - 115	0	20
Thallium	80.0	74.2		ug/L		93	85 - 115	0	20
Zinc	80.0	78.8		ug/L		98	85 - 115	1	20

Lab Sample ID: 570-131938-2 MS
Matrix: Water
Analysis Batch: 313835

Client Sample ID: Outfall009_20230321_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
				Result	Qualifier						
Antimony	2.1	BU	80.0	71.1	BU	ug/L		86	80 - 120		
Cadmium	ND	BU	80.0	73.8	BU	ug/L		92	80 - 120		
Copper	2.3	BU	80.0	74.7	BU	ug/L		91	80 - 120		
Lead	0.12	J,DX BU	80.0	69.8	BU	ug/L		87	80 - 120		
Nickel	1.5	J,DX BU	80.0	73.1	BU	ug/L		90	80 - 120		
Selenium	ND	BU	80.0	72.4	BU	ug/L		91	80 - 120		
Silver	ND	BU	80.0	73.6	BU	ug/L		92	80 - 120		
Thallium	ND	BU	80.0	67.2	BU	ug/L		84	80 - 120		
Zinc	2.9	J,DX BU	80.0	73.8	BU	ug/L		89	80 - 120		

Lab Sample ID: 570-131938-2 MSD
Matrix: Water
Analysis Batch: 313835

Client Sample ID: Outfall009_20230321_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
				Result	Qualifier						
Antimony	2.1	BU	80.0	69.7	BU	ug/L		85	80 - 120	2	20
Cadmium	ND	BU	80.0	72.0	BU	ug/L		90	80 - 120	2	20
Copper	2.3	BU	80.0	73.6	BU	ug/L		89	80 - 120	1	20
Lead	0.12	J,DX BU	80.0	69.1	BU	ug/L		86	80 - 120	1	20
Nickel	1.5	J,DX BU	80.0	70.9	BU	ug/L		87	80 - 120	3	20
Selenium	ND	BU	80.0	70.9	BU	ug/L		89	80 - 120	2	20
Silver	ND	BU	80.0	71.6	BU	ug/L		90	80 - 120	3	20
Thallium	ND	BU	80.0	66.5	BU	ug/L		83	80 - 120	1	20
Zinc	2.9	J,DX BU	80.0	71.1	BU	ug/L		85	80 - 120	4	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-314016/1-A
Matrix: Water
Analysis Batch: 314215

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 314016

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.20	0.12	ug/L		03/22/23 18:00	03/23/23 14:10	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-131938-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 570-314016/2-A
Matrix: Water
Analysis Batch: 314215

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 314016

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	7.98		ug/L		100	85 - 115

Lab Sample ID: LCSD 570-314016/3-A
Matrix: Water
Analysis Batch: 314215

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 314016

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	8.04		ug/L		100	85 - 115	1	10

Lab Sample ID: 570-131938-1 MS
Matrix: Water
Analysis Batch: 314463

Client Sample ID: Outfall009_20230321_Comp
Prep Type: Total/NA
Prep Batch: 314016

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.16		ug/L		102	85 - 115

Lab Sample ID: 570-131938-1 MSD
Matrix: Water
Analysis Batch: 314463

Client Sample ID: Outfall009_20230321_Comp
Prep Type: Total/NA
Prep Batch: 314016

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		8.00	7.88		ug/L		98	85 - 115	4	10

Lab Sample ID: MB 570-314019/1-B
Matrix: Water
Analysis Batch: 314463

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 314025

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/23/23 06:08	03/23/23 18:27	1

Lab Sample ID: LCS 570-314019/2-B
Matrix: Water
Analysis Batch: 314463

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 314025

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	7.63		ug/L		95	85 - 115

Lab Sample ID: LCSD 570-314019/3-B
Matrix: Water
Analysis Batch: 314463

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 314025

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	8.00	7.59		ug/L		95	85 - 115	0	10

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-131938-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 570-131938-2 MS
 Matrix: Water
 Analysis Batch: 314463

Client Sample ID: Outfall009_20230321_Comp_F
 Prep Type: Dissolved
 Prep Batch: 314025

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND	BU	8.00	7.49	BU	ug/L		94	85 - 115

Lab Sample ID: 570-131938-2 MSD
 Matrix: Water
 Analysis Batch: 314463

Client Sample ID: Outfall009_20230321_Comp_F
 Prep Type: Dissolved
 Prep Batch: 314025

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	ND	BU	8.00	7.66	BU	ug/L		96	85 - 115	2	10

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-309190/11
 Matrix: Water
 Analysis Batch: 309190

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			03/27/23 12:56	1

Lab Sample ID: LCS 570-309190/12
 Matrix: Water
 Analysis Batch: 309190

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	259		ug/L		104	90 - 110

Lab Sample ID: LCSD 570-309190/13
 Matrix: Water
 Analysis Batch: 309190

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Cyanide, Total	250	271		ug/L		109	90 - 110	5	20

Lab Sample ID: MRL 570-309190/10
 Matrix: Water
 Analysis Batch: 309190

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	5.00	5.38		ug/L		108	50 - 150

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-314263/1
 Matrix: Water
 Analysis Batch: 314263

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			03/23/23 17:37	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-131938-1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 570-314263/2
 Matrix: Water
 Analysis Batch: 314263

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	984		mg/L		98	84 - 108

Lab Sample ID: LCSD 570-314263/3
 Matrix: Water
 Analysis Batch: 314263

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1040		mg/L		104	84 - 108	5	10

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-314596/1
 Matrix: Water
 Analysis Batch: 314596

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			03/24/23 15:59	1

Lab Sample ID: LCS 570-314596/2
 Matrix: Water
 Analysis Batch: 314596

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	94.0		mg/L		94	77 - 116

Lab Sample ID: LCSD 570-314596/3
 Matrix: Water
 Analysis Batch: 314596

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	96.0		mg/L		96	77 - 116	2	10

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-131938-1

HPLC/IC

Analysis Batch: 313628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-1	Outfall009_20230321_Comp	Total/NA	Water	300.0	
MB 570-313628/5	Method Blank	Total/NA	Water	300.0	
LCS 570-313628/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-313628/7	Lab Control Sample Dup	Total/NA	Water	300.0	
570-131938-1 MS	Outfall009_20230321_Comp	Total/NA	Water	300.0	
570-131938-1 MSD	Outfall009_20230321_Comp	Total/NA	Water	300.0	

Analysis Batch: 314475

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-1	Outfall009_20230321_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Prep Batch: 313657

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-1	Outfall009_20230321_Comp	Total Recoverable	Water	200.8	
MB 570-313657/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-313657/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-313657/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-131938-1 MS	Outfall009_20230321_Comp	Total Recoverable	Water	200.8	
570-131938-1 MSD	Outfall009_20230321_Comp	Total Recoverable	Water	200.8	

Filtration Batch: 313762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-2	Outfall009_20230321_Comp_F	Dissolved	Water	Filtration	
MB 570-313762/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-313762/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-313762/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-131938-2 MS	Outfall009_20230321_Comp_F	Dissolved	Water	Filtration	
570-131938-2 MSD	Outfall009_20230321_Comp_F	Dissolved	Water	Filtration	

Analysis Batch: 313776

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-1	Outfall009_20230321_Comp	Total Recoverable	Water	200.8	313657
MB 570-313657/1-A	Method Blank	Total Recoverable	Water	200.8	313657
LCS 570-313657/2-A	Lab Control Sample	Total Recoverable	Water	200.8	313657
LCSD 570-313657/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	313657
570-131938-1 MS	Outfall009_20230321_Comp	Total Recoverable	Water	200.8	313657
570-131938-1 MSD	Outfall009_20230321_Comp	Total Recoverable	Water	200.8	313657

Analysis Batch: 313835

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-2	Outfall009_20230321_Comp_F	Dissolved	Water	200.8	313762
MB 570-313762/1-A	Method Blank	Dissolved	Water	200.8	313762
LCS 570-313762/2-A	Lab Control Sample	Dissolved	Water	200.8	313762
LCSD 570-313762/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	313762
570-131938-2 MS	Outfall009_20230321_Comp_F	Dissolved	Water	200.8	313762
570-131938-2 MSD	Outfall009_20230321_Comp_F	Dissolved	Water	200.8	313762

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-131938-1

Metals

Prep Batch: 314016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-1	Outfall009_20230321_Comp	Total/NA	Water	245.1	
MB 570-314016/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-314016/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-314016/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-131938-1 MS	Outfall009_20230321_Comp	Total/NA	Water	245.1	
570-131938-1 MSD	Outfall009_20230321_Comp	Total/NA	Water	245.1	

Filtration Batch: 314019

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-2	Outfall009_20230321_Comp_F	Dissolved	Water	Filtration	
MB 570-314019/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-314019/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-314019/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-131938-2 MS	Outfall009_20230321_Comp_F	Dissolved	Water	Filtration	
570-131938-2 MSD	Outfall009_20230321_Comp_F	Dissolved	Water	Filtration	

Prep Batch: 314025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-2	Outfall009_20230321_Comp_F	Dissolved	Water	245.1	314019
MB 570-314019/1-B	Method Blank	Dissolved	Water	245.1	314019
LCS 570-314019/2-B	Lab Control Sample	Dissolved	Water	245.1	314019
LCSD 570-314019/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	314019
570-131938-2 MS	Outfall009_20230321_Comp_F	Dissolved	Water	245.1	314019
570-131938-2 MSD	Outfall009_20230321_Comp_F	Dissolved	Water	245.1	314019

Analysis Batch: 314215

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-314016/1-A	Method Blank	Total/NA	Water	245.1	314016
LCS 570-314016/2-A	Lab Control Sample	Total/NA	Water	245.1	314016
LCSD 570-314016/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	314016

Analysis Batch: 314463

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-1	Outfall009_20230321_Comp	Total/NA	Water	245.1	314016
570-131938-2	Outfall009_20230321_Comp_F	Dissolved	Water	245.1	314025
MB 570-314019/1-B	Method Blank	Dissolved	Water	245.1	314025
LCS 570-314019/2-B	Lab Control Sample	Dissolved	Water	245.1	314025
LCSD 570-314019/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	314025
570-131938-1 MS	Outfall009_20230321_Comp	Total/NA	Water	245.1	314016
570-131938-1 MSD	Outfall009_20230321_Comp	Total/NA	Water	245.1	314016
570-131938-2 MS	Outfall009_20230321_Comp_F	Dissolved	Water	245.1	314025
570-131938-2 MSD	Outfall009_20230321_Comp_F	Dissolved	Water	245.1	314025

General Chemistry

Analysis Batch: 309190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-1	Outfall009_20230321_Comp	Total/NA	Water	Kelada 01	
MB 570-309190/11	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-309190/12	Lab Control Sample	Total/NA	Water	Kelada 01	

Eurofins Calscience

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-131938-1

General Chemistry (Continued)

Analysis Batch: 309190 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 570-309190/13	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-309190/10	Lab Control Sample	Total/NA	Water	Kelada 01	

Analysis Batch: 314263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-1	Outfall009_20230321_Comp	Total/NA	Water	SM 2540C	
MB 570-314263/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-314263/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-314263/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 314596

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-1	Outfall009_20230321_Comp	Total/NA	Water	SM 2540D	
MB 570-314596/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-314596/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-314596/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-131938-1

Client Sample ID: Outfall009_20230321_Comp

Lab Sample ID: 570-131938-1

Date Collected: 03/21/23 11:25

Matrix: Water

Date Received: 03/21/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	4 mL	4 mL	313628	03/22/23 07:18	PS	EET CAL 4
Instrument ID: IC10										
Total/NA	Analysis	NO2NO3 Calc		1			314475	03/24/23 10:42	WH6J	EET CAL 4
Instrument ID: NOEQUIP										
Total Recoverable	Prep	200.8			50 mL	50 mL	313657	03/22/23 06:39	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			313776	03/22/23 11:15	Y2WS	EET CAL 4
Instrument ID: ICPMS09										
Total/NA	Prep	245.1			25 mL	50 mL	314016	03/22/23 18:00	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			314463	03/23/23 17:10	C0YH	EET CAL 4
Instrument ID: HG8										
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	309190	03/27/23 15:39	GG0B	EET CAL 4
Instrument ID: LACHAT01										
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	314263	03/23/23 17:37	ZL7L	EET CAL 4
Instrument ID: NOEQUIP										
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	314596	03/24/23 16:00	UWCT	EET CAL 4
Instrument ID: BAL71										

Client Sample ID: Outfall009_20230321_Comp_F

Lab Sample ID: 570-131938-2

Date Collected: 03/21/23 11:25

Matrix: Water

Date Received: 03/21/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	313762	03/22/23 10:51	JP8N	EET CAL 4
Dissolved	Analysis	200.8		1			313835	03/22/23 13:11	Y2WS	EET CAL 4
Instrument ID: ICPMS10										
Dissolved	Filtration	Filtration			25 mL	25 mL	314019	03/23/23 05:55	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	314025	03/23/23 06:08	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			314463	03/23/23 18:59	C0YH	EET CAL 4
Instrument ID: HG8										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-131938-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23



Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-131938-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4

Protocol References:

- EPA = US Environmental Protection Agency
- None = None
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

- EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-131938-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-131938-1	Outfall009_20230321_Comp	Water	03/21/23 11:25	03/21/23 17:10
570-131938-2	Outfall009_20230321_Comp_F	Water	03/21/23 11:25	03/21/23 17:10

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-131938-1

Login Number: 131938

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 4/26/2023 9:09:01 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 009 Grab

JOB NUMBER

570-131938-2

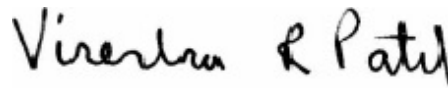
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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4/26/2023 9:09:01 PM

Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
♠	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grab

Job ID: 570-131938-2

Job ID: 570-131938-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-131938-2

Comments

No additional comments.

Receipt

The samples were received on 3/21/2023 5:10 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.3° C.

Dioxin

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: (CCV 320-669577/2) and (MB 320-668480/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: Outfall009_20230321_Comp (570-131938-1) and (CCV 320-669579/17). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: (CCV 320-669599/2) and (LCS 320-668480/2-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: (CCV 320-670020/1) and (LCS 320-668480/3-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-2

Client Sample ID: Outfall009_20230321_Comp

Lab Sample ID: 570-131938-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,7,8-HxCDD	0.0000014	J,DX q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				14					
1,2,3,6,7,8-HxCDD	0.00000043	J,DX q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				13					
1,2,3,7,8,9-HxCDD	0.00000069	J,DX q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				12					
1,2,3,4,6,7,8-HpCDD	0.0000028	J,DX	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				51					
1,2,3,4,6,7,8-HpCDF	0.0000034	J,DX	0.000047	0.00000001	ug/L	1		1613B	Total/NA
				1					
1,2,3,4,7,8,9-HpCDF	0.00000054	J,DX q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				12					
OCDD	0.000015	J,DX MB q	0.000094	0.0000000	ug/L	1		1613B	Total/NA
				69					
OCDF	0.0000029	J,DX q	0.000094	0.0000000	ug/L	1		1613B	Total/NA
				14					
Total HxCDD	0.0000026	J,DX q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				12					
Total HpCDD	0.0000054	J,DX q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				51					
Total HpCDF	0.0000039	J,DX q	0.000047	0.00000001	ug/L	1		1613B	Total/NA
				1					

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall009_20230321_Comp

Date Collected: 03/21/23 11:25

Date Received: 03/21/23 17:10

Lab Sample ID: 570-131938-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000094	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				10					
2,3,7,8-TCDF	ND		0.0000094	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				051					
1,2,3,7,8-PeCDD	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				14					
1,2,3,7,8-PeCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				070					
2,3,4,7,8-PeCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				084					
1,2,3,4,7,8-HxCDD	0.0000014	J,DX q	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				14					
1,2,3,6,7,8-HxCDD	0.00000043	J,DX q	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				13					
1,2,3,7,8,9-HxCDD	0.00000069	J,DX q	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				12					
1,2,3,4,7,8-HxCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				33					
1,2,3,6,7,8-HxCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				33					
1,2,3,7,8,9-HxCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				37					
2,3,4,6,7,8-HxCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				33					
1,2,3,4,6,7,8-HpCDD	0.0000028	J,DX	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				51					
1,2,3,4,6,7,8-HpCDF	0.0000034	J,DX	0.000047	0.00000001	ug/L		04/19/23 04:39	04/23/23 01:54	1
				1					
1,2,3,4,7,8,9-HpCDF	0.00000054	J,DX q	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				12					
OCDD	0.000015	J,DX MB q	0.000094	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				69					
OCDF	0.0000029	J,DX q	0.000094	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				14					
Total TCDD	ND		0.0000094	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				10					
Total TCDF	ND		0.0000094	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				051					
Total PeCDD	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				14					
Total PeCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				070					
Total HxCDD	0.0000026	J,DX q	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				12					
Total HxCDF	ND		0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				33					
Total HpCDD	0.0000054	J,DX q	0.000047	0.0000000	ug/L		04/19/23 04:39	04/23/23 01:54	1
				51					
Total HpCDF	0.0000039	J,DX q	0.000047	0.00000001	ug/L		04/19/23 04:39	04/23/23 01:54	1
				1					
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	87		25 - 164				04/19/23 04:39	04/23/23 01:54	1
13C-2,3,7,8-TCDF	75		24 - 169				04/19/23 04:39	04/23/23 01:54	1
13C-1,2,3,7,8-PeCDD	91		25 - 181				04/19/23 04:39	04/23/23 01:54	1
13C-1,2,3,7,8-PeCDF	89		24 - 185				04/19/23 04:39	04/23/23 01:54	1

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall009_20230321_Comp
Date Collected: 03/21/23 11:25
Date Received: 03/21/23 17:10

Lab Sample ID: 570-131938-1
Matrix: Water

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-2,3,4,7,8-PeCDF	89		21 - 178	04/19/23 04:39	04/23/23 01:54	1
13C-1,2,3,4,7,8-HxCDD	82		32 - 141	04/19/23 04:39	04/23/23 01:54	1
13C-1,2,3,6,7,8-HxCDD	87		28 - 130	04/19/23 04:39	04/23/23 01:54	1
13C-1,2,3,4,7,8-HxCDF	77		26 - 152	04/19/23 04:39	04/23/23 01:54	1
13C-1,2,3,6,7,8-HxCDF	77		26 - 123	04/19/23 04:39	04/23/23 01:54	1
13C-1,2,3,7,8,9-HxCDF	73		29 - 147	04/19/23 04:39	04/23/23 01:54	1
13C-2,3,4,6,7,8-HxCDF	75		28 - 136	04/19/23 04:39	04/23/23 01:54	1
13C-1,2,3,4,6,7,8-HpCDD	90		23 - 140	04/19/23 04:39	04/23/23 01:54	1
13C-1,2,3,4,6,7,8-HpCDF	70		28 - 143	04/19/23 04:39	04/23/23 01:54	1
13C-1,2,3,4,7,8,9-HpCDF	73		26 - 138	04/19/23 04:39	04/23/23 01:54	1
13C-OCDD	72		17 - 157	04/19/23 04:39	04/23/23 01:54	1
13C-OCDF	63		17 - 157	04/19/23 04:39	04/23/23 01:54	1
<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
37Cl4-2,3,7,8-TCDD	96		35 - 197	04/19/23 04:39	04/23/23 01:54	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-131938-1	Outfall009_20230321_Comp	96
MB 320-668480/1-A	Method Blank	97

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-668480/2-A	Lab Control Sample	95
LCSD 320-668480/3-A	Lab Control Sample Dup	100

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-131938-1	Outfall009_20230321_Comp	87	75	91	89	89	82	87	77
MB 320-668480/1-A	Method Blank	73	65	69	70	69	71	72	62

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-131938-1	Outfall009_20230321_Comp	77	73	75	90	70	73	72	63
MB 320-668480/1-A	Method Blank	62	60	65	78	59	64	59	52

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- OCDD = 13C-OCDD
- OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-668480/2-A	Lab Control Sample	70	69	70	70	70	72	75	68
LCSD 320-668480/3-A	Lab Control Sample Dup	73	83	75	77	79	71	70	66

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-668480/2-A	Lab Control Sample	70	66	70	75	61	65	69	61
LCSD 320-668480/3-A	Lab Control Sample Dup	68	74	72	74	63	74	82	75

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF

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Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-131938-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

HxCDF = 13C-1,2,3,7,8,9-HxCDF

13CHxCDF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-668480/1-A
Matrix: Water
Analysis Batch: 669577

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 668480

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8-PeCDF	70		24 - 185	04/19/23 04:39	04/22/23 19:59	1
13C-2,3,4,7,8-PeCDF	69		21 - 178	04/19/23 04:39	04/22/23 19:59	1
13C-1,2,3,4,7,8-HxCDD	71		32 - 141	04/19/23 04:39	04/22/23 19:59	1
13C-1,2,3,6,7,8-HxCDD	72		28 - 130	04/19/23 04:39	04/22/23 19:59	1
13C-1,2,3,4,7,8-HxCDF	62		26 - 152	04/19/23 04:39	04/22/23 19:59	1
13C-1,2,3,6,7,8-HxCDF	62		26 - 123	04/19/23 04:39	04/22/23 19:59	1
13C-1,2,3,7,8,9-HxCDF	60		29 - 147	04/19/23 04:39	04/22/23 19:59	1
13C-2,3,4,6,7,8-HxCDF	65		28 - 136	04/19/23 04:39	04/22/23 19:59	1
13C-1,2,3,4,6,7,8-HpCDD	78		23 - 140	04/19/23 04:39	04/22/23 19:59	1
13C-1,2,3,4,6,7,8-HpCDF	59		28 - 143	04/19/23 04:39	04/22/23 19:59	1
13C-1,2,3,4,7,8,9-HpCDF	64		26 - 138	04/19/23 04:39	04/22/23 19:59	1
13C-OCDD	59		17 - 157	04/19/23 04:39	04/22/23 19:59	1
13C-OCDF	52		17 - 157	04/19/23 04:39	04/22/23 19:59	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	97		35 - 197	04/19/23 04:39	04/22/23 19:59	1

Lab Sample ID: LCS 320-668480/2-A
Matrix: Water
Analysis Batch: 669599

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 668480

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,3,7,8-TCDF	0.000200	0.000193		ug/L		96	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000932		ug/L		93	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000866		ug/L		87	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000878		ug/L		88	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000803		ug/L		80	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.000871		ug/L		87	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.000838		ug/L		84	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000861		ug/L		86	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000870		ug/L		87	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000877		ug/L		88	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000864		ug/L		86	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000798		ug/L		80	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.000908		ug/L		91	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000836		ug/L		84	78 - 138
OCDD	0.00200	0.00171		ug/L		86	78 - 144
OCDF	0.00200	0.00186		ug/L		93	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	70		20 - 175
13C-2,3,7,8-TCDF	69		22 - 152
13C-1,2,3,7,8-PeCDD	70		21 - 227
13C-1,2,3,7,8-PeCDF	70		21 - 192
13C-2,3,4,7,8-PeCDF	70		13 - 328
13C-1,2,3,4,7,8-HxCDD	72		21 - 193
13C-1,2,3,6,7,8-HxCDD	75		25 - 163

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-668480/2-A
Matrix: Water
Analysis Batch: 669599

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 668480

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,4,7,8-HxCDF	68		19 - 202
13C-1,2,3,6,7,8-HxCDF	70		21 - 159
13C-1,2,3,7,8,9-HxCDF	66		17 - 205
13C-2,3,4,6,7,8-HxCDF	70		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	75		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	61		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	65		20 - 186
13C-OCDD	69		13 - 199
13C-OCDF	61		13 - 199

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	95		31 - 191

Lab Sample ID: LCSD 320-668480/3-A
Matrix: Water
Analysis Batch: 670020

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 668480

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
2,3,7,8-TCDD	0.000200	0.000195		ug/L		98	67 - 158	4	50	
2,3,7,8-TCDF	0.000200	0.000192		ug/L		96	75 - 158	0	50	
1,2,3,7,8-PeCDD	0.00100	0.000866		ug/L		87	70 - 142	7	50	
1,2,3,7,8-PeCDF	0.00100	0.000854		ug/L		85	80 - 134	1	50	
2,3,4,7,8-PeCDF	0.00100	0.000871		ug/L		87	68 - 160	1	50	
1,2,3,4,7,8-HxCDD	0.00100	0.000823		ug/L		82	70 - 164	2	50	
1,2,3,6,7,8-HxCDD	0.00100	0.000838		ug/L		84	76 - 134	4	50	
1,2,3,7,8,9-HxCDD	0.00100	0.000817		ug/L		82	64 - 162	3	50	
1,2,3,4,7,8-HxCDF	0.00100	0.000859		ug/L		86	72 - 134	0	50	
1,2,3,6,7,8-HxCDF	0.00100	0.000846		ug/L		85	84 - 130	3	50	
1,2,3,7,8,9-HxCDF	0.00100	0.000820		ug/L		82	78 - 130	7	50	
2,3,4,6,7,8-HxCDF	0.00100	0.000826		ug/L		83	70 - 156	5	50	
1,2,3,4,6,7,8-HpCDD	0.00100	0.000786		ug/L		79	70 - 140	2	50	
1,2,3,4,6,7,8-HpCDF	0.00100	0.000855		ug/L		85	82 - 122	6	50	
1,2,3,4,7,8,9-HpCDF	0.00100	0.000789		ug/L		79	78 - 138	6	50	
OCDD	0.00200	0.00156		ug/L		78	78 - 144	9	50	
OCDF	0.00200	0.00163		ug/L		82	63 - 170	13	50	

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	73		20 - 175
13C-2,3,7,8-TCDF	83		22 - 152
13C-1,2,3,7,8-PeCDD	75		21 - 227
13C-1,2,3,7,8-PeCDF	77		21 - 192
13C-2,3,4,7,8-PeCDF	79		13 - 328
13C-1,2,3,4,7,8-HxCDD	71		21 - 193
13C-1,2,3,6,7,8-HxCDD	70		25 - 163
13C-1,2,3,4,7,8-HxCDF	66		19 - 202
13C-1,2,3,6,7,8-HxCDF	68		21 - 159
13C-1,2,3,7,8,9-HxCDF	74		17 - 205
13C-2,3,4,6,7,8-HxCDF	72		22 - 176

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-668480/3-A
 Matrix: Water
 Analysis Batch: 670020

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 668480

<i>Isotope Dilution</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C-1,2,3,4,6,7,8-HpCDD	74		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	63		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	74		20 - 186
13C-OCDD	82		13 - 199
13C-OCDF	75		13 - 199

<i>Surrogate</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
37Cl4-2,3,7,8-TCDD	100		31 - 191

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QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-2

Specialty Organics

Prep Batch: 668480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-1	Outfall009_20230321_Comp	Total/NA	Water	1613B	
MB 320-668480/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-668480/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-668480/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 669577

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-668480/1-A	Method Blank	Total/NA	Water	1613B	668480

Analysis Batch: 669579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-1	Outfall009_20230321_Comp	Total/NA	Water	1613B	668480

Analysis Batch: 669599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 320-668480/2-A	Lab Control Sample	Total/NA	Water	1613B	668480

Analysis Batch: 670020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 320-668480/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	668480

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-2

Client Sample ID: Outfall009_20230321_Comp

Lab Sample ID: 570-131938-1

Date Collected: 03/21/23 11:25

Matrix: Water

Date Received: 03/21/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			1059 mL	20.0 uL	668480	04/19/23 04:39	BLR	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	669579	04/23/23 01:54	GRB	EET SAC

Instrument ID: DFS 1

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	06-01-23
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-24
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-24
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-24
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442021-12	02-28-23 *
Virginia	NELAP	460278	03-14-24
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



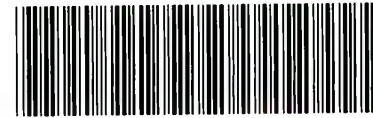
Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Grab

Job ID: 570-131938-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-131938-1	Outfall009_20230321_Comp	Water	03/21/23 11:25	03/21/23 17:10

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CHAIN OF CUSTODY FORM

Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall (003-007, 009, 010) Outfall 009 Comp				ANALYSIS REQUIRED												
"Eurofins Calscience Irvine Contact: Virendra Patel 2841 Dow Avenue, Suite 100 Tustin, CA 92780 Tel: 949-260-3218 ECI Project # 57013187"		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell) Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)				Total Recoverable Metals: (E200.8); Ni, Zn (E200.9); Ag, Cd, Cu, Pb, Sb, Se, Ti (E1613B)	TCDD (end all congeners) (E1613B)	Cr, SO ₄ , NO ₃ +NO ₂ -N (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.8); Ni, Zn (E200.9); Ag, Cd, Cu, Pb, Sb, Se, Ti	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E908.0), Sr-90 (E905.0), Total Combined Radium 228 (E903.0 or E903.1) & Radium 226 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Cyanide (SM4500-CN-E / E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (160.2 (SM2540D))	Comments		
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement# 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.						X						X						
Sampler: <i>Michelle Dallalah</i>																		
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD										
Outfall 009	Outfall009_20230321_Comp	3/21/2023 1125	WM	500 mL Poly	1	HNO ₃	95	Yes										
			WM	1 L Glass Amber	2	None	110	No		X								
			WM	500 mL Poly	2	None	145	No			X						48 hours Holding Time NO ₂ & NO ₃	
			WM	500 mL Poly	1	None	155	No				X						
			WM	500 mL Poly	1	NaOH	220	No					X					
			WM	2.5 Gal Cube	1	None	225	No						X				Unfiltered and unpreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	1 L Glass Amber	1	None	230	No										
	WM	1 L Poly	1	None	185	No							X					
	WM	1L Poly	1	None	205	Yes				X						Filter and preserve w/in 24hrs of receipt at lab		
	WM	borosilicate vials	2	None	320	No						X				Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.		
WM	1 L Glass Amber	2	None	110	No								H		Hold			

Legend: EP=Expert Panel, R=Routine

Relinquished By: <i>Michelle Dallalah</i> Date/Time: 3/21/23 13:00 Company: HEA	Received By: <i>[Signature]</i> Date/Time: 3/21/23 1300 Company: EC	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u>X</u> 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>[Signature]</i> Date/Time: 3/21/23 1710 Company: EC	Received By: <i>[Signature]</i> Date/Time: 3-21-23 17:10 Company: EC	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____ Company: _____	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u>X</u>

1-3/23 SC11

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:
Client Contact: Shipping/Receiving		Patel, Virendra	Patel, Virendra	State of Origin: California	570-211864.1
Company: Eurofins Environment Testing Northern Ca		E-Mail: Virendra.Patel@et.eurofins.com	State Program - California	Page 1 of 1	Job #: 570-131938-2
Address: 880 Riverside Parkway, City: West Sacramento State, Zip: CA, 95605 Phone: 916-373-5600(Tel) 916-372-1059(Fax) Email:		Due Date Requested: 4/6/2023 TAT Requested (days):	Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify) Other:		
Project Name: Boeing NPDES SSFL - Routine Outfall - 009 Grab Site:		PO #: WO #: Project #: 57013187 SSOW#:	Analysis Requested		
Sample Identification - Client ID (Lab ID)		Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P (MOD) Standard List w/	Totals
Outfall009_20230321_Comp (570-131938-1)	Sample Date 3/21/23	Sample Time 11:25 Pacific	Sample Type (C=Comp, G=grab)	Preservation Code: Water	Field MS/MSD (Yes or No)
Special Instructions/Note: See OAS, Boeing_w/zero_ug/L, Use Boeing glassware.		Total Number of Containers 2			
<p>Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.</p>					
Possible Hazard Identification					
<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:					
Empty Kit Relinquished by:					
Relinquished by:		Date/Time:	Date/Time:		
Relinquished by:		Date/Time:	Date/Time:		
Relinquished by:		Date/Time:	Date/Time:		
Custody Seals Intact Δ Yes Δ No		Cooler Temperature(s) °C and Other Remarks 1.2C			



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-131938-2

Login Number: 131938

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-131938-2

Login Number: 131938

List Number: 3

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 03/23/23 02:09 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.2c 1.7c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 4/26/2023 7:41:03 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 009 Grab

JOB NUMBER

570-131938-3

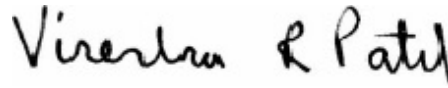
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494

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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-3

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grab

Job ID: 570-131938-3

Job ID: 570-131938-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-131938-3

Comments

No additional comments.

Receipt

The samples were received on 3/21/2023 5:10 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.3° C.

RAD

Method 900.0: Gross Alpha and Gross Beta batch 607422

The matrix spike (MS) recoveries for Gross Alpha and Gross Beta were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. (570-131940-R-1-H MS) and (570-131940-R-1-I MSBT)

Method 900.0: Gross Alpha and Gross Beta batch 607422

The detection goal was not met for the following samples due to a reduction of the sample size attributed to high residual mass: (570-131940-R-1-G) and (570-131940-R-1-J DU). Analytical results are reported with the detection limit achieved.

Method 900.0: Gross Alpha and Gross Beta batch 607422

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230321_Comp (570-131938-1), (LCS 160-607422/2-A), (LCSB 160-607422/3-A), (MB 160-607422/1-A), (570-131940-R-1-G), (570-131940-R-1-J DU), (570-131940-R-1-H MS) and (570-131940-R-1-I MSBT)

Method 900.0: Gross Alpha and Gross Beta batch 607422

The sample duplicate (DUP) precision for Gross Beta was outside control limits. Sample matrix interference is suspected. Sample was prepped at a dilution due to high residual mass (570-131940-R-1-J DU)

Method 901.1: Gamma Prep Batch 160-605283

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grab

Job ID: 570-131938-3

Job ID: 570-131938-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Th-227 Pb-211
Bi-214 Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230321_Comp (570-131938-1), (570-131073-AT-1-B) and (570-131073-AT-1-C DU)

Methods 903.0, 9315: Radium-226 prep batch 160-605610:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. Outfall009_20230321_Comp (570-131938-1), (LCS 160-605610/2-A), (LCSD 160-605610/3-A) and (MB 160-605610/1-A)

Methods 904.0, 9320: Radium-228 batch 605613

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230321_Comp (570-131938-1), (LCS 160-605613/2-A), (LCSD 160-605613/3-A) and (MB 160-605613/1-A)

Method 905: Strontium-90 batch 606565

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230321_Comp (570-131938-1), (LCS 160-606565/2-A), (LCSD 160-606565/3-A) and (MB 160-606565/1-A)

Method 906.0: Tritium 607890

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are decay corrected to sample date and time as the Activity Reference Date. Outfall009_20230321_Comp (570-131938-1), (LCS 160-607890/2-A), (MB 160-607890/1-A), (570-131938-I-1-B DU), (570-132136-Q-1-A) and (570-132136-Q-1-B MS)

Method A-01-R: Isotopic Uranium batch 606930

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230321_Comp (570-131938-1), (LCS 160-606930/2-A), (MB 160-606930/1-A), (570-131940-R-1-E) and (570-131940-R-1-F DU)

Method ExtChrom: Uranium Prep Batch 160-606930:

The following sample was prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall009_20230321_Comp (570-131938-1).

Method PrecSep_0: Radium 228 Prep Batch 160-605613

The following sample was prepared at a reduced aliquot due to Matrix: Outfall009_20230321_Comp (570-131938-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grab

Job ID: 570-131938-3

Job ID: 570-131938-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Method PrecSep-21: Radium 226 Prep Batch 160-605610

The following sample was prepared at a reduced aliquot due to Matrix: Outfall009_20230321_Comp (570-131938-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method PrecSep-7: Strontium-90 Prep Batch 606565

The following sample was prepared at a reduced aliquot due to Matrix: Outfall009_20230321_Comp (570-131938-1). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-3

Client Sample ID: Outfall009_20230321_Comp

Lab Sample ID: 570-131938-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall009_20230321_Comp
 Date Collected: 03/21/23 11:25
 Date Received: 03/21/23 17:10

Lab Sample ID: 570-131938-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	1.48		0.917	0.932	3.00	1.20	pCi/L	04/14/23 10:37	04/21/23 18:25	1
Gross Beta	2.31		0.693	0.730	4.00	0.842	pCi/L	04/14/23 10:37	04/21/23 18:25	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall009_20230321_Comp
Date Collected: 03/21/23 11:25
Date Received: 03/21/23 17:10

Lab Sample ID: 570-131938-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-4.43	U	9.26	9.28	20.0	11.0	pCi/L	03/28/23 16:33	04/12/23 12:04	1
Potassium-40	-61.0	U	99.7	99.9		129	pCi/L	03/28/23 16:33	04/12/23 12:04	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall009_20230321_Comp
Date Collected: 03/21/23 11:25
Date Received: 03/21/23 17:10

Lab Sample ID: 570-131938-1
Matrix: Water

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-226	-0.00371	U	0.0937	0.0937	1.00	0.193	pCi/L	03/30/23 08:51	04/25/23 12:15	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.1		30 - 110					03/30/23 08:51	04/25/23 12:15	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall009_20230321_Comp
Date Collected: 03/21/23 11:25
Date Received: 03/21/23 17:10

Lab Sample ID: 570-131938-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.883		0.515	0.522	1.00	0.743	pCi/L	03/30/23 09:10	04/20/23 15:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.1		30 - 110					03/30/23 09:10	04/20/23 15:04	1
Y Carrier	85.2		30 - 110					03/30/23 09:10	04/20/23 15:04	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall009_20230321_Comp
Date Collected: 03/21/23 11:25
Date Received: 03/21/23 17:10

Lab Sample ID: 570-131938-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.0861	U	0.643	0.643	3.00	1.14	pCi/L	04/07/23 11:12	04/17/23 19:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	87.1		30 - 110					04/07/23 11:12	04/17/23 19:07	1
Y Carrier	48.6		30 - 110					04/07/23 11:12	04/17/23 19:07	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall009_20230321_Comp
Date Collected: 03/21/23 11:25
Date Received: 03/21/23 17:10

Lab Sample ID: 570-131938-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-202	U	203	204	500	412	pCi/L	04/18/23 11:12	04/19/23 07:15	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall009_20230321_Comp
 Date Collected: 03/21/23 11:25
 Date Received: 03/21/23 17:10

Lab Sample ID: 570-131938-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.639		0.365	0.367	1.00	0.343	pCi/L	04/11/23 15:09	04/13/23 16:21	1
Tracer	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Uranium-232	79.0		30 - 110					04/11/23 15:09	04/13/23 16:21	1

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	
570-131938-1	Outfall009_20230321_Comp	89.1	
LCS 160-605610/2-A	Lab Control Sample	95.4	
LCSD 160-605610/3-A	Lab Control Sample Dup	92.7	
MB 160-605610/1-A	Method Blank	84.6	

Tracer/Carrier Legend
Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)
570-131938-1	Outfall009_20230321_Comp	89.1	85.2
LCS 160-605613/2-A	Lab Control Sample	95.4	86.0
LCSD 160-605613/3-A	Lab Control Sample Dup	92.7	84.9
MB 160-605613/1-A	Method Blank	84.6	84.5

Tracer/Carrier Legend
Ba = Ba Carrier
Y = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Sr (30-110)	Y (30-110)
570-131938-1	Outfall009_20230321_Comp	87.1	48.6
LCS 160-606565/2-A	Lab Control Sample	86.3	77.0
LCSD 160-606565/3-A	Lab Control Sample Dup	85.1	69.9
MB 160-606565/1-A	Method Blank	86.6	81.9

Tracer/Carrier Legend
Sr = Sr Carrier
Y = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	U-232 (30-110)
570-131938-1	Outfall009_20230321_Comp	79.0
LCS 160-606930/2-A	Lab Control Sample	90.3
MB 160-606930/1-A	Method Blank	83.9

Tracer/Carrier Legend
U-232 = Uranium-232

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-607422/1-A
Matrix: Water
Analysis Batch: 608478

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 607422

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Gross Alpha	-0.2952	U	0.323	0.325	3.00	0.811	pCi/L	04/14/23 10:37	04/21/23 10:02	1
Gross Beta	-0.7584	U	0.415	0.422	4.00	0.896	pCi/L	04/14/23 10:37	04/21/23 10:02	1

Lab Sample ID: LCS 160-607422/2-A
Matrix: Water
Analysis Batch: 608478

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 607422

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Gross Alpha	50.5	60.65		8.70	3.00	2.71	pCi/L	120	75 - 125

Lab Sample ID: LCSB 160-607422/3-A
Matrix: Water
Analysis Batch: 608478

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 607422

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Gross Beta	73.4	74.69		8.01	4.00	1.10	pCi/L	102	75 - 125

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-605283/1-A
Matrix: Water
Analysis Batch: 607160

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605283

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Cesium-137	2.793	U	6.67	6.68	20.0	7.49	pCi/L	03/28/23 16:33	04/12/23 04:01	1
Potassium-40	27.15	U	82.6	82.7		106	pCi/L	03/28/23 16:33	04/12/23 04:01	1

Lab Sample ID: LCS 160-605283/2-A
Matrix: Water
Analysis Batch: 607188

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605283

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec
				Uncert. (2σ+/-)					Limits
Americium-241	135000	139700		16600		562	pCi/L	103	75 - 125
Cesium-137	40800	39690		4740	20.0	156	pCi/L	97	75 - 125
Cobalt-60	17700	17220		2060		78.1	pCi/L	97	75 - 125

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-605610/1-A
Matrix: Water
Analysis Batch: 608688

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 605610

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.02691	U	0.0825	0.0825	1.00	0.154	pCi/L	03/30/23 08:51	04/25/23 12:13	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-3

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: MB 160-605610/1-A
 Matrix: Water
 Analysis Batch: 608688

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 605610

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	84.6		30 - 110	03/30/23 08:51	04/25/23 12:13	1

Lab Sample ID: LCS 160-605610/2-A
 Matrix: Water
 Analysis Batch: 608688

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 605610

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	11.3	9.296		1.01	1.00	0.105	pCi/L	82	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	95.4		30 - 110

Lab Sample ID: LCSD 160-605610/3-A
 Matrix: Water
 Analysis Batch: 608691

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 605610

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	Limit
Radium-226	11.3	8.720		0.965	1.00	0.125	pCi/L	77	75 - 125	0.29	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	92.7		30 - 110

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-605613/1-A
 Matrix: Water
 Analysis Batch: 608230

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 605613

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.8792		0.419	0.427	1.00	0.564	pCi/L	03/30/23 09:10	04/20/23 15:03	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	84.6		30 - 110	03/30/23 09:10	04/20/23 15:03	1
Y Carrier	84.5		30 - 110	03/30/23 09:10	04/20/23 15:03	1

Lab Sample ID: LCS 160-605613/2-A
 Matrix: Water
 Analysis Batch: 608230

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 605613

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-228	8.02	8.720		1.20	1.00	0.484	pCi/L	109	75 - 125

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-3

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-605613/2-A
Matrix: Water
Analysis Batch: 608230

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 605613

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	95.4		30 - 110
Y Carrier	86.0		30 - 110

Lab Sample ID: LCSD 160-605613/3-A
Matrix: Water
Analysis Batch: 608230

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 605613

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Radium-228	8.02	7.700		1.12	1.00	0.537	pCi/L	96	75 - 125	0.44	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	92.7		30 - 110
Y Carrier	84.9		30 - 110

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-606565/1-A
Matrix: Water
Analysis Batch: 607841

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 606565

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.1675	U	0.204	0.204	3.00	0.337	pCi/L	04/07/23 11:12	04/17/23 19:03	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Sr Carrier	86.6		30 - 110	04/07/23 11:12	04/17/23 19:03	1
Y Carrier	81.9		30 - 110	04/07/23 11:12	04/17/23 19:03	1

Lab Sample ID: LCS 160-606565/2-A
Matrix: Water
Analysis Batch: 607841

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606565

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Strontium-90	7.34	7.570		0.853	3.00	0.305	pCi/L	103	75 - 125

Carrier	LCS %Yield	LCS Qualifier	Limits
Sr Carrier	86.3		30 - 110
Y Carrier	77.0		30 - 110

Lab Sample ID: LCSD 160-606565/3-A
Matrix: Water
Analysis Batch: 607841

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 606565

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits	RER	RER Limit
Strontium-90	7.34	7.501		0.887	3.00	0.401	pCi/L	102	75 - 125	0.04	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-3

Method: 905 - Strontium-90 (GFPC) (Continued)

Carrier	LCS D %Yield	LCS D Qualifier	Limits
Sr Carrier	85.1		30 - 110
Y Carrier	69.9		30 - 110

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-607890/1-A
 Matrix: Water
 Analysis Batch: 608161

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 607890

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-102.7	U	224	224	500	433	pCi/L	04/18/23 11:12	04/19/23 06:41	1

Lab Sample ID: LCS 160-607890/2-A
 Matrix: Water
 Analysis Batch: 608161

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 607890

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Tritium	2090	1604		396	500	420	pCi/L	77	75 - 125

Lab Sample ID: 570-131938-1 DU
 Matrix: Water
 Analysis Batch: 608161

Client Sample ID: Outfall009_20230321_Comp
 Prep Type: Total/NA
 Prep Batch: 607890

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Tritium	-202	U	-31.53	U	218	500	397	pCi/L	0.40	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-606930/1-A
 Matrix: Water
 Analysis Batch: 607234

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 606930

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.09977	U	0.1021	0.1023	1.00	0.128	pCi/L	04/11/23 15:09	04/13/23 16:11	1

Tracer	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Uranium-232	83.9		30 - 110	04/11/23 15:09	04/13/23 16:11	1

Lab Sample ID: LCS 160-606930/2-A
 Matrix: Water
 Analysis Batch: 607236

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 606930

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Uranium-234	12.7	12.83		1.51	1.00	0.123	pCi/L	101	75 - 125
Uranium-238	13.0	14.23		1.63	1.00	0.0649	pCi/L	109	75 - 125

QC Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-3

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: LCS 160-606930/2-A
Matrix: Water
Analysis Batch: 607236

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606930

<i>Tracer</i>	<i>LCS</i>	<i>LCS</i>	<i>Limits</i>
	<i>%Yield</i>	<i>Qualifier</i>	
Uranium-232	90.3		30 - 110

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QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-3

Rad

Prep Batch: 605283

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-1	Outfall009_20230321_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-605283/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-605283/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	

Prep Batch: 605610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-1	Outfall009_20230321_Comp	Total/NA	Water	PrecSep-21	
MB 160-605610/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-605610/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-605610/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 605613

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-1	Outfall009_20230321_Comp	Total/NA	Water	PrecSep_0	
MB 160-605613/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-605613/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-605613/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 606565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-1	Outfall009_20230321_Comp	Total/NA	Water	PrecSep-7	
MB 160-606565/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-606565/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
LCSD 160-606565/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-7	

Prep Batch: 606930

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-1	Outfall009_20230321_Comp	Total/NA	Water	ExtChrom	
MB 160-606930/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-606930/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	

Prep Batch: 607422

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-1	Outfall009_20230321_Comp	Total/NA	Water	Evaporation	
MB 160-607422/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-607422/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-607422/3-A	Lab Control Sample	Total/NA	Water	Evaporation	

Prep Batch: 607890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-131938-1	Outfall009_20230321_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-607890/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-607890/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
570-131938-1 DU	Outfall009_20230321_Comp	Total/NA	Water	LSC_Dist_Susp	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-3

Client Sample ID: Outfall009_20230321_Comp

Lab Sample ID: 570-131938-1

Date Collected: 03/21/23 11:25

Matrix: Water

Date Received: 03/21/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			199.99 mL	1.0 g	607422	04/14/23 10:37	MST	EET SL
Total/NA	Analysis	900.0		1	1.0 mL	1.0 mL	608478	04/21/23 18:25	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	605283	03/28/23 16:33	SAC	EET SL
Total/NA	Analysis	901.1		1			607161	04/12/23 12:04	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			757.07 mL	1.0 g	605610	03/30/23 08:51	DJP	EET SL
Total/NA	Analysis	903.0		1			608691	04/25/23 12:15	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	PrecSep_0			757.07 mL	1.0 g	605613	03/30/23 09:10	DJP	EET SL
Total/NA	Analysis	904.0		1			608230	04/20/23 15:04	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep-7			494.70 mL	1.0 g	606565	04/07/23 11:12	DJP	EET SL
Total/NA	Analysis	905		1			607842	04/17/23 19:07	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	LSC_Dist_Susp			99.83 mL	1.0 g	607890	04/18/23 11:12	ZR	EET SL
Total/NA	Analysis	906.0		1			608161	04/19/23 07:15	REV	EET SL
Instrument ID: LSC3180										
Total/NA	Prep	ExtChrom			308.67 mL	1.0 mL	606930	04/11/23 15:09	MAL	EET SL
Total/NA	Analysis	A-01-R		1			607297	04/13/23 16:21	FLC	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-3

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	03-31-24
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	06-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Grat

Job ID: 570-131938-3

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Grab

Job ID: 570-131938-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-131938-1	Outfall009_20230321_Comp	Water	03/21/23 11:25	03/21/23 17:10

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Chain of Custody Record



Environment Testing



Client Information (Sub Contract Lab)		Sampler	Lab PM	Carrier Tracking No(s)	COC No										
Client Contact: Shipping/Receiving		Patel, Virendra	Patel, Virendra	State of Origin: California	570-211866.1										
Company: TestAmerica Laboratories, Inc.		Phone: Virendra.Patel@et.eurofinsus.com	E-Mail: Virendra.Patel@et.eurofinsus.com	Page 1 of 1											
Address: 13715 Rider Trail North, Earth City, MO, 63045		Accreditations Required (See note): State Program - California		Job #	570-131938-3										
Due Date Requested: 4/21/2023		Analysis Requested													
TAT Requested (days):															
PO #	WO #	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta	906.0/LSC_Dist_Susp Tritium	905.0/PreSep_7 Strontium-90	903.0/PreSep_21 Radium-226	904.0/PreSep_0 Radium-226	A01R_U/ExChrom_Actin Total Uranium	901.1_Ca/Fill_Geo_0-K-40 and Cesium-137	Total Number of Containers				
Project Name: Boeing NPDES SSFL - Routine Outfall - 009 Grab	Project # 57013187	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=Water, S=Solid, O=Sludge, T=Soil, A=Air)	Preservation Code	Water	3/21/23	11:25 Pacific	X	X	X	X	X	Boeing SSFL: DO NOT FILTER; use prep date from preservation. OK to Preserve
Site:	SSOW#:														

Sample Identification - Client ID (Lab ID)
 Outfall009_20230321_Comp (570-131938-1)

Note: Since laboratory accreditations are subject to change, Eurofins Calcsience places the ownership of method, analyte, & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calcsience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calcsience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calcsience.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) _____
 Primary Deliverable Rank: 2

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: _____ Date/Time: 05/22/23 9:24 AM Company: FC
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: Yes No
 Cooler Temperature(s) °C and Other Remarks:



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-131938-3

Login Number: 131938

List Number: 1

Creator: Patel, Virendra

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-131938-3

Login Number: 131938

List Number: 2

Creator: Worthington, Sierra M

List Source: Eurofins St. Louis

List Creation: 03/23/23 12:20 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	Refer to Job Narrative for details.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

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JOB DESCRIPTION

Boeing NPDES SSFL - Outfall 009 Grab

JOB NUMBER

570-132955-1

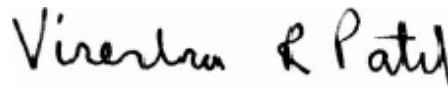
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-132955-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-132955-1

Job ID: 570-132955-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-132955-1

Comments

No additional comments.

Receipt

The sample was received on 3/29/2023 6:15 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.3° C.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method 1664A: The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-316994.

Method: 1664.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-132955-1

Client Sample ID: Outfall009_20230329_Grab

Lab Sample ID: 570-132955-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-132955-1

General Chemistry

Client Sample ID: Outfall009_20230329_Grab
Date Collected: 03/29/23 09:10
Date Received: 03/29/23 18:15

Lab Sample ID: 570-132955-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease (1664A)	ND		1.0	0.51	mg/L		04/04/23 07:00	04/04/23 11:55	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-132955-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 570-316994/1-A
Matrix: Water
Analysis Batch: 317298

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316994

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM: Oil and Grease	ND		1.0	0.51	mg/L		04/04/23 07:00	04/04/23 11:55	1

Lab Sample ID: LCS 570-316994/2-A
Matrix: Water
Analysis Batch: 317298

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316994

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM: Oil and Grease	40.0	35.1		mg/L		88	78 - 114

Lab Sample ID: LCSD 570-316994/3-A
Matrix: Water
Analysis Batch: 317298

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 316994

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
HEM: Oil and Grease	40.0	33.5		mg/L		84	78 - 114	5	18

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-132955-1

General Chemistry

Prep Batch: 316994

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-132955-1	Outfall009_20230329_Grab	Total/NA	Water	1664A	
MB 570-316994/1-A	Method Blank	Total/NA	Water	1664A	
LCS 570-316994/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 570-316994/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 317298

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-132955-1	Outfall009_20230329_Grab	Total/NA	Water	1664A	316994
MB 570-316994/1-A	Method Blank	Total/NA	Water	1664A	316994
LCS 570-316994/2-A	Lab Control Sample	Total/NA	Water	1664A	316994
LCSD 570-316994/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	316994



Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-132955-1

Client Sample ID: Outfall009_20230329_Grab

Lab Sample ID: 570-132955-1

Date Collected: 03/29/23 09:10

Matrix: Water

Date Received: 03/29/23 18:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1664A			991 mL	1000 mL	316994	04/04/23 07:00	RY4P	EET CAL 4
Total/NA	Analysis	1664A		1			317298	04/04/23 11:55	L6IE	EET CAL 4

Instrument ID: NO EQUIQ

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

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Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-132955-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-132955-1

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	EET CAL 4
1664A	HEM and SGT-HEM (Aqueous)	1664A	EET CAL 4

Protocol References:

1664A = EPA-821-98-002

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Outfall 009 Grab

Job ID: 570-132955-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-132955-1	Outfall009_20230329_Grab	Water	03/29/23 09:10	03/29/23 18:15

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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-132955-1

Login Number: 132955

List Source: Eurofins Calscience

List Number: 1

Creator: Patel, Jayesh

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 4/12/2023 8:49:17 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 009 Comp

JOB NUMBER

570-133059-1

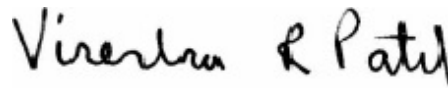
Job Notes

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Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-1

Qualifiers

Metals

Qualifier	Qualifier Description
BU	Sample was prepped beyond the specified holding time
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

General Chemistry

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Comp

Job ID: 570-133059-1

Job ID: 570-133059-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-133059-1

Comments

No additional comments.

Receipt

The samples were received on 3/30/2023 5:10 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.3° C and 2.7° C.

Receipt Exceptions

The reference method requires samples to have a pH of <2. The following samples were received with a pH of 7: <Affected Samples>. The samples were adjusted to the appropriate pH in the laboratory.

HPLC/IC

Method 300.0: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for Nitrite as N for analytical batch 570-315979 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 300.0: The following sample was diluted due to the nature of the sample matrix: Outfall009_20230330_Comp (570-133059-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

Method Filtration: The following samples were not filtered within 15 minutes of sample collection as required by the method: Outfall009_20230330_Comp_F (570-133059-2), Outfall009_20230330_Comp_F (570-133059-2[MS]) and Outfall009_20230330_Comp_F (570-133059-2[MSD]). The sample(s) was filtered prior to analysis at the laboratory, and the results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

Method SM 2540D: The sample duplicate (DUP) precision for analytical batch 570-317767 was outside control limits. Sample non-homogeneity is suspected>.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-1

Client Sample ID: Outfall009_20230330_Comp

Lab Sample ID: 570-133059-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	4.3		2.0	0.72	mg/L	2		300.0	Total/NA
Sulfate	6.7		2.0	0.47	mg/L	2		300.0	Total/NA
Nitrate Nitrite as N	0.31		0.10	0.020	mg/L	1		NO2NO3 Calc	Total/NA
Antimony	1.4	J,DX	2.0	0.36	ug/L	1		200.8	Total Recoverable
Cadmium	0.15	J,DX	1.0	0.13	ug/L	1		200.8	Total Recoverable
Copper	2.2		2.0	0.32	ug/L	1		200.8	Total Recoverable
Lead	1.3		1.0	0.12	ug/L	1		200.8	Total Recoverable
Nickel	1.8	J,DX	2.0	0.17	ug/L	1		200.8	Total Recoverable
Selenium	0.59	J,DX	2.0	0.52	ug/L	1		200.8	Total Recoverable
Silver	0.45	J,DX	1.0	0.23	ug/L	1		200.8	Total Recoverable
Thallium	0.14	J,DX	1.0	0.11	ug/L	1		200.8	Total Recoverable
Zinc	7.2	J,DX	20	2.8	ug/L	1		200.8	Total Recoverable
Total Dissolved Solids	110		10	8.7	mg/L	1		SM 2540C	Total/NA
Total Suspended Solids	4.7		1.0	0.83	mg/L	1		SM 2540D	Total/NA

Client Sample ID: Outfall009_20230330_Comp_F

Lab Sample ID: 570-133059-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	1.9	J,DX BU	2.0	0.36	ug/L	1		200.8	Dissolved
Copper	1.7	J,DX BU	2.0	0.32	ug/L	1		200.8	Dissolved
Lead	0.36	J,DX BU	1.0	0.12	ug/L	1		200.8	Dissolved
Nickel	1.3	J,DX BU	2.0	0.17	ug/L	1		200.8	Dissolved
Selenium	0.54	J,DX BU	2.0	0.52	ug/L	1		200.8	Dissolved
Silver	0.36	J,DX BU	1.0	0.23	ug/L	1		200.8	Dissolved
Zinc	4.0	J,DX BU	20	2.8	ug/L	1		200.8	Dissolved

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-1

Method: EPA 300.0 - Anions, Ion Chromatography

Client Sample ID: Outfall009_20230330_Comp

Date Collected: 03/30/23 09:05

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133059-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.3		2.0	0.72	mg/L			03/31/23 00:59	2
Sulfate	6.7		2.0	0.47	mg/L			03/31/23 00:59	2

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-1

Method: EPA NO2NO3 Calc - Nitrogen, Nitrate-Nitrite

Client Sample ID: Outfall009_20230330_Comp

Lab Sample ID: 570-133059-1

Date Collected: 03/30/23 09:05

Matrix: Water

Date Received: 03/30/23 17:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	0.31		0.10	0.020	mg/L			04/11/23 12:18	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: Haley & Aldrich, Inc.

Job ID: 570-133059-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009

Comp

Method: EPA 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: Outfall009_20230330_Comp

Lab Sample ID: 570-133059-1

Date Collected: 03/30/23 09:05

Matrix: Water

Date Received: 03/30/23 17:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.4	J,DX	2.0	0.36	ug/L		03/31/23 06:19	03/31/23 11:39	1
Cadmium	0.15	J,DX	1.0	0.13	ug/L		03/31/23 06:19	03/31/23 11:39	1
Copper	2.2		2.0	0.32	ug/L		03/31/23 06:19	03/31/23 11:39	1
Lead	1.3		1.0	0.12	ug/L		03/31/23 06:19	03/31/23 11:39	1
Nickel	1.8	J,DX	2.0	0.17	ug/L		03/31/23 06:19	03/31/23 11:39	1
Selenium	0.59	J,DX	2.0	0.52	ug/L		03/31/23 06:19	03/31/23 11:39	1
Silver	0.45	J,DX	1.0	0.23	ug/L		03/31/23 06:19	03/31/23 11:39	1
Thallium	0.14	J,DX	1.0	0.11	ug/L		03/31/23 06:19	03/31/23 11:39	1
Zinc	7.2	J,DX	20	2.8	ug/L		03/31/23 06:19	03/31/23 11:39	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Client Sample ID: Outfall009_20230330_Comp_F

Date Collected: 03/30/23 09:05

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133059-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.9	J,DX BU	2.0	0.36	ug/L			03/31/23 09:38	1
Cadmium	ND	BU	1.0	0.13	ug/L			03/31/23 09:38	1
Copper	1.7	J,DX BU	2.0	0.32	ug/L			03/31/23 09:38	1
Lead	0.36	J,DX BU	1.0	0.12	ug/L			03/31/23 09:38	1
Nickel	1.3	J,DX BU	2.0	0.17	ug/L			03/31/23 09:38	1
Selenium	0.54	J,DX BU	2.0	0.52	ug/L			03/31/23 09:38	1
Silver	0.36	J,DX BU	1.0	0.23	ug/L			03/31/23 09:38	1
Thallium	ND	BU	1.0	0.11	ug/L			03/31/23 09:38	1
Zinc	4.0	J,DX BU	20	2.8	ug/L			03/31/23 09:38	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-1

Method: EPA 245.1 - Mercury (CVAA)

Client Sample ID: Outfall009_20230330_Comp

Date Collected: 03/30/23 09:05

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133059-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/31/23 15:48	04/03/23 18:27	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-1

Method: EPA 245.1 - Mercury (CVAA) - Dissolved

Client Sample ID: Outfall009_20230330_Comp_F

Date Collected: 03/30/23 09:05

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133059-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	BU	0.20	0.12	ug/L		03/30/23 23:34	04/03/23 16:36	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-1

General Chemistry

Client Sample ID: Outfall009_20230330_Comp

Date Collected: 03/30/23 09:05

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133059-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA Kelada 01)	ND		5.0	2.5	ug/L			04/05/23 15:36	1
Total Dissolved Solids (SM 2540C)	110		10	8.7	mg/L			03/30/23 21:09	1
Total Suspended Solids (SM 2540D)	4.7		1.0	0.83	mg/L			04/05/23 15:58	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 570-315980/5
Matrix: Water
Analysis Batch: 315980

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.36	mg/L			03/30/23 07:04	1
Sulfate	ND		1.0	0.24	mg/L			03/30/23 07:04	1

Lab Sample ID: LCS 570-315980/6
Matrix: Water
Analysis Batch: 315980

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	48.4		mg/L		97	90 - 110
Sulfate	50.0	48.5		mg/L		97	90 - 110

Lab Sample ID: LCSD 570-315980/7
Matrix: Water
Analysis Batch: 315980

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	50.0	48.3		mg/L		97	90 - 110	0	15
Sulfate	50.0	48.5		mg/L		97	90 - 110	0	15

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 570-316386/1-A
Matrix: Water
Analysis Batch: 316551

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 316386

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.36	ug/L		03/31/23 06:19	03/31/23 11:25	1
Cadmium	ND		1.0	0.13	ug/L		03/31/23 06:19	03/31/23 11:25	1
Copper	ND		2.0	0.32	ug/L		03/31/23 06:19	03/31/23 11:25	1
Lead	ND		1.0	0.12	ug/L		03/31/23 06:19	03/31/23 11:25	1
Nickel	ND		2.0	0.17	ug/L		03/31/23 06:19	03/31/23 11:25	1
Selenium	ND		2.0	0.52	ug/L		03/31/23 06:19	03/31/23 11:25	1
Silver	ND		1.0	0.23	ug/L		03/31/23 06:19	03/31/23 11:25	1
Thallium	ND		1.0	0.11	ug/L		03/31/23 06:19	03/31/23 11:25	1
Zinc	ND		20	2.8	ug/L		03/31/23 06:19	03/31/23 11:25	1

Lab Sample ID: LCS 570-316386/2-A
Matrix: Water
Analysis Batch: 316551

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 316386

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	80.0	82.7		ug/L		103	85 - 115
Cadmium	80.0	82.0		ug/L		102	85 - 115
Copper	80.0	80.5		ug/L		101	85 - 115
Lead	80.0	82.7		ug/L		103	85 - 115
Nickel	80.0	81.0		ug/L		101	85 - 115
Selenium	80.0	83.5		ug/L		104	85 - 115
Silver	80.0	81.4		ug/L		102	85 - 115
Thallium	80.0	82.7		ug/L		103	85 - 115

Eurofins Calscience

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 570-316386/2-A
Matrix: Water
Analysis Batch: 316551

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 316386

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Zinc	80.0	83.7		ug/L		105	85 - 115

Lab Sample ID: LCSD 570-316386/3-A
Matrix: Water
Analysis Batch: 316551

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 316386

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	80.0	84.7		ug/L		106	85 - 115	2	20
Cadmium	80.0	83.6		ug/L		105	85 - 115	2	20
Copper	80.0	82.4		ug/L		103	85 - 115	2	20
Lead	80.0	83.8		ug/L		105	85 - 115	1	20
Nickel	80.0	82.1		ug/L		103	85 - 115	1	20
Selenium	80.0	84.4		ug/L		106	85 - 115	1	20
Silver	80.0	82.0		ug/L		103	85 - 115	1	20
Thallium	80.0	83.9		ug/L		105	85 - 115	1	20
Zinc	80.0	84.2		ug/L		105	85 - 115	1	20

Lab Sample ID: 570-133059-1 MS
Matrix: Water
Analysis Batch: 316551

Client Sample ID: Outfall009_20230330_Comp
Prep Type: Total Recoverable
Prep Batch: 316386

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	1.4	J,DX	80.0	88.3		ug/L		109	80 - 120
Cadmium	0.15	J,DX	80.0	83.5		ug/L		104	80 - 120
Copper	2.2		80.0	83.9		ug/L		102	80 - 120
Lead	1.3		80.0	85.1		ug/L		105	80 - 120
Nickel	1.8	J,DX	80.0	82.1		ug/L		100	80 - 120
Selenium	0.59	J,DX	80.0	82.6		ug/L		103	80 - 120
Silver	0.45	J,DX	80.0	82.0		ug/L		102	80 - 120
Thallium	0.14	J,DX	80.0	83.7		ug/L		104	80 - 120
Zinc	7.2	J,DX	80.0	89.4		ug/L		103	80 - 120

Lab Sample ID: 570-133059-1 MSD
Matrix: Water
Analysis Batch: 316551

Client Sample ID: Outfall009_20230330_Comp
Prep Type: Total Recoverable
Prep Batch: 316386

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	1.4	J,DX	80.0	88.0		ug/L		108	80 - 120	0	20
Cadmium	0.15	J,DX	80.0	84.0		ug/L		105	80 - 120	1	20
Copper	2.2		80.0	85.0		ug/L		104	80 - 120	1	20
Lead	1.3		80.0	85.4		ug/L		105	80 - 120	0	20
Nickel	1.8	J,DX	80.0	84.2		ug/L		103	80 - 120	3	20
Selenium	0.59	J,DX	80.0	81.9		ug/L		102	80 - 120	1	20
Silver	0.45	J,DX	80.0	82.3		ug/L		102	80 - 120	0	20
Thallium	0.14	J,DX	80.0	83.7		ug/L		104	80 - 120	0	20
Zinc	7.2	J,DX	80.0	90.0		ug/L		103	80 - 120	1	20

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 570-316389/1-A
Matrix: Water
Analysis Batch: 316490

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.36	ug/L			03/31/23 09:17	1
Cadmium	ND		1.0	0.13	ug/L			03/31/23 09:17	1
Copper	ND		2.0	0.32	ug/L			03/31/23 09:17	1
Lead	ND		1.0	0.12	ug/L			03/31/23 09:17	1
Nickel	ND		2.0	0.17	ug/L			03/31/23 09:17	1
Selenium	ND		2.0	0.52	ug/L			03/31/23 09:17	1
Silver	ND		1.0	0.23	ug/L			03/31/23 09:17	1
Thallium	ND		1.0	0.11	ug/L			03/31/23 09:17	1
Zinc	ND		20	2.8	ug/L			03/31/23 09:17	1

Lab Sample ID: LCS 570-316389/2-A
Matrix: Water
Analysis Batch: 316490

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	80.0	78.9		ug/L		99	85 - 115
Cadmium	80.0	80.0		ug/L		100	85 - 115
Copper	80.0	78.8		ug/L		98	85 - 115
Lead	80.0	80.8		ug/L		101	85 - 115
Nickel	80.0	79.4		ug/L		99	85 - 115
Selenium	80.0	77.9		ug/L		97	85 - 115
Silver	80.0	79.4		ug/L		99	85 - 115
Thallium	80.0	80.7		ug/L		101	85 - 115
Zinc	80.0	78.8		ug/L		98	85 - 115

Lab Sample ID: LCSD 570-316389/3-A
Matrix: Water
Analysis Batch: 316490

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	80.0	82.4		ug/L		103	85 - 115	4	20
Cadmium	80.0	80.7		ug/L		101	85 - 115	1	20
Copper	80.0	79.5		ug/L		99	85 - 115	1	20
Lead	80.0	81.9		ug/L		102	85 - 115	1	20
Nickel	80.0	79.8		ug/L		100	85 - 115	1	20
Selenium	80.0	79.2		ug/L		99	85 - 115	2	20
Silver	80.0	78.7		ug/L		98	85 - 115	1	20
Thallium	80.0	81.3		ug/L		102	85 - 115	1	20
Zinc	80.0	78.2		ug/L		98	85 - 115	1	20

Lab Sample ID: 570-133059-2 MS
Matrix: Water
Analysis Batch: 316490

Client Sample ID: Outfall009_20230330_Comp_F
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	1.9	J,DX BU	80.0	77.5	BU	ug/L		94	80 - 120
Cadmium	ND	BU	80.0	75.3	BU	ug/L		94	80 - 120
Copper	1.7	J,DX BU	80.0	76.9	BU	ug/L		94	80 - 120

Eurofins Calscience

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-1

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 570-133059-2 MS
Matrix: Water
Analysis Batch: 316490

Client Sample ID: Outfall009_20230330_Comp_F
Prep Type: Dissolved

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Result	Qualifier					
Lead	0.36	J,DX BU	80.0	77.0	BU	ug/L		96	80 - 120	
Nickel	1.3	J,DX BU	80.0	75.9	BU	ug/L		93	80 - 120	
Selenium	0.54	J,DX BU	80.0	76.2	BU	ug/L		95	80 - 120	
Silver	0.36	J,DX BU	80.0	74.9	BU	ug/L		93	80 - 120	
Thallium	ND	BU	80.0	76.4	BU	ug/L		96	80 - 120	
Zinc	4.0	J,DX BU	80.0	78.8	BU	ug/L		94	80 - 120	

Lab Sample ID: 570-133059-2 MSD
Matrix: Water
Analysis Batch: 316490

Client Sample ID: Outfall009_20230330_Comp_F
Prep Type: Dissolved

Analyte	Sample	Sample	Spike	MSD		Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier							
Antimony	1.9	J,DX BU	80.0	76.9	BU	ug/L		94	80 - 120	1	20	
Cadmium	ND	BU	80.0	74.3	BU	ug/L		93	80 - 120	1	20	
Copper	1.7	J,DX BU	80.0	76.5	BU	ug/L		94	80 - 120	1	20	
Lead	0.36	J,DX BU	80.0	75.8	BU	ug/L		94	80 - 120	2	20	
Nickel	1.3	J,DX BU	80.0	75.2	BU	ug/L		92	80 - 120	1	20	
Selenium	0.54	J,DX BU	80.0	75.9	BU	ug/L		94	80 - 120	0	20	
Silver	0.36	J,DX BU	80.0	73.0	BU	ug/L		91	80 - 120	3	20	
Thallium	ND	BU	80.0	74.6	BU	ug/L		93	80 - 120	2	20	
Zinc	4.0	J,DX BU	80.0	79.0	BU	ug/L		94	80 - 120	0	20	

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 570-316587/1-A
Matrix: Water
Analysis Batch: 317032

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316587

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil
	Result	Qualifier							
Mercury	ND		0.20	0.12	ug/L		03/31/23 15:48	04/03/23 18:02	1

Lab Sample ID: LCS 570-316587/2-A
Matrix: Water
Analysis Batch: 317032

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316587

Analyte	Spike	LCS		Unit	D	%Rec	%Rec	Limits
		Result	Qualifier					
Mercury	8.00	8.18		ug/L		102	85 - 115	

Lab Sample ID: LCSD 570-316587/3-A
Matrix: Water
Analysis Batch: 317032

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 316587

Analyte	Spike	LCSD		Unit	D	%Rec	%Rec	Limits	RPD	Limit
		Result	Qualifier							
Mercury	8.00	8.43		ug/L		105	85 - 115	3	10	

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-1

Method: 245.1 - Mercury (CVAA) (Continued)

Lab Sample ID: 570-133059-1 MS
 Matrix: Water
 Analysis Batch: 317032

Client Sample ID: Outfall009_20230330_Comp
 Prep Type: Total/NA
 Prep Batch: 316587

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		8.00	8.31		ug/L		104	85 - 115

Lab Sample ID: 570-133059-1 MSD
 Matrix: Water
 Analysis Batch: 317032

Client Sample ID: Outfall009_20230330_Comp
 Prep Type: Total/NA
 Prep Batch: 316587

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	ND		8.00	8.38		ug/L		105	85 - 115	1	10

Lab Sample ID: MB 570-316343/1-B
 Matrix: Water
 Analysis Batch: 317032

Client Sample ID: Method Blank
 Prep Type: Dissolved
 Prep Batch: 316344

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.12	ug/L		03/30/23 23:34	04/03/23 16:29	1

Lab Sample ID: LCS 570-316343/2-B
 Matrix: Water
 Analysis Batch: 317032

Client Sample ID: Lab Control Sample
 Prep Type: Dissolved
 Prep Batch: 316344

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	8.00	8.36		ug/L		104	85 - 115

Lab Sample ID: LCSD 570-316343/3-B
 Matrix: Water
 Analysis Batch: 317032

Client Sample ID: Lab Control Sample Dup
 Prep Type: Dissolved
 Prep Batch: 316344

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Mercury	8.00	8.27		ug/L		103	85 - 115	1	10

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate

Lab Sample ID: MB 570-317798/11
 Matrix: Water
 Analysis Batch: 317798

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L			04/05/23 15:12	1

Lab Sample ID: LCS 570-317798/12
 Matrix: Water
 Analysis Batch: 317798

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	250	245		ug/L		98	90 - 110

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-1

Method: Kelada 01 - Cyanide, Total, Acid Dissociable and Thiocyanate (Continued)

Lab Sample ID: LCSD 570-317798/13
Matrix: Water
Analysis Batch: 317798

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	250	234		ug/L		94	90 - 110	5	20

Lab Sample ID: MRL 570-317798/10
Matrix: Water
Analysis Batch: 317798

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	5.00	4.38	J,DX	ug/L		88	50 - 150

Lab Sample ID: 570-133059-1 MS
Matrix: Water
Analysis Batch: 317798

Client Sample ID: Outfall009_20230330_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	ND		250	211		ug/L		84	70 - 130

Lab Sample ID: 570-133059-1 MSD
Matrix: Water
Analysis Batch: 317798

Client Sample ID: Outfall009_20230330_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	ND		250	220		ug/L		88	70 - 130	4	30

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 570-316212/1
Matrix: Water
Analysis Batch: 316212

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	8.7	mg/L			03/30/23 16:46	1

Lab Sample ID: LCS 570-316212/2
Matrix: Water
Analysis Batch: 316212

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1040		mg/L		104	84 - 108

Lab Sample ID: LCSD 570-316212/3
Matrix: Water
Analysis Batch: 316212

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	1000	1030		mg/L		103	84 - 108	1	10

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-1

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 570-317767/1
Matrix: Water
Analysis Batch: 317767

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1.0	0.83	mg/L			04/05/23 15:58	1

Lab Sample ID: LCS 570-317767/2
Matrix: Water
Analysis Batch: 317767

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	95.0		mg/L		95	77 - 116

Lab Sample ID: LCSD 570-317767/3
Matrix: Water
Analysis Batch: 317767

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Suspended Solids	100	94.0		mg/L		94	77 - 116	1	10

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-1

HPLC/IC

Analysis Batch: 315980

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-1	Outfall009_20230330_Comp	Total/NA	Water	300.0	
MB 570-315980/5	Method Blank	Total/NA	Water	300.0	
LCS 570-315980/6	Lab Control Sample	Total/NA	Water	300.0	
LCSD 570-315980/7	Lab Control Sample Dup	Total/NA	Water	300.0	

Analysis Batch: 319255

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-1	Outfall009_20230330_Comp	Total/NA	Water	NO2NO3 Calc	

Metals

Filtration Batch: 316343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-2	Outfall009_20230330_Comp_F	Dissolved	Water	Filtration	
MB 570-316343/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 570-316343/2-B	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-316343/3-B	Lab Control Sample Dup	Dissolved	Water	Filtration	

Prep Batch: 316344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-2	Outfall009_20230330_Comp_F	Dissolved	Water	245.1	316343
MB 570-316343/1-B	Method Blank	Dissolved	Water	245.1	316343
LCS 570-316343/2-B	Lab Control Sample	Dissolved	Water	245.1	316343
LCSD 570-316343/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	316343

Prep Batch: 316386

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-1	Outfall009_20230330_Comp	Total Recoverable	Water	200.8	
MB 570-316386/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 570-316386/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
LCSD 570-316386/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	
570-133059-1 MS	Outfall009_20230330_Comp	Total Recoverable	Water	200.8	
570-133059-1 MSD	Outfall009_20230330_Comp	Total Recoverable	Water	200.8	

Filtration Batch: 316389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-2	Outfall009_20230330_Comp_F	Dissolved	Water	Filtration	
MB 570-316389/1-A	Method Blank	Dissolved	Water	Filtration	
LCS 570-316389/2-A	Lab Control Sample	Dissolved	Water	Filtration	
LCSD 570-316389/3-A	Lab Control Sample Dup	Dissolved	Water	Filtration	
570-133059-2 MS	Outfall009_20230330_Comp_F	Dissolved	Water	Filtration	
570-133059-2 MSD	Outfall009_20230330_Comp_F	Dissolved	Water	Filtration	

Analysis Batch: 316490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-2	Outfall009_20230330_Comp_F	Dissolved	Water	200.8	316389
MB 570-316389/1-A	Method Blank	Dissolved	Water	200.8	316389
LCS 570-316389/2-A	Lab Control Sample	Dissolved	Water	200.8	316389
LCSD 570-316389/3-A	Lab Control Sample Dup	Dissolved	Water	200.8	316389
570-133059-2 MS	Outfall009_20230330_Comp_F	Dissolved	Water	200.8	316389

Eurofins Calscience

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-1

Metals (Continued)

Analysis Batch: 316490 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-2 MSD	Outfall009_20230330_Comp_F	Dissolved	Water	200.8	316389

Analysis Batch: 316551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-1	Outfall009_20230330_Comp	Total Recoverable	Water	200.8	316386
MB 570-316386/1-A	Method Blank	Total Recoverable	Water	200.8	316386
LCS 570-316386/2-A	Lab Control Sample	Total Recoverable	Water	200.8	316386
LCSD 570-316386/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.8	316386
570-133059-1 MS	Outfall009_20230330_Comp	Total Recoverable	Water	200.8	316386
570-133059-1 MSD	Outfall009_20230330_Comp	Total Recoverable	Water	200.8	316386

Prep Batch: 316587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-1	Outfall009_20230330_Comp	Total/NA	Water	245.1	
MB 570-316587/1-A	Method Blank	Total/NA	Water	245.1	
LCS 570-316587/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 570-316587/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	
570-133059-1 MS	Outfall009_20230330_Comp	Total/NA	Water	245.1	
570-133059-1 MSD	Outfall009_20230330_Comp	Total/NA	Water	245.1	

Analysis Batch: 317032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-1	Outfall009_20230330_Comp	Total/NA	Water	245.1	316587
570-133059-2	Outfall009_20230330_Comp_F	Dissolved	Water	245.1	316344
MB 570-316343/1-B	Method Blank	Dissolved	Water	245.1	316344
MB 570-316587/1-A	Method Blank	Total/NA	Water	245.1	316587
LCS 570-316343/2-B	Lab Control Sample	Dissolved	Water	245.1	316344
LCS 570-316587/2-A	Lab Control Sample	Total/NA	Water	245.1	316587
LCSD 570-316343/3-B	Lab Control Sample Dup	Dissolved	Water	245.1	316344
LCSD 570-316587/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	316587
570-133059-1 MS	Outfall009_20230330_Comp	Total/NA	Water	245.1	316587
570-133059-1 MSD	Outfall009_20230330_Comp	Total/NA	Water	245.1	316587

General Chemistry

Analysis Batch: 316212

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-1	Outfall009_20230330_Comp	Total/NA	Water	SM 2540C	
MB 570-316212/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 570-316212/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 570-316212/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 317767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-1	Outfall009_20230330_Comp	Total/NA	Water	SM 2540D	
MB 570-317767/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 570-317767/2	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 570-317767/3	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

QC Association Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-133059-1

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009

Comp

General Chemistry

Analysis Batch: 317798

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-1	Outfall009_20230330_Comp	Total/NA	Water	Kelada 01	
MB 570-317798/11	Method Blank	Total/NA	Water	Kelada 01	
LCS 570-317798/12	Lab Control Sample	Total/NA	Water	Kelada 01	
LCSD 570-317798/13	Lab Control Sample Dup	Total/NA	Water	Kelada 01	
MRL 570-317798/10	Lab Control Sample	Total/NA	Water	Kelada 01	
570-133059-1 MS	Outfall009_20230330_Comp	Total/NA	Water	Kelada 01	
570-133059-1 MSD	Outfall009_20230330_Comp	Total/NA	Water	Kelada 01	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-1

Client Sample ID: Outfall009_20230330_Comp

Lab Sample ID: 570-133059-1

Date Collected: 03/30/23 09:05

Matrix: Water

Date Received: 03/30/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		2	4 mL	4 mL	315980	03/31/23 00:59	UIP1	EET CAL 4
Instrument ID: IC10										
Total/NA	Analysis	NO2NO3 Calc		1			319255	04/11/23 12:18	WH6J	EET CAL 4
Instrument ID: NOEQUIP										
Total Recoverable	Prep	200.8			50 mL	50 mL	316386	03/31/23 06:19	JP8N	EET CAL 4
Total Recoverable	Analysis	200.8		1			316551	03/31/23 11:39	Y2WS	EET CAL 4
Instrument ID: ICPMS09										
Total/NA	Prep	245.1			25 mL	50 mL	316587	03/31/23 15:48	CS5Z	EET CAL 4
Total/NA	Analysis	245.1		1			317032	04/03/23 18:27	COYH	EET CAL 4
Instrument ID: HG8										
Total/NA	Analysis	Kelada 01		1	8 mL	8 mL	317798	04/05/23 15:36	GG0B	EET CAL 4
Instrument ID: LACHAT01										
Total/NA	Analysis	SM 2540C		1	100 mL	1000 mL	316212	03/30/23 21:09	ZL7L	EET CAL 4
Instrument ID: NOEQUIP										
Total/NA	Analysis	SM 2540D		1	1000 mL	1000 mL	317767	04/05/23 15:58	UWCT	EET CAL 4
Instrument ID: BAL71										

Client Sample ID: Outfall009_20230330_Comp_F

Lab Sample ID: 570-133059-2

Date Collected: 03/30/23 09:05

Matrix: Water

Date Received: 03/30/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			50 mL	50 mL	316389	03/31/23 06:32	JP8N	EET CAL 4
Dissolved	Analysis	200.8		1			316490	03/31/23 09:38	Y2WS	EET CAL 4
Instrument ID: ICPMS09										
Dissolved	Filtration	Filtration			25 mL	25 mL	316343	03/30/23 23:00	CS5Z	EET CAL 4
Dissolved	Prep	245.1			25 mL	50 mL	316344	03/30/23 23:34	CS5Z	EET CAL 4
Dissolved	Analysis	245.1		1			317032	04/03/23 16:36	COYH	EET CAL 4
Instrument ID: HG8										

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-1

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-23
California	Los Angeles County Sanitation Districts	10109	07-31-23
California	SCAQMD LAP	17LA0919	11-30-23
California	State	3082	07-31-24
Nevada	State	CA00111	08-01-23
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	05-24-23
Washington	State	C916-18	10-11-23

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Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	EPA	EET CAL 4
NO2NO3 Calc	Nitrogen, Nitrate-Nitrite	EPA	EET CAL 4
200.8	Metals (ICP/MS)	EPA	EET CAL 4
245.1	Mercury (CVAA)	EPA	EET CAL 4
Kelada 01	Cyanide, Total, Acid Dissociable and Thiocyanate	EPA	EET CAL 4
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET CAL 4
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CAL 4
200.8	Preparation, Total Recoverable Metals	EPA	EET CAL 4
245.1	Preparation, Mercury	EPA	EET CAL 4
Filtration	Sample Filtration	None	EET CAL 4

Protocol References:

- EPA = US Environmental Protection Agency
- None = None
- SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

- EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-133059-1	Outfall009_20230330_Comp	Water	03/30/23 09:05	03/30/23 17:10
570-133059-2	Outfall009_20230330_Comp_F	Water	03/30/23 09:05	03/30/23 17:10

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Eurofins Calscience

2841 Dow Avenue, Suite 100
Tustin, CA 92780
Phone: 714-895-5494

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)				Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:
Client Contact: Shipping/Receiving				Patel, Virendra	E-Mail:	State of Origin:	570-214385.1
Company: Eurofins Environment Testing Northern Ca				Phone:	Virendra.Patel@et.eurofinsus.com	California	Page: Page 1 of 1
Address: 880 Riverside Parkway, City: West Sacramento State, Zip: CA, 95605 Phone: 916-373-5600(Tel) 916-372-1059(Fax) Email:				Accreditations Required (See note): State Program - California	Analysis Requested		Job #: 570-133059-2
Due Date Requested: 4/19/2023 TAT Requested (days):				PO #:			Total Number of containers
Project Name: Boeing NPDES SSFL - Routine Outfall - 009 Comp Site:				WO #:	Total Number of containers		
Project #: 57013187 SSOW#:				Field Filtered Sample (Yes or No)			Total Number of containers
Sample Identification - Client ID (Lab ID)				Perform MS/MSD (Yes or No)	Total Number of containers		
Sample Date Sample Time Sample Type (C=Comp, G=grab) Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)				1613B/1613B_Sox_Sep_P (MOD) Standard List w/ Totals			Total Number of containers
Preservation Code:				1613B/1613B_Sox_Sep_P (MOD) Standard List w/ Totals (Hold)	Total Number of containers		
Outfall009_20230330_Comp (570-133059-1)				X			Total Number of containers
Outfall009_20230330_Comp_Extra (570-133059-3)				X	Total Number of containers		
							Total Number of containers
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Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-133059-1

Login Number: 133059

List Source: Eurofins Calscience

List Number: 1

Creator: Patel, Jayesh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 5/2/2023 2:53:29 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 009 Comp

JOB NUMBER

570-133059-2

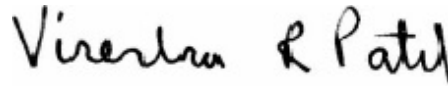
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
BA	Relative percent difference out of control
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
LR	LCS/LCSD recovery below method control limits
MB	Analyte present in the method blank
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Comp

Job ID: 570-133059-2

Job ID: 570-133059-2

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-133059-2

Comments

No additional comments.

Receipt

The samples were received on 3/30/2023 5:10 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.3° C and 2.7° C.

Dioxin

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: Outfall009_20230330_Comp (570-133059-1), (CCV 320-667684/1), (LCS 320-666843/2-A), (LCSD 320-666843/3-A) and (MB 320-666843/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: Outfall009_20230330_Comp (570-133059-1), (CCV 320-670442/7) and (LCS 320-669114/2-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: (CCV 320-670677/1) and (MB 320-669114/1-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

Method 1613B: EPA Method 1613B specifies a +/- 15 second retention time difference between the recovery standard in the initial calibration (ICAL) and the continuing calibration verification (CCV). The 13C-1,2,3,4-TCDD and 13C-1,2,3,7,8,9-HxCDD associated with the following samples run on instrument DFS 1 exceeded this criteria: Outfall009_20230330_Comp (570-133059-1), (LCS 320-669114/2-A) and (LCSD 320-669114/3-A). This retention time shift is due to normal and reasonable column maintenance and does not affect the instrument chromatography resolution, sensitivity, or identification of target analytes. System retention times have been updated for proper analyte identification.

Method 1613B: The laboratory control sample duplicate (LCSD) for preparation batch 320-669114 and analytical batch 320-670442 recovered outside control limits for several target analytes while the LCS was within limits for all analytes. The data from this analysis is from a re-extraction due to contamination in the Method Blank in the original extraction so there was insufficient sample to perform another re-extraction. The client was notified of the failing LCSD recovery and approved reporting of samples with narration.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Haley & Aldrich, Inc.

Job ID: 570-133059-2

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009

Comp

Client Sample ID: Outfall009_20230330_Comp

Lab Sample ID: 570-133059-1

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,7,8-PeCDF	0.0000018	J,DX q LR	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				21					
1,2,3,4,7,8-HxCDD	0.0000014	J,DX q LR	0.000047	0.0000000	ug/L	1		1613B	Total/NA
		BA		65					
1,2,3,6,7,8-HxCDD	0.00000051	J,DX q LR	0.000047	0.0000000	ug/L	1		1613B	Total/NA
		BA		69					
1,2,3,7,8,9-HxCDD	0.00000052	J,DX q LR	0.000047	0.0000000	ug/L	1		1613B	Total/NA
		BA		61					
1,2,3,4,6,7,8-HpCDD	0.0000077	J,DX q MB	0.000047	0.0000003	ug/L	1		1613B	Total/NA
		LR BA		2					
1,2,3,4,6,7,8-HpCDF	0.0000034	J,DX q MB	0.000047	0.0000002	ug/L	1		1613B	Total/NA
		LR		1					
OCDD	0.000085	J,DX q MB	0.000095	0.0000013	ug/L	1		1613B	Total/NA
		LR BA							
OCDF	0.0000098	J,DX MB LF	0.000095	0.0000007	ug/L	1		1613B	Total/NA
		BA		9					
Total PeCDF	0.0000018	J,DX q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				21					
Total HxCDD	0.0000024	J,DX q	0.000047	0.0000000	ug/L	1		1613B	Total/NA
				61					
Total HpCDD	0.000018	J,DX q MB	0.000047	0.0000003	ug/L	1		1613B	Total/NA
				2					
Total HpCDF	0.0000071	J,DX q MB	0.000047	0.0000002	ug/L	1		1613B	Total/NA
				1					

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS)

Client Sample ID: Outfall009_20230330_Comp

Date Collected: 03/30/23 09:05

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133059-1

Matrix: Water

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.0000095	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:49	1
				62					
2,3,7,8-TCDF	ND	LR	0.0000095	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:49	1
				16					
1,2,3,7,8-PeCDD	ND	LR	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:49	1
				36					
1,2,3,7,8-PeCDF	0.0000018	J,DX q LR	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:49	1
				21					
2,3,4,7,8-PeCDF	ND	LR	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:49	1
				24					
1,2,3,4,7,8-HxCDD	0.0000014	J,DX q LR	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:49	1
		BA		65					
1,2,3,6,7,8-HxCDD	0.00000051	J,DX q LR	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:49	1
		BA		69					
1,2,3,7,8,9-HxCDD	0.00000052	J,DX q LR	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:49	1
		BA		61					
1,2,3,4,7,8-HxCDF	ND	LR BA	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:49	1
				83					
1,2,3,6,7,8-HxCDF	ND	LR BA	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:49	1
				79					
1,2,3,7,8,9-HxCDF	ND	LR	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:49	1
				81					
2,3,4,6,7,8-HxCDF	ND	LR	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:49	1
				75					
1,2,3,4,6,7,8-HpCDD	0.0000077	J,DX q MB	0.000047	0.0000003	ug/L		04/21/23 06:35	04/27/23 04:49	1
		LR BA		2					
1,2,3,4,6,7,8-HpCDF	0.0000034	J,DX q MB	0.000047	0.0000002	ug/L		04/21/23 06:35	04/27/23 04:49	1
		LR		1					
1,2,3,4,7,8,9-HpCDF	ND	LR BA	0.000047	0.0000002	ug/L		04/21/23 06:35	04/27/23 04:49	1
				3					
OCDD	0.000085	J,DX q MB	0.000095	0.0000013	ug/L		04/21/23 06:35	04/27/23 04:49	1
		LR BA							
OCDF	0.0000098	J,DX MB	0.000095	0.0000007	ug/L		04/21/23 06:35	04/27/23 04:49	1
		LR BA		9					
Total TCDD	ND		0.0000095	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:49	1
				62					
Total TCDF	ND		0.0000095	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:49	1
				16					
Total PeCDD	ND		0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:49	1
				36					
Total PeCDF	0.0000018	J,DX q	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:49	1
				21					
Total HxCDD	0.0000024	J,DX q	0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:49	1
				61					
Total HxCDF	ND		0.000047	0.0000000	ug/L		04/21/23 06:35	04/27/23 04:49	1
				75					
Total HpCDD	0.000018	J,DX q MB	0.000047	0.0000003	ug/L		04/21/23 06:35	04/27/23 04:49	1
				2					
Total HpCDF	0.0000071	J,DX q MB	0.000047	0.0000002	ug/L		04/21/23 06:35	04/27/23 04:49	1
				1					
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	68		25 - 164				04/21/23 06:35	04/27/23 04:49	1
13C-2,3,7,8-TCDF	78		24 - 169				04/21/23 06:35	04/27/23 04:49	1
13C-1,2,3,7,8-PeCDD	74		25 - 181				04/21/23 06:35	04/27/23 04:49	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-2

Method: EPA 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Client Sample ID: Outfall009_20230330_Comp

Date Collected: 03/30/23 09:05

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133059-1

Matrix: Water

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C-1,2,3,7,8-PeCDF	71		24 - 185	04/21/23 06:35	04/27/23 04:49	1
13C-2,3,4,7,8-PeCDF	73		21 - 178	04/21/23 06:35	04/27/23 04:49	1
13C-1,2,3,4,7,8-HxCDD	69		32 - 141	04/21/23 06:35	04/27/23 04:49	1
13C-1,2,3,6,7,8-HxCDD	67		28 - 130	04/21/23 06:35	04/27/23 04:49	1
13C-1,2,3,4,7,8-HxCDF	72		26 - 152	04/21/23 06:35	04/27/23 04:49	1
13C-1,2,3,6,7,8-HxCDF	75		26 - 123	04/21/23 06:35	04/27/23 04:49	1
13C-1,2,3,7,8,9-HxCDF	82		29 - 147	04/21/23 06:35	04/27/23 04:49	1
13C-2,3,4,6,7,8-HxCDF	79		28 - 136	04/21/23 06:35	04/27/23 04:49	1
13C-1,2,3,4,6,7,8-HpCDD	67		23 - 140	04/21/23 06:35	04/27/23 04:49	1
13C-1,2,3,4,6,7,8-HpCDF	63		28 - 143	04/21/23 06:35	04/27/23 04:49	1
13C-1,2,3,4,7,8,9-HpCDF	68		26 - 138	04/21/23 06:35	04/27/23 04:49	1
13C-OCDD	68		17 - 157	04/21/23 06:35	04/27/23 04:49	1
13C-OCDF	77		17 - 157	04/21/23 06:35	04/27/23 04:49	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	79		35 - 197	04/21/23 06:35	04/27/23 04:49	1

Surrogate Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (35-197)
570-133059-1	Outfall009_20230330_Comp	79
MB 320-669114/1-A	Method Blank	87

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	37TCDD (31-191)
LCS 320-669114/2-A	Lab Control Sample	85
LCSD 320-669114/3-A	Lab Control Sample Dup	78

Surrogate Legend

37TCDD = 37Cl4-2,3,7,8-TCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (25-164)	TCDF (24-169)	PeCDD (25-181)	PeCDF (24-185)	PeCF (21-178)	HxCDD (32-141)	HxDD (28-130)	HxCDF (26-152)
570-133059-1	Outfall009_20230330_Comp	68	78	74	71	73	69	67	72
MB 320-669114/1-A	Method Blank	63	54	50	55	52	54	54	57

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (26-123)	HxCF (29-147)	13CHxCF (28-136)	HpCDD (23-140)	HpCDF (28-143)	HpCDF2 (26-138)	OCDD (17-157)	OCDF (17-157)
570-133059-1	Outfall009_20230330_Comp	75	82	79	67	63	68	68	77
MB 320-669114/1-A	Method Blank	56	56	55	61	52	53	68	59

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- OCDD = 13C-OCDD
- OCDF = 13C-OCDF

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCDD (20-175)	TCDF (22-152)	PeCDD (21-227)	PeCDF (21-192)	PeCF (13-328)	HxCDD (21-193)	HxDD (25-163)	HxCDF (19-202)
LCS 320-669114/2-A	Lab Control Sample	71	74	81	77	78	67	66	70
LCSD 320-669114/3-A	Lab Control Sample Dup	50	65	47	47	56	45	50	41

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HxDF (21-159)	HxCF (17-205)	13CHxCF (22-176)	HpCDD (26-166)	HpCDF (21-158)	HpCDF2 (20-186)	OCDD (13-199)	OCDF (13-199)
LCS 320-669114/2-A	Lab Control Sample	68	78	77	84	66	77	85	83
LCSD 320-669114/3-A	Lab Control Sample Dup	52	50	53	51	41	47	49	48

Surrogate Legend

- TCDD = 13C-2,3,7,8-TCDD
- TCDF = 13C-2,3,7,8-TCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCF = 13C-2,3,4,7,8-PeCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HxCDF = 13C-1,2,3,4,7,8-HxCDF

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.

Project/Site: Boeing NPDES SSFL - Routine Outfall - 009

Comp

HxDF = 13C-1,2,3,6,7,8-HxCDF

HxCF = 13C-1,2,3,7,8,9-HxCDF

13CHxCF = 13C-2,3,4,6,7,8-HxCDF

HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

HpCDF = 13C-1,2,3,4,6,7,8-HpCDF

HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF

OCDD = 13C-OCDD

OCDF = 13C-OCDF

Job ID: 570-133059-2

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 320-669114/1-A
Matrix: Water
Analysis Batch: 670677

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 669114

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				28					
2,3,7,8-TCDF	ND		0.000010	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				093					
1,2,3,7,8-PeCDD	ND		0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				35					
1,2,3,7,8-PeCDF	ND		0.000050	0.00000001	ug/L		04/21/23 06:35	04/27/23 16:27	1
				1					
2,3,4,7,8-PeCDF	ND		0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				13					
1,2,3,4,7,8-HxCDD	ND		0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				12					
1,2,3,6,7,8-HxCDD	ND		0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				12					
1,2,3,7,8,9-HxCDD	ND		0.000050	0.00000001	ug/L		04/21/23 06:35	04/27/23 16:27	1
				1					
1,2,3,4,7,8-HxCDF	ND		0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				073					
1,2,3,6,7,8-HxCDF	ND		0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				078					
1,2,3,7,8,9-HxCDF	ND		0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				084					
2,3,4,6,7,8-HxCDF	ND		0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				077					
1,2,3,4,6,7,8-HpCDD	0.00000230	J,DX	0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				19					
1,2,3,4,6,7,8-HpCDF	0.00000127	J,DX q	0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				14					
1,2,3,4,7,8,9-HpCDF	0.00000127	J,DX	0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				16					
OCDD	0.00000319	J,DX q	0.00010	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				13					
OCDF	0.00000137	J,DX q	0.00010	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				30					
Total TCDD	ND		0.000010	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				28					
Total TCDF	ND		0.000010	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				093					
Total PeCDD	ND		0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				35					
Total PeCDF	ND		0.000050	0.00000001	ug/L		04/21/23 06:35	04/27/23 16:27	1
				1					
Total HxCDD	ND		0.000050	0.00000001	ug/L		04/21/23 06:35	04/27/23 16:27	1
				1					
Total HxCDF	ND		0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				073					
Total HpCDD	0.00000350	J,DX q	0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				19					
Total HpCDF	0.00000255	J,DX q	0.000050	0.0000000	ug/L		04/21/23 06:35	04/27/23 16:27	1
				14					
	MB	MB							
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDD	63		25 - 164				04/21/23 06:35	04/27/23 16:27	1
13C-2,3,7,8-TCDF	54		24 - 169				04/21/23 06:35	04/27/23 16:27	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 320-669114/1-A

Matrix: Water

Analysis Batch: 670677

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 669114

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8-PeCDD	50		25 - 181	04/21/23 06:35	04/27/23 16:27	1
13C-1,2,3,7,8-PeCDF	55		24 - 185	04/21/23 06:35	04/27/23 16:27	1
13C-2,3,4,7,8-PeCDF	52		21 - 178	04/21/23 06:35	04/27/23 16:27	1
13C-1,2,3,4,7,8-HxCDD	54		32 - 141	04/21/23 06:35	04/27/23 16:27	1
13C-1,2,3,6,7,8-HxCDD	54		28 - 130	04/21/23 06:35	04/27/23 16:27	1
13C-1,2,3,4,7,8-HxCDF	57		26 - 152	04/21/23 06:35	04/27/23 16:27	1
13C-1,2,3,6,7,8-HxCDF	56		26 - 123	04/21/23 06:35	04/27/23 16:27	1
13C-1,2,3,7,8,9-HxCDF	56		29 - 147	04/21/23 06:35	04/27/23 16:27	1
13C-2,3,4,6,7,8-HxCDF	55		28 - 136	04/21/23 06:35	04/27/23 16:27	1
13C-1,2,3,4,6,7,8-HpCDD	61		23 - 140	04/21/23 06:35	04/27/23 16:27	1
13C-1,2,3,4,6,7,8-HpCDF	52		28 - 143	04/21/23 06:35	04/27/23 16:27	1
13C-1,2,3,4,7,8,9-HpCDF	53		26 - 138	04/21/23 06:35	04/27/23 16:27	1
13C-OCDD	68		17 - 157	04/21/23 06:35	04/27/23 16:27	1
13C-OCDF	59		17 - 157	04/21/23 06:35	04/27/23 16:27	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
37Cl4-2,3,7,8-TCDD	87		35 - 197	04/21/23 06:35	04/27/23 16:27	1

Lab Sample ID: LCS 320-669114/2-A

Matrix: Water

Analysis Batch: 670442

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 669114

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,3,7,8-TCDF	0.000200	0.000198		ug/L		99	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.000855		ug/L		85	70 - 142
1,2,3,7,8-PeCDF	0.00100	0.000846		ug/L		85	80 - 134
2,3,4,7,8-PeCDF	0.00100	0.000851		ug/L		85	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000863		ug/L		86	70 - 164
1,2,3,6,7,8-HxCDD	0.00100	0.000925		ug/L		93	76 - 134
1,2,3,7,8,9-HxCDD	0.00100	0.000877		ug/L		88	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.000901		ug/L		90	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.000909		ug/L		91	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.000863		ug/L		86	78 - 130
2,3,4,6,7,8-HxCDF	0.00100	0.000870		ug/L		87	70 - 156
1,2,3,4,6,7,8-HpCDD	0.00100	0.000755		ug/L		76	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.000845		ug/L		85	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000798		ug/L		80	78 - 138
OCDD	0.00200	0.00167		ug/L		83	78 - 144
OCDF	0.00200	0.00165		ug/L		82	63 - 170

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	71		20 - 175
13C-2,3,7,8-TCDF	74		22 - 152
13C-1,2,3,7,8-PeCDD	81		21 - 227
13C-1,2,3,7,8-PeCDF	77		21 - 192
13C-2,3,4,7,8-PeCDF	78		13 - 328

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 320-669114/2-A
Matrix: Water
Analysis Batch: 670442

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 669114

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,4,7,8-HxCDD	67		21 - 193
13C-1,2,3,6,7,8-HxCDD	66		25 - 163
13C-1,2,3,4,7,8-HxCDF	70		19 - 202
13C-1,2,3,6,7,8-HxCDF	68		21 - 159
13C-1,2,3,7,8,9-HxCDF	78		17 - 205
13C-2,3,4,6,7,8-HxCDF	77		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	84		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	66		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	77		20 - 186
13C-OCDD	85		13 - 199
13C-OCDF	83		13 - 199

Surrogate	LCS		Limits
	%Recovery	Qualifier	
37Cl4-2,3,7,8-TCDD	85		31 - 191

Lab Sample ID: LCSD 320-669114/3-A
Matrix: Water
Analysis Batch: 670442

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 669114

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,3,7,8-TCDF	0.000200	0.000145	LR	ug/L		73	75 - 158	30	50
1,2,3,7,8-PeCDD	0.00100	0.000655	LR	ug/L		65	70 - 142	27	50
1,2,3,7,8-PeCDF	0.00100	0.000628	LR	ug/L		63	80 - 134	30	50
2,3,4,7,8-PeCDF	0.00100	0.000630	LR	ug/L		63	68 - 160	30	50
1,2,3,4,7,8-HxCDD	0.00100	0.000447	LR BA	ug/L		45	70 - 164	63	50
1,2,3,6,7,8-HxCDD	0.00100	0.000538	LR BA	ug/L		54	76 - 134	53	50
1,2,3,7,8,9-HxCDD	0.00100	0.000487	LR BA	ug/L		49	64 - 162	57	50
1,2,3,4,7,8-HxCDF	0.00100	0.000521	LR BA	ug/L		52	72 - 134	54	50
1,2,3,6,7,8-HxCDF	0.00100	0.000509	LR BA	ug/L		51	84 - 130	56	50
1,2,3,7,8,9-HxCDF	0.00100	0.000536	LR	ug/L		54	78 - 130	47	50
2,3,4,6,7,8-HxCDF	0.00100	0.000552	LR	ug/L		55	70 - 156	45	50
1,2,3,4,6,7,8-HpCDD	0.00100	0.000450	LR BA	ug/L		45	70 - 140	51	50
1,2,3,4,6,7,8-HpCDF	0.00100	0.000528	LR	ug/L		53	82 - 122	46	50
1,2,3,4,7,8,9-HpCDF	0.00100	0.000460	LR BA	ug/L		46	78 - 138	54	50
OCDD	0.00200	0.000980	LR BA	ug/L		49	78 - 144	52	50
OCDF	0.00200	0.000963	LR BA	ug/L		48	63 - 170	53	50

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C-2,3,7,8-TCDD	50		20 - 175
13C-2,3,7,8-TCDF	65		22 - 152
13C-1,2,3,7,8-PeCDD	47		21 - 227
13C-1,2,3,7,8-PeCDF	47		21 - 192
13C-2,3,4,7,8-PeCDF	56		13 - 328
13C-1,2,3,4,7,8-HxCDD	45		21 - 193
13C-1,2,3,6,7,8-HxCDD	50		25 - 163
13C-1,2,3,4,7,8-HxCDF	41		19 - 202

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-2

Method: 1613B - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCSD 320-669114/3-A

Client Sample ID: Lab Control Sample Dup

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 670442

Prep Batch: 669114

<i>Isotope Dilution</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C-1,2,3,6,7,8-HxCDF	52		21 - 159
13C-1,2,3,7,8,9-HxCDF	50		17 - 205
13C-2,3,4,6,7,8-HxCDF	53		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	51		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	41		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	47		20 - 186
13C-OCDD	49		13 - 199
13C-OCDF	48		13 - 199

<i>Surrogate</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
37Cl4-2,3,7,8-TCDD	78		31 - 191

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-2

Specialty Organics

Prep Batch: 669114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-1	Outfall009_20230330_Comp	Total/NA	Water	1613B	
MB 320-669114/1-A	Method Blank	Total/NA	Water	1613B	
LCS 320-669114/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-669114/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 670442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-1	Outfall009_20230330_Comp	Total/NA	Water	1613B	669114
LCS 320-669114/2-A	Lab Control Sample	Total/NA	Water	1613B	669114
LCSD 320-669114/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	669114

Analysis Batch: 670677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-669114/1-A	Method Blank	Total/NA	Water	1613B	669114

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-2

Client Sample ID: Outfall009_20230330_Comp

Lab Sample ID: 570-133059-1

Date Collected: 03/30/23 09:05

Matrix: Water

Date Received: 03/30/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1613B			1053.9 mL	20.0 uL	669114	04/21/23 06:35	BLR	EET SAC
Total/NA	Analysis	1613B		1	1 Sample	1 Sample	670442	04/27/23 04:49	GRB	EET SAC

Instrument ID: DFS 1

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-2

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	06-01-23
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-24
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-24
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-24
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442021-12	02-28-23 *
Virginia	NELAP	460278	03-14-24
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-2

Method	Method Description	Protocol	Laboratory
1613B	Dioxins and Furans (HRGC/HRMS)	EPA	EET SAC
1613B	Separatory Funnel (L/L) Extraction with Soxhlet Extraction of Dioxin and Furans	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

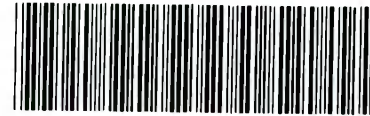
Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-133059-1	Outfall009_20230330_Comp	Water	03/30/23 09:05	03/30/23 17:10

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CHAIN OF CUSTODY FORM



Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall (003-007, 009, 010) Outfall 009 Comp		ANALYSIS REQUIRED																							
Eurofins Calscience Irvine Contact: Virendra Patel 2841 Dow Avenue, Suite 100 Tustin, CA 92780 Tel: 949-260-3218 ECI Project # 57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Comments																							
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)																									
Sampler:																											
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.0): Ni, Zn (E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti	TCDD (end all congeners) (E1613B)	Cl ⁻ , SO ₄ , NO ₃ +NO ₂ -N (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.0): Ni, Zn (E200.0): Ag, Cd, Cu, Pb, Sb, Se, Ti	Gross Alpha(E900.0), Gross Beta(E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Chronic Toxicity - Selenasatrum (EPA-921-R-02-013) ABC Labs in Ventura, CA	Cyanide (SM4500-CN-E / E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (180.2 (SM2540D))								
1 Outfall 009	Outfall009_20230330_Comp	3/30/2023 /0905	WM	500 mL Poly	1	HNO ₃	95	Yes	X								X										
			WM	1 L Glass Amber	2	None	110	No		X																	
			WM	500 mL Poly	2	None	145	No			X															48 hours Holding Time NO ₃ & NO ₂	
			WM	500 mL Poly	1	None	155	No				X															
			WM	500 mL Poly	1	NaOH	220	No											X								
			WM	2.5 Gal Cube	1	None	225	No																			Unfiltered and unreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	1 L Glass Amber	1	None	230	No																			
			WM	1 L Poly	1	None	185	No														X					
2	Outfall009_20230330_Comp_F	3/30/2023 /0905	WM	1L Poly	1	None	205	Yes					X												Filter and preserve w/in 24hrs of receipt at lab		
			WM	borosilicate vials	2	None	320	No										X								Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.	
3	Outfall009_20230330_Comp_Extra	3/30/2023 /0905	WM	1 L Glass Amber	2	None	110	No		H															Hold		

Legend: EP=Expert Panel, R=Routine

Relinquished By: <i>[Signature]</i> Date/Time: 3-30-2023/1210 Company: H.A	Received By: <i>[Signature]</i> Date/Time: 3/30/23 1210 EC	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u>X</u> 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>[Signature]</i> Date/Time: 3/30/23 1710 EC Company: EC	Received By: <i>[Signature]</i> Date/Time: 3/30/23 17:10 EC	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u>X</u>

2.3/2.3 2.7/2.7 SC11

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-133059-2

Login Number: 133059

List Source: Eurofins Calscience

List Number: 1

Creator: Patel, Jayesh

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-133059-2

Login Number: 133059

List Number: 3

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 04/04/23 04:13 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.4c 2.9c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Ms. Katherine Miller
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Generated 5/2/2023 3:32:38 PM

JOB DESCRIPTION

Boeing NPDES SSFL - Routine Outfall - 009 Comp

JOB NUMBER

570-133059-3

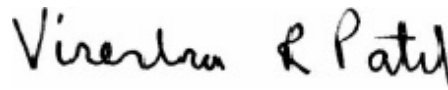
Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization

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Authorized for release by
Virendra Patel, Project Manager I
Virendra.Patel@et.eurofinsus.com
(714)895-5494



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Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-3

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Comp

Job ID: 570-133059-3

Job ID: 570-133059-3

Laboratory: Eurofins Calscience

Narrative

Job Narrative 570-133059-3

Comments

No additional comments.

Receipt

The samples were received on 3/30/2023 5:10 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.3° C and 2.7° C.

Receipt Exceptions

The reference method requires samples to have a pH of <2. The following samples were received with a pH of 7: Outfall009_20230330_Comp. The samples were adjusted to the appropriate pH in the laboratory.

RAD

Methods 900.0, 9310: Gross Alpha and Gross Beta batch 608682

The matrix spike (MS) recoveries for Gross Alpha were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.
(570-133047-R-1-H MS)

Methods 900.0, 9310: Gross Alpha and Gross Beta batch 608682

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230330_Comp (570-133059-1), (LCS 160-608682/2-A), (LCSB 160-608682/3-A), (MB 160-608682/1-A), (570-133047-R-1-G), (570-133047-R-1-J DU), (570-133047-R-1-H MS) and (570-133047-R-1-I MSBT)

Method 901.1: Gamma Prep Batch 160-607146

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from Reported to Analyte

Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Comp

Job ID: 570-133059-3

Job ID: 570-133059-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230330_Comp (570-133059-1), (570-133036-R-1-D) and (570-133036-R-1-F DU)

Methods 903.0, 9315: Radium-226 batch 606633

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230330_Comp (570-133059-1), (LCS 160-606633/2-A), (MB 160-606633/1-A), (310-252375-E-7-A), (310-252375-E-7-B MS) and (310-252375-E-7-C MSD)

Methods 904.0, 9320: Radium-228 batch 606636

The LCS recovered at (129%). The limits in our LIMS system at 75-125 reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of (62-148%) per method requirements. The LCS passes, no further action is required

(LCS 160-606636/2-A)

Methods 904.0, 9320: Radium-228 batch 606636

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230330_Comp (570-133059-1), (LCS 160-606636/2-A), (MB 160-606636/1-A), (310-252375-E-7-D), (310-252375-E-7-E MS) and (310-252375-E-7-F MSD)

Method 905: Strontium-90 batch 607355

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230330_Comp (570-133059-1), (LCS 160-607355/2-A), (MB 160-607355/1-A), (280-174032-D-4-A) and (280-174032-C-4-A DU)

Method 906.0: Tritium 608493

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are decay corrected to sample date and time as the Activity Reference Date. Outfall009_20230330_Comp (570-133059-1), (LCS 160-608493/2-A), (MB 160-608493/1-A), (570-133752-R-1-B), (570-133752-R-1-C DU) and (570-133752-R-1-D MS)

Method A-01-R: Isotopic Uranium batch 608325

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Outfall009_20230330_Comp (570-133059-1), (LCS 160-608325/2-A), (MB 160-608325/1-A), (570-133036-R-1-G) and (570-133036-R-1-I DU)

Method ExtChrom:

Method ExtChrom: Uranium Prep Batch 160-608325:

The following sample was prepared at a reduced aliquot due to discoloration and heavy sediment levels: Outfall009_20230330_Comp (570-133059-1).

Case Narrative

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009 Comp

Job ID: 570-133059-3

Job ID: 570-133059-3 (Continued)

Laboratory: Eurofins Calscience (Continued)

Method LSC_Dist_Susp:

Method PrecSep_0:

Method PrecSep-7:

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Detection Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-3

Client Sample ID: Outfall009_20230330_Comp

Lab Sample ID: 570-133059-1

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Calscience

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-3

Method: EPA 900.0 - Gross Alpha and Gross Beta Radioactivity

Client Sample ID: Outfall009_20230330_Comp

Lab Sample ID: 570-133059-1

Date Collected: 03/30/23 09:05

Matrix: Water

Date Received: 03/30/23 17:10

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	0.899	U	0.943	0.948	3.00	1.52	pCi/L	04/25/23 11:01	05/01/23 21:59	1
Gross Beta	1.21		0.675	0.686	4.00	1.00	pCi/L	04/25/23 11:01	05/01/23 21:59	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-3

Method: EPA 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: Outfall009_20230330_Comp
Date Collected: 03/30/23 09:05
Date Received: 03/30/23 17:10

Lab Sample ID: 570-133059-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	1.14	U	7.09	7.09	20.0	8.82	pCi/L	04/12/23 12:53	04/19/23 04:25	1
Potassium-40	15.2	U	59.9	59.9		97.7	pCi/L	04/12/23 12:53	04/19/23 04:25	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-3

Method: EPA 903.0 - Radium-226 (GFPC)

Client Sample ID: Outfall009_20230330_Comp
 Date Collected: 03/30/23 09:05
 Date Received: 03/30/23 17:10

Lab Sample ID: 570-133059-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.114	U	0.208	0.208	1.00	0.368	pCi/L	04/10/23 09:38	05/02/23 08:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.6		30 - 110					04/10/23 09:38	05/02/23 08:04	1

Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-3

Method: EPA 904.0 - Radium-228 (GFPC)

Client Sample ID: Outfall009_20230330_Comp
Date Collected: 03/30/23 09:05
Date Received: 03/30/23 17:10

Lab Sample ID: 570-133059-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0927	U	0.406	0.406	1.00	0.744	pCi/L	04/10/23 10:47	05/01/23 12:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.6		30 - 110					04/10/23 10:47	05/01/23 12:38	1
Y Carrier	80.7		30 - 110					04/10/23 10:47	05/01/23 12:38	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-3

Method: EPA 905 - Strontium-90 (GFPC)

Client Sample ID: Outfall009_20230330_Comp
Date Collected: 03/30/23 09:05
Date Received: 03/30/23 17:10

Lab Sample ID: 570-133059-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.0499	U	0.320	0.320	3.00	0.600	pCi/L	04/13/23 14:59	04/24/23 19:27	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Sr Carrier	86.3		30 - 110					04/13/23 14:59	04/24/23 19:27	1
Y Carrier	79.6		30 - 110					04/13/23 14:59	04/24/23 19:27	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-3

Method: EPA 906.0 - Tritium, Total (LSC)

Client Sample ID: Outfall009_20230330_Comp
 Date Collected: 03/30/23 09:05
 Date Received: 03/30/23 17:10

Lab Sample ID: 570-133059-1
 Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-203	U	170	171	500	339	pCi/L	04/24/23 09:41	04/25/23 11:48	1

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Client Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-3

Method: DOE A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: Outfall009_20230330_Comp

Date Collected: 03/30/23 09:05

Date Received: 03/30/23 17:10

Lab Sample ID: 570-133059-1

Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.297	U	0.272	0.273	1.00	0.305	pCi/L	04/20/23 16:08	04/24/23 23:27	1
Tracer	%Yield	Qualifier	Limits							
Uranium-232	77.2		30 - 110	Prepared	Analyzed	Dil Fac				
				04/20/23 16:08	04/24/23 23:27	1				

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Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-3

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)							
570-133059-1	Outfall009_20230330_Comp	85.6							
LCS 160-606633/2-A	Lab Control Sample	88.6							
MB 160-606633/1-A	Method Blank	94.7							

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Ba (30-110)	Y (30-110)						
570-133059-1	Outfall009_20230330_Comp	85.6	80.7						
LCS 160-606636/2-A	Lab Control Sample	88.6	83.7						
MB 160-606636/1-A	Method Blank	94.7	80.7						

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

Method: 905 - Strontium-90 (GFPC)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	Sr (30-110)	Y (30-110)						
570-133059-1	Outfall009_20230330_Comp	86.3	79.6						
LCS 160-607355/2-A	Lab Control Sample	86.2	84.1						
MB 160-607355/1-A	Method Blank	87.8	85.6						

Tracer/Carrier Legend

Sr = Sr Carrier

Y = Y Carrier

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Water

Prep Type: Total/NA

Percent Yield (Acceptance Limits)

Lab Sample ID	Client Sample ID	U-232 (30-110)							
570-133059-1	Outfall009_20230330_Comp	77.2							
LCS 160-608325/2-A	Lab Control Sample	87.6							
MB 160-608325/1-A	Method Blank	81.8							

Tracer/Carrier Legend

U-232 = Uranium-232

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-3

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-608682/1-A
Matrix: Water
Analysis Batch: 609530

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 608682

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)								
Gross Alpha	-0.1778	U	0.384	0.385	3.00	0.851	pCi/L	04/25/23 10:49	05/01/23 18:12		1	
Gross Beta	-0.3115	U	0.480	0.481	4.00	0.917	pCi/L	04/25/23 10:49	05/01/23 18:12		1	

Lab Sample ID: LCS 160-608682/2-A
Matrix: Water
Analysis Batch: 609530

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 608682

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Alpha	50.5	59.06		8.54	3.00	2.81	pCi/L	117	75 - 125

Lab Sample ID: LCSB 160-608682/3-A
Matrix: Water
Analysis Batch: 609530

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 608682

Analyte	Spike Added	LCSB Result	LCSB Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Gross Beta	73.3	74.52		7.98	4.00	0.820	pCi/L	102	75 - 125

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-607146/1-A
Matrix: Water
Analysis Batch: 608050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 607146

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared		Analyzed		Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)								
Cesium-137	-0.2554	U	8.12	8.12	20.0	9.60	pCi/L	04/12/23 12:53	04/19/23 03:12		1	
Potassium-40	71.54		67.9	68.4		67.4	pCi/L	04/12/23 12:53	04/19/23 03:12		1	

Lab Sample ID: LCS 160-607146/2-A
Matrix: Water
Analysis Batch: 608053

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 607146

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Americium-241	135000	135500		16100		447	pCi/L	100	79 - 121
Cesium-137	40800	41770		4980	20.0	110	pCi/L	102	87 - 115
Cobalt-60	17700	18530		2210		54.0	pCi/L	105	88 - 116

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-3

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-606633/1-A
Matrix: Water
Analysis Batch: 609636

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 606633

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.03862	U	0.116	0.116	1.00	0.221	pCi/L	04/10/23 09:38	05/02/23 07:58	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	94.7		30 - 110					04/10/23 09:38	05/02/23 07:58	1

Lab Sample ID: LCS 160-606633/2-A
Matrix: Water
Analysis Batch: 609636

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606633

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-226	11.3	11.00		1.33	1.00	0.198	pCi/L	97	70 - 113
Carrier	LCS %Yield	LCS Qualifier	Limits		Prepared	Analyzed	Dil Fac		
Ba Carrier	88.6		30 - 110					04/10/23 09:38	05/02/23 07:58

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-606636/1-A
Matrix: Water
Analysis Batch: 609533

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 606636

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	-0.1946	U	0.258	0.258	1.00	0.546	pCi/L	04/10/23 10:47	05/01/23 12:32	1
Carrier	MB %Yield	MB Qualifier	Limits		Prepared	Analyzed	Dil Fac			
Ba Carrier	94.7		30 - 110					04/10/23 10:47	05/01/23 12:32	1
Y Carrier	80.7		30 - 110		04/10/23 10:47	05/01/23 12:32	1			

Lab Sample ID: LCS 160-606636/2-A
Matrix: Water
Analysis Batch: 609533

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 606636

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Radium-228	7.99	10.33		1.40	1.00	0.547	pCi/L	129	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits		Prepared	Analyzed	Dil Fac		
Ba Carrier	88.6		30 - 110					04/10/23 10:47	05/01/23 12:32
Y Carrier	83.7		30 - 110		04/10/23 10:47	05/01/23 12:32	1		

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-3

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-607355/1-A
 Matrix: Water
 Analysis Batch: 608494

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 607355

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Strontium-90	0.1022	U	0.206	0.206	3.00	0.351	pCi/L	04/13/23 14:59	04/24/23 19:21	1
Carrier	MB %Yield	MB Qualifier	Limits				Prepared		Analyzed	
Sr Carrier	87.8		30 - 110				04/13/23 14:59		04/24/23 19:21	
Y Carrier	85.6		30 - 110				04/13/23 14:59		04/24/23 19:21	

Lab Sample ID: LCS 160-607355/2-A
 Matrix: Water
 Analysis Batch: 608494

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 607355

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Strontium-90	7.33	7.451		0.832	3.00	0.288	pCi/L	102	77 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Sr Carrier	86.2		30 - 110						
Y Carrier	84.1		30 - 110						

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-608493/1-A
 Matrix: Water
 Analysis Batch: 608725

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 608493

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Tritium	-127.0	U	185	185	500	348	pCi/L	04/24/23 09:41	04/25/23 11:03	1

Lab Sample ID: LCS 160-608493/2-A
 Matrix: Water
 Analysis Batch: 608725

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 608493

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec Limits
				Uncert. (2σ+/-)					
Tritium	2090	2466		497	500	411	pCi/L	118	75 - 125

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-608325/1-A
 Matrix: Water
 Analysis Batch: 608551

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 608325

Analyte	MB	MB	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Total Uranium	0.07277	U	0.1152	0.1153	1.00	0.184	pCi/L	04/20/23 16:08	04/24/23 23:27	1

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QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-3

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: MB 160-608325/1-A
Matrix: Water
Analysis Batch: 608551

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 608325

<i>Tracer</i>	<i>MB MB</i>		<i>Limits</i>
	<i>%Yield</i>	<i>Qualifier</i>	
Uranium-232	81.8		30 - 110

<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
04/20/23 16:08	04/24/23 23:27	1

Lab Sample ID: LCS 160-608325/2-A
Matrix: Water
Analysis Batch: 608555

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 608325

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qual</i>	<i>Total Uncert. (2σ+/-)</i>	<i>RL</i>	<i>MDC</i>	<i>Unit</i>	<i>%Rec</i>	<i>%Rec Limits</i>
Uranium-234	12.7	13.86		1.59	1.00	0.144	pCi/L	109	75 - 125
Uranium-238	13.0	14.93		1.68	1.00	0.150	pCi/L	115	75 - 125

<i>Tracer</i>	<i>LCS LCS</i>		<i>Limits</i>
	<i>%Yield</i>	<i>Qualifier</i>	
Uranium-232	87.6		30 - 110

QC Association Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-3

Rad

Prep Batch: 606633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-1	Outfall009_20230330_Comp	Total/NA	Water	PrecSep-21	
MB 160-606633/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-606633/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 606636

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-1	Outfall009_20230330_Comp	Total/NA	Water	PrecSep_0	
MB 160-606636/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-606636/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Prep Batch: 607146

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-1	Outfall009_20230330_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-607146/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-607146/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	

Prep Batch: 607355

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-1	Outfall009_20230330_Comp	Total/NA	Water	PrecSep-7	
MB 160-607355/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-607355/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	

Prep Batch: 608325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-1	Outfall009_20230330_Comp	Total/NA	Water	ExtChrom	
MB 160-608325/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-608325/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	

Prep Batch: 608493

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-1	Outfall009_20230330_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-608493/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-608493/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	

Prep Batch: 608682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-133059-1	Outfall009_20230330_Comp	Total/NA	Water	Evaporation	
MB 160-608682/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-608682/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-608682/3-A	Lab Control Sample	Total/NA	Water	Evaporation	

Lab Chronicle

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-3

Client Sample ID: Outfall009_20230330_Comp

Lab Sample ID: 570-133059-1

Date Collected: 03/30/23 09:05

Matrix: Water

Date Received: 03/30/23 17:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Evaporation			200.04 mL	1.0 g	608682	04/25/23 11:01	MST	EET SL
Total/NA	Analysis	900.0		1			609533	05/01/23 21:59	FLC	EET SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	607146	04/12/23 12:53	AJP	EET SL
Total/NA	Analysis	901.1		1			608053	04/19/23 04:25	CAH	EET SL
Instrument ID: GAMMAVISION										
Total/NA	Prep	PrecSep-21			755.39 mL	1.0 g	606633	04/10/23 09:38	KAC	EET SL
Total/NA	Analysis	903.0		1			609638	05/02/23 08:04	FLC	EET SL
Instrument ID: GFPCPURPLE										
Total/NA	Prep	PrecSep_0			755.39 mL	1.0 g	606636	04/10/23 10:47	KAC	EET SL
Total/NA	Analysis	904.0		1			609531	05/01/23 12:38	FLC	EET SL
Instrument ID: GFPCORANGE										
Total/NA	Prep	PrecSep-7			490.84 mL	1.0 g	607355	04/13/23 14:59	KAC	EET SL
Total/NA	Analysis	905		1			608494	04/24/23 19:27	FLC	EET SL
Instrument ID: GFPCRED										
Total/NA	Prep	LSC_Dist_Susp			100.09 mL	1.0 g	608493	04/24/23 09:41	DJP	EET SL
Total/NA	Analysis	906.0		1			608725	04/25/23 11:48	REV	EET SL
Instrument ID: LSCTEAL										
Total/NA	Prep	ExtChrom			254.9 mL	1.0 mL	608325	04/20/23 16:08	SEH	EET SL
Total/NA	Analysis	A-01-R		1			608540	04/24/23 23:27	FLC	EET SL
Instrument ID: ALPHAVISION										

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
 Comp

Job ID: 570-133059-3

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-30-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New York	NELAP	11616	03-31-24
North Carolina (DW)	State	29700	07-31-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	06-11-23
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-14-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-3

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	EET SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	EET SL
903.0	Radium-226 (GFPC)	EPA	EET SL
904.0	Radium-228 (GFPC)	EPA	EET SL
905	Strontium-90 (GFPC)	EPA	EET SL
906.0	Tritium, Total (LSC)	EPA	EET SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	EET SL
Evaporation	Preparation, Evaporation	None	EET SL
ExtChrom	Preparation, Extraction Chromatography Resin Actinide Separation	None	EET SL
Fill_Geo-0	Fill Geometry, No In-Growth	None	EET SL
LSC_Dist_Susp	Distillation and Suspension (LSC)	None	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	EET SL

Protocol References:

DOE = U.S. Department of Energy
EPA = US Environmental Protection Agency
None = None

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL - Routine Outfall - 009
Comp

Job ID: 570-133059-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-133059-1	Outfall009_20230330_Comp	Water	03/30/23 09:05	03/30/23 17:10

1

2

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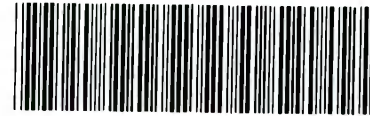
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CHAIN OF CUSTODY FORM



Client Name/Address: Haley & Aldrich 5333 Mission Center Rd Suite 300 San Diego, CA 92108		Project: Boeing-SSFL NPDES Permit 2023 Routine Outfall (003-007, 009, 010) Outfall 009 Comp		ANALYSIS REQUIRED																				
Eurofins Calscience Irvine Contact: Virendra Patel 2841 Dow Avenue, Suite 100 Tustin, CA 92780 Tel: 949-260-3218 ECI Project # 57013187		Project Manager: Katherine Miller 520.289.8606, 520.904.6944 (cell)		Total Recoverable Metals: (E200.0): Ni, Zn (E200.0); Ag, Cd, Cu, Pb, Sb, Se, Tl (E1613B) TCDD (end all congeners) (E1613B) Cl ⁻ , SO ₄ , NO ₃ +NO ₂ -N (300) TDS (SM2540C/E160.1) Total Dissolved Metals: (E200.0): Ni, Zn (E200.0); Ag, Cd, Cu, Pb, Sb, Se, Tl (E200.0); Gross Beta (E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1) Chronic Toxicity - Selenasatrum (EPA-821-R-02-013) ABC Labs in Ventura, CA Cyanide (SM4500-CN-E / E335.2) Total Recoverable Metals: Mercury (E245.1) Total Dissolved Metals: Mercury (E245.1) TSS (180.2 (SM2540D))																				
TestAmerica's services under this CoC shall be performed in accordance with the T&Cs within Blanket Service Agreement 2019-22-TestAmerica by and between Haley & Aldrich, Inc., its subsidiaries and affiliates, and TestAmerica Laboratories Inc.		Field Manager: Mark Dominick 978.234.5033, 818.599.0702 (cell)		Comments																				
Sampler:																								
Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Total Recoverable Metals: (E200.0): Ni, Zn (E200.0); Ag, Cd, Cu, Pb, Sb, Se, Tl (E1613B)	TCDD (end all congeners) (E1613B)	Cl ⁻ , SO ₄ , NO ₃ +NO ₂ -N (300)	TDS (SM2540C/E160.1)	Total Dissolved Metals: (E200.0): Ni, Zn (E200.0); Ag, Cd, Cu, Pb, Sb, Se, Tl (E200.0)	Gross Alpha (E900.0), Gross Beta (E900.0), Tritium (H-3) (E906.0), Sr-90 (E905.0), Total Combined Radium 226 (E903.0 or E903.1) & Radium 228 (E904.0), Uranium (E908.0), K-40, CS-137 (E901.0 or E901.1)	Chronic Toxicity - Selenasatrum (EPA-821-R-02-013) ABC Labs in Ventura, CA	Cyanide (SM4500-CN-E / E335.2)	Total Recoverable Metals: Mercury (E245.1)	Total Dissolved Metals: Mercury (E245.1)	TSS (180.2 (SM2540D))	Comments				
1 Outfall 009	Outfall009_20230330_Comp	3/30/2023 /0905	WM	500 mL Poly	1	HNO ₃	95	Yes	X															
			WM	1 L Glass Amber	2	None	110	No		X														
			WM	500 mL Poly	2	None	145	No			X												48 hours Holding Time NO ₃ & NO ₂	
			WM	500 mL Poly	1	None	155	No				X												
			WM	500 mL Poly	1	NaOH	220	No											X					
			WM	2.5 Gal Cube	1	None	225	No																Unfiltered and unreserved analysis. Separate RAD onto another workorder. Analyze duplicate, not MS/MSD.
			WM	1 L Glass Amber	1	None	230	No																
			WM	1 L Poly	1	None	185	No								X						X		Filter and preserve w/in 24hrs of receipt at lab
2	Outfall009_20230330_Comp_F	3/30/2023 /0905	WM	1L Poly	1	None	205	Yes						X										
			WM	borosilicate vials	2	None	320	No										X					Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.	
3	Outfall009_20230330_Comp_Extra	3/30/2023 /0905	WM	1 L Glass Amber	2	None	110	No		H												Hold		

Legend: EP=Expert Panel, R=Routine

Relinquished By: <i>[Signature]</i> Date/Time: 3-30-2023/1210 Company: H.A	Received By: <i>[Signature]</i> Date/Time: 3/30/23 1210 EC	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: <u>X</u> 48 Hour: _____ 5 Day: _____ Normal: _____
Relinquished By: <i>[Signature]</i> Date/Time: 3/30/23 1710 EC Company: EC	Received By: <i>[Signature]</i> Date/Time: 3/30/23 17:10 EC	Sample Integrity: (Check) Intact: _____ On Ice: _____
Relinquished By: _____ Date/Time: _____ Company: _____	Received By: _____ Date/Time: _____	Store samples for 6 months. Data Requirements: (Check) No Level IV: _____ All Level IV: <u>X</u>

2.3/2.3 2.7/2.7 SC11

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler: Lab PM: Patel, Virendra	Garner Tracking No(s):	COC No: 570-214399.1																				
Shipping/Receiving		Phone: E-Mail: Virendra.Patel@et.eurofins.com	State of Origin: California	Page: Page 1 of 1																				
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - California		Job #: 570-133059-3																				
Address: 13715 Rider Trail North, Earth City, MO, 63045		Due Date Requested: 5/2/2023		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma L - EDA Other:																				
PO #: 314-298-8566(Tel) 314-298-8757(Fax)		TAT Requested (days):																						
WO #:																								
Project #: 57013187																								
Site: Boeing NPDES SSFL - Routine Outfall - 009 Comp																								
Sample Identification - Client ID (Lab ID) Outfall009_20230330_Comp (570-133059-1)																								
Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Sewage, On-site, etc.)	Preservation Code:																				
3/30/23	09:05 Pacific		Water																					
Analysis Requested <table border="1"> <thead> <tr> <th>Field Filtered Sample (Yes or No)</th> <th>Perform MS/MSD (Yes or No)</th> <th>900/Evaporation Gross Alpha/Beta</th> <th>906.0/SCL Dist. Susp Tritium</th> <th>905.9/Sr90/PrecSep. 7 Strontium-90</th> <th>903.0/PrecSep. 21 Radium-226</th> <th>904.0/PrecSep. 0 Radium-228</th> <th>A01R_U/ExChrom_Actin Total Uranium</th> <th>901.1_Ca/Fill_Geo. 0 K-40 and Cesium-137</th> <th>Total Number of Containers</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>2</td> </tr> </tbody> </table>					Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900/Evaporation Gross Alpha/Beta	906.0/SCL Dist. Susp Tritium	905.9/Sr90/PrecSep. 7 Strontium-90	903.0/PrecSep. 21 Radium-226	904.0/PrecSep. 0 Radium-228	A01R_U/ExChrom_Actin Total Uranium	901.1_Ca/Fill_Geo. 0 K-40 and Cesium-137	Total Number of Containers	X	X	X	X	X	X	X	X	X	2
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X	X	X	X	X	X	X	X	X	2															
Special Instructions/Note: Boeing SSFL: DO NOT FILTER; use prep date from preservation. Ok to Preserve																								
Note: Since laboratory accreditations are subject to change, Eurofins Calscience places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Calscience laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Calscience attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Calscience.																								
Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2 Empty Kit Relinquished by: _____ Date: _____ Method of Shipment: _____ Relinquished by: _____ Date/Time: _____ Company: _____ Relinquished by: _____ Date/Time: _____ Company: _____ Relinquished by: _____ Date/Time: _____ Company: _____ Custody Seals Intact: _____ Custody Seal No.: _____ Δ Yes Δ No Cooler Temperature(s) °C and Other Remarks:																								



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-133059-3

Login Number: 133059

List Source: Eurofins Calscience

List Number: 1

Creator: Patel, Jayesh

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 570-133059-3

Login Number: 133059

List Number: 2

Creator: Sharkey-Gonzalez, Briana L

List Source: Eurofins St. Louis

List Creation: 04/04/23 05:58 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

