DRAINAGE TO MEIER CANYON

DRAINAGE TO ARROYO SIMI

HELIPAD ROAD/
PARKING LOT ROAD

HELIPAD

FORMER EMPLOYEE PARKING LOT

FORMER EMPLOYEE PARKING LOT

ELV

WELL 13
ROAD CULVERT

SERVICE ROAD

AREA II ROAD

SERVICE AREA

ASPHALT SWALE

SEWAGE TREATMENTPLANT

ALFA/BRAVO
FUEL FARM

ALFA

ALFA TEST STAND #1

ALFA TEST STAND #3

BUILDING 56
LANDFILL AREA

SPA IMPOUNDMENTS

BRAVO

BRAVO TEST STAND

Silvernale Pond

SKYLINE DR.

OUTFALL 018
STORMWATER
TREATMENT SYSTEM

AREA III

5-7 PAD

BUILDING 4055

ASPHALT SWALE

FORMER BUILDING 4020

AREA IV
(DOE)

R-2B Pond

R-2A Pond

DELTA

AREA II
(NASA)

SKYLINE AREA

COCA AREA

DELTA TEST STAND 3

DELTA TEST STAND 1

DELTA TEST STAND 2

AREA I
(NASA)

LOX

RD-52B

RD-52C

CM-1

CM-2

CM-10

CM-3

CM-4

CM-5

CM-6

CM-11

CM-12

CM-8

CM-9

LOWER PARKING LOT

NORTHERN DRAINAGE

CISTERN

WOOLSEY CANYON /
BLACK CANYON
ROADS INTERSECTION

B-1 Media Filter

B-1

BIOFILTER

SEDIMENT BASIN
(APPROXIMATE)

BIOSWALES

AILF

APTF

IEL

FORMER BUILDING 1436

BUILDING 407 YARD

FIRE STATION

WEATHER STATION

AREA I

AREA I ROAD

CANYON ROAD

SEWAGE TREATMENT PLANT

R-1 Pond

BOWL

OUTFALL 011
STORMWATER
TREATMENT SYSTEM

GET

Perimeter Pond

DRAINAGE TO DAYTON CANYON

UNDEVELOPED LAND

DRAINAGE TO BELL CANYON

0 1,200 2,400
SCALE IN FEET

DESCRIPTIONS OF DISCHARGE OUTFALL LOCATIONS	
NPDES OUTFALL	DESCRIPTION
001	Stormwater, South Slope
002	Stormwater, South Slope
003	Stormwater, Radioactive Material Handling Facility
004	Stormwater, Sodium Reactor Experiment Area
005	Stormwater, Sodium Burn Pit 1
006	Stormwater, Sodium Burn Pit 2
007	Stormwater, Building 100
008	Stormwater, Happy Valley
009	Stormwater, WS-13 Drainage (Northern Drainage)
010	Stormwater, Building 203
011	Stormwater, Perimeter Pond (Treated at SWTS)
012	Stormwater, Alfa Test Stand (Removed from permit)
013	Stormwater, Bravo Test Stand (Removed from permit)
014	Stormwater, Advanced Propulsion Test Facility (Removed from permit)
015	STP-1 (Removed from permit)
016	STP-2 (Removed from permit)
017	STP-3 (Removed from permit)
018	Stormwater, R-2 Pond Spillway (Treated at SWTS)
019	Treated Groundwater (GET System)
020	Treated Groundwater (GET System) (may not be constructed)

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE
2. APTF = ADVANCED PROPULSION TEST FACILITY
3. DOE = DEPARTMENT OF ENERGY
4. ELV = EXPENDABLE LAUNCH VEHICLE
5. IEL = INSTRUMENT AND EQUIPMENT LABORATORIES
6. ISRA = INTERIM SOURCE REMOVAL ACTION
7. LOX = LIQUID OXYGEN
8. NASA = NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
9. RMMP = RESTORATION MITIGATION MONITORING PLAN
10. SPA = STORABLE PROPELLANT AREA
11. SWTS = STORM WATER TREATMENT SYSTEM

LEGEND

- ACTIVE NPDES OUTFALL LOCATION
- FORMER NPDES OUTFALL LOCATION
- POSSIBLE FUTURE NPDES OUTFALL LOCATION
- SLOPE DRAIN DISCHARGE POINT TO NORTHERN DRAINAGE
- CM-12 CULVERT MODIFICATION
- GROUNDWATER MONITORING WELL
- ISRA PERFORMANCE MONITORING LOCATION
- BMP MONITORING LOCATION
- SPECIAL STUDIES LOCATION
- GROUNDWATER EXTRACTION AND TREATMENT (GET) SYSTEM
- STORMWATER TREATMENT SYSTEM
- IEL STUDY AREA
- RMMP LOCATION
- CHECK STRUCTURE - MOSTLY NATURAL SANDSTONE, SOME RIP RAP
- CHECK STRUCTURE - RIP RAP
- CHECK STRUCTURE - VEGETATED RIP RAP
- SLOPE DRAIN WITH UNDERLYING CHECK STRUCTURE AND ENERGY DISSIPATING GRAVEL AT INFLUENT END
- DRAINAGE
- ASPHALT SWALE
- PAVED ROAD
- DIRT ROAD
- STORMWATER CONVEYANCE PIPELINE WITH FLOW DIRECTION
- 25' ELEVATION CONTOUR
- ISRA EXCAVATION BOUNDARY
- VEHICLE PARKING AREA
- BIOFILTER
- BIOSWALE
- NORTHERN DRAINAGE
- SURFACE WATER POND
- EXISTING BUILDING/STRUCTURE
- FORMER BUILDING FOOTPRINT
- CONCRETE SLAB IN PLACE
- SANTA SUSANA SITE PROPERTY BOUNDARY
- ADMINISTRATIVE AREA BOUNDARY

HALEY ALDRICH

NPDES PERMIT COMPLIANCE FOURTH QUARTER 2016
DISCHARGE MONITORING REPORT
THE BOEING COMPANY
VENTURA COUNTY, CALIFORNIA

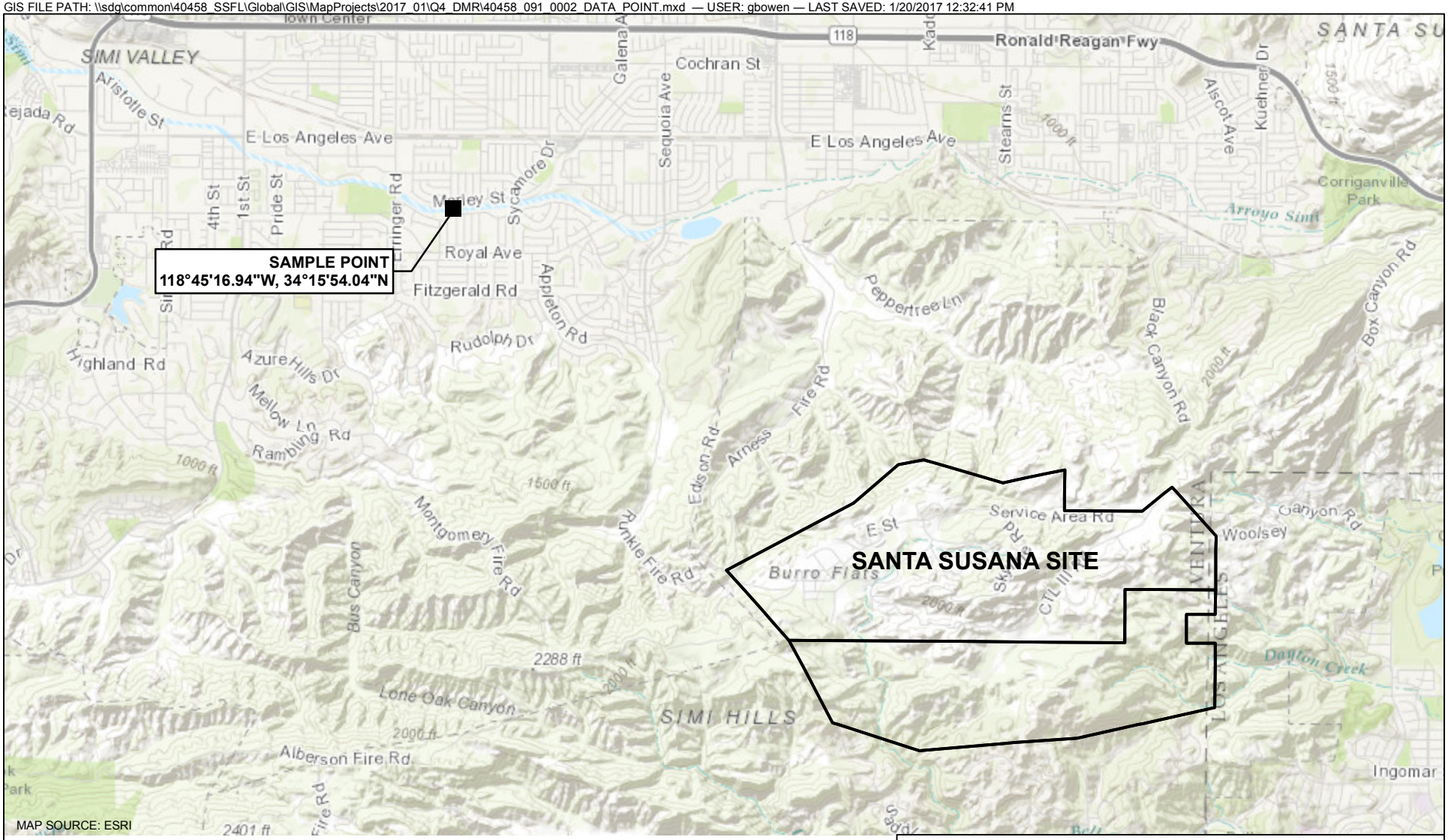
SITE MAP WITH STORMWATER COLLECTION AND CONVEYANCE SYSTEM AND SITE FEATURES

FEBRUARY 2017

FIGURE 1

G:\40458_SSFL\GlobalGIS\MapProjects\2017_01\Q4_DMR\40458_091_0001_OUTFALL_LOCATIONS.mxd

GIS FILE PATH: \\sdg\common\40458_SSFL\Global\GIS\MapProjects\2017_01\Q4_DMR\40458_091_0002_DATA_POINT.mxd — USER: gbowen — LAST SAVED: 1/20/2017 12:32:41 PM



0 0.5 1
Miles

HALEY ALDRICH

NPDES PERMIT COMPLIANCE FOURTH QUARTER 2016
DISCHARGE MONITORING REPORT
THE BOEING COMPANY
VENTURA COUNTY, CALIFORNIA

ARROYO SIMI-FRONTIER PARK (RSW-002) SAMPLING LOCATION

FEBRUARY 2017

FIGURE 2

APPENDIX A

Fourth Quarter 2016 Rainfall Data Summary

TABLE A
DAILY RAINFALL SUMMARY

THE BOEING COMPANY
NPDES PERMIT CA0001309

Station: AREA 1
Parameter: Rain
Month/Year: October 2016

HOUR OF THE DAY

DAY OF THE MONTH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37d	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00p	0.00	0.00p	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00p	0.00p	0.00p	0.00p	0.00p	0.00p	0.00p	0.00p	0.00p	0.00p	0.00p	0.00p	0.00p	0.00p	0.00
16	0.00p	0.00p	0.00p	0.00p	0.00p	0.00p	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03
17	0.03	0.05	0.03	0.04	0.01	0.01	0.00	0.01	0.00	0.00p	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00p	0.00p	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00p	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.16	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.01	0.00	0.00	0.00	0.00	0.20
31	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01

Flags: p = Power failure, invalid hour.
d = Off-line part of hour, invalid hour due to calibration.
The onsite B1436 rain gauge confirmed that no rainfall was recorded during power failure or off-line events, except for hour 3 on October 16 when the B1436 rain gauge recorded 0.01 inch, for a total of 0.04 inch.

TABLE A
DAILY RAINFALL SUMMARY

THE BOEING COMPANY
NPDES PERMIT CA0001309

Station: AREA 1
Parameter: Rain
Month/Year: November 2016

HOUR OF THE DAY

DAY OF THE MONTH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.01	0.01	0.02	0.02	0.06	0.11	0.30
21	0.18	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00p	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98d	0.00d	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.04	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00d	0.00d	4.46d	0.00d	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Flags: p = Power failure, invalid hour.
d = Off-line part of hour, invalid hour due to auditing and calibration.
The onsite B1436 rain gauge confirmed that no rainfall was recorded during power failures or off-line events.

TABLE A
DAILY RAINFALL SUMMARY

THE BOEING COMPANY
NPDES PERMIT CA0001309

Station: AREA 1
Parameter: Rain
Month/Year: December 2016

HOUR OF THE DAY

HR-BEG	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
HR-END	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
DAY																									Total
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	d	d	d	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.07	0.17	0.09	0.03	0.10	0.07	0.57
16	0.18	0.20	0.18	0.09	0.09	0.06	0.17	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.22	0.14	0.49
22	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.04	0.08	0.06	0.31	0.27	0.31	0.12	0.01	1.22
24	0.09	0.14	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.02	0.00	0.00	0.07	0.11	0.07	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.35
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.01	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.10

Flags: d = Off-line part of hour, invalid hour due to calibration verification. The onsite B1436 rain gauge confirmed that no rainfall was recorded during off-line event.

APPENDIX B

Fourth Quarter 2016 Waste Shipment Summary Tables

TABLE B
LIQUID WASTE SHIPMENTS

FOURTH QUARTER 2016 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

DATE SHIPPED	MANIFEST OR JOB TRACKING NUMBER	TYPE OF WASTE	QTY.	UNITS	TRANSPORTER 1	TRANSPORTER 2	TRANSPORTER 3	DESTINATION
10/12/2016	010227917FLE	HAZARDOUS WASTE, LIQUID (TRICHLOROETHYLENE)	77	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	Safety-Kleen Systems, Inc. 2600 N Central Expressway, Ste. 400 Richardson, TX 75080	n/a	Clean Harbors - Aragonite LLC 11600 North Aptus Road Grantsville, UT 34029
	010227918FLE	HAZARDOUS WASTE, LIQUID (TRICHLOROETHYLENE)	213	P				
11/2/2016	010228135FLE	NON-RCRA HAZARDOUS WASTE, LIQUIDS (OIL, WATER)	15	P				Clean Harbors Wilmington LLC 1737 East Denni Street Wilmington, CA 90744
	AA2741	NON HAZARDOUS, NON D.O.T. REGULATED (WATER)	572	P		SLT Express Way Incorporated 17235 N 75th Avenue, Ste. D175 Glendale, AZ 85308-8588		Clean Harbors - Aragonite LLC 11600 North Aptus Road Grantsville, UT 34029
		NON HAZARDOUS, NON D.O.T. REGULATED (WATER)	385	P				
11/11/2016	n/a	NON HAZARDOUS WASTE LIQUID (DECON WATER)	897	G	American Integrated Services, Inc. 1502 E Opp Street Wilmington, CA 90744			Crosby & Overton, Inc. 1610 W 17th St. Long Beach, CA 90813
12/14/2016	AA3159	NON HAZARDOUS, NON D.O.T. REGULATED (WATER)	77	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	n/a		Clean Harbors - Grassy Mountain LLC 3 Miles East 7 Miles North of Knolls Grantsville, UT 34029
	010228392FLE	NON-RCRA HAZARDOUS WASTE, LIQUIDS (WATER TREATMENT CHEMICAL AND MINERAL OIL)	359	P				Clean Harbors Wilmington LLC 1737 East Denni Street Wilmington, CA 90744
		NON-RCRA HAZARDOUS WASTE, LIQUIDS (WATER TREATMENT CHEMICAL AND MINERAL OIL)	120	P				
	010228393FLE	HAZARDOUS WASTE, LIQUID (TRICHLOROETHYLENE)	36	P				Clean Harbors - Grassy Mountain LLC 3 Miles East 7 Miles North of Knolls Grantsville, UT 34029
		HAZARDOUS WASTE, LIQUID (ARSENIC, CHROMIUM, LEAD)	64	P				

Notes:
P = Pounds
G = Gallons
n/a = Not Applicable

TABLE B
LIQUID WASTE SHIPMENTS

FOURTH QUARTER 2016 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

DATE SHIPPED	MANIFEST OR JOB TRACKING NUMBER	TYPE OF WASTE	QTY.	UNITS	TRANSPORTER 1	TRANSPORTER 2	TRANSPORTER 3	DESTINATION
10/4/2016	15113	FLUSH WATER W/ TRACE SEWAGE (HOLDING TANK)	5,000	G	Southwest Processors, Inc. 4120 Bandini Boulevard Vernon, CA 90058	n/a	n/a	Southwest Processors, Inc. 4120 Bandini Boulevard Vernon, CA 90058
10/4/2016	15114	FLUSH WATER W/ TRACE SEWAGE (HOLDING TANK)	5,000	G				
10/18/2016	15175	FLUSH WATER W/ TRACE SEWAGE (HOLDING TANK)	5,000	G				
10/18/2016	15176	FLUSH WATER W/ TRACE SEWAGE (HOLDING TANK)	5,000	G				
11/1/2016	15232	FLUSH WATER W/ TRACE SEWAGE (HOLDING TANK)	5,000	G				
11/1/2016	15233	FLUSH WATER W/ TRACE SEWAGE (HOLDING TANK)	5,000	G				
11/15/2016	15320	FLUSH WATER W/ TRACE SEWAGE (HOLDING TANK)	5,000	G				
11/15/2016	15321	FLUSH WATER W/ TRACE SEWAGE (CLARIFIER/HOLDING TANK)	5,000	G				
11/29/2016	15385	FLUSH WATER W/ TRACE SEWAGE (CLARIFIER/HOLDING TANK)	5,000	G				
11/29/2016	15386	FLUSH WATER W/ TRACE SEWAGE (HOLDING TANK)	5,000	G				
12/13/2016	15268	FLUSH WATER W/ TRACE SEWAGE (CLARIFIER)	5,000	G				
12/13/2016	15271	FLUSH WATER W/ TRACE SEWAGE (CLARIFIER)	5,000	G				
12/20/2016	15478	FLUSH WATER W/ TRACE SEWAGE (HOLDING TANK)	5,000	G				
12/20/2016	15479	FLUSH WATER W/ TRACE SEWAGE (HOLDING TANK)	5,000	G				
12/28/2016	15517	FLUSH WATER W/ TRACE SEWAGE (HOLDING TANK)	5,000	G				
12/28/2016	15518	FLUSH WATER W/ TRACE SEWAGE (HOLDING TANK)	5,000	G				

Notes:
P = Pounds
G = Gallons
n/a = Not Applicable

TABLE B
SOLID WASTE SHIPMENTS

FOURTH QUARTER 2016 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

DATE SHIPPED	MANIFEST OR JOB TRACKING NUMBER	TYPE OF WASTE	QTY.	UNITS	TRANSPORTER 1	TRANSPORTER 2	TRANSPORTER 3	DESTINATION
10/12/2016	010227918FLE	ENVIRONMENTALLY HAZARDOUS WASTE, SOLID (TRICHLOROETHYLENE, PERCHLOROETHYLENE)	30	P	Clean Harbors Environmental Services, Inc. 42 Longwater Drive Norwell, MA 02061	Safety-Kleen Systems, Inc. 2600 N Central Expressway, Ste. 400 Richardson, TX 75080	n/a	Clean Harbors - Grassy Mountain LLC 3 Miles East 7 Miles North of Knotts Grantsville, UT 34029
11/2/2016	010228135FLE	CORROSIVE SOLID, ACIDIC, INORGANIC (DEBRIS, HYDROCHLORIC ACID)	69	P				Clean Harbors Wilmington LLC 1737 East Denni Street Wilmington, CA 90744
		CORROSIVE SOLID, BASIC, INORGANIC (SODIUM HYDROXIDE)	34	P				
	AA2741	NON HAZARDOUS, NON D.O.T. REGULATED MATERIAL (DEMOLITION DEBRIS)	341	P		SLT Express Way Incorporated 17235 N 75th Avenue, Ste. D175 Glendale, AZ 85308-8588		Clean Harbors - Grassy Mountain LLC 3 Miles East 7 Miles North of Knotts Grantsville, UT 34029
12/14/2016	AA3159	NON HAZARDOUS, NON D.O.T. REGULATED MATERIAL (DEMOLITION DEBRIS)	273	P		n/a		
		NON HAZARDOUS, NON D.O.T. REGULATED (SAND)	3,513	P				
		NON HAZARDOUS, NON D.O.T. REGULATED MATERIAL (DEMOLITION DEBRIS)	4,368	P				
		NON HAZARDOUS, NON D.O.T. REGULATED MATERIAL (DEMOLITION DEBRIS)	331	P				
	010228393FLE	ENVIRONMENTALLY HAZARDOUS WASTE, SOLID (TRICHLOROETHYLENE, PERCHLOROETHYLENE)	12	P				
		ENVIRONMENTALLY HAZARDOUS WASTE, SOLID (LEAD, LEAD OXIDE)	40	P				

Notes:
P = Pounds
G = Gallons
n/a = Not Applicable

APPENDIX C

Fourth Quarter 2016 Discharge Monitoring Data Summary Tables

REPORTING SUMMARY NOTES
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

Notes:

1. TCDD TEQs for the purpose of determining permit compliance are the sum of the products of the detected dioxin congener concentration multiplied by that congener's toxicity equivalency factor (TEF) and bioaccumulation equivalency factor (BEF). The resulting compliance TCDD TEQ does not include those congener concentrations that are reported as DNQ, as specified on Page 26 of the NPDES permit.

2. Temperature, total residual chlorine (TRC), dissolved oxygen (DO), and pH are measured in the field and are not validated.

3. pH and temperature are identified on the table as daily maximum discharge limits. The NPDES permit limit has an instantaneous minimum (6.5) and maximum (8.5) for pH and an instantaneous maximum of 86°F for temperature.

4. All of the following abbreviations and/or notes may not occur on every table.

-92.9 +/-200	A negative radiochemical analytical result indicates the count rate of the sample was less than the background condition. Radiological results are presented as activity plus or minus counting uncertainty.
%	Percent.
$	Reported result or other information was incorrectly reported by the laboratory; result was corrected by the data validator.
--	Based on validation of the data, a qualifier was not required.
-/-	No permit limit established for daily maximum or monthly average.
<(value)	Analyte not detected at a concentration greater than or equal to the Detection Limit (DL), Method Detection Limit (MDL), or laboratory Reporting Limit ([RL], see laboratory report for specific detail).
>(value)	Greater than most probable number.
*	Result not validated.
**	Flow for each outfall is calculated over the 24-hour period when the outfall autosampler is operating to collect the composite sample. See definition of "Daily Discharge" on page A-2 of Attachment A of the permit.
*1	Improper preservation of sample.
*2	The inductively coupled plasma (ICP)/Matrix Spike (MS) ppb check standard was recovered above the control limit; therefore, the constituent detected was qualified as estimated (J).
*3	Initial and or continuing calibration recoveries were outside acceptable control limits.
*5	Blank spike/blank spike duplicate relative percent difference was outside the control limit
*10	Value was estimated detect or estimated non detect (J, UJ) due to deficiencies in quantitation of the constituent including constituents reported by the laboratory as Estimated Maximum Possible Concentration (EMPC) values.
*11	No calibration was performed for this compound; result is reported as a tentatively identified compound (TIC).
* II *III	Unusual problems found with the data that have been described in Section II, "sample management", or Section III, "method analysis". The number following the asterisk (*) will indicated the validation report section where a description of the problem can be found.

REPORTING SUMMARY NOTES
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

ANR	Analysis not required; e.g., constituent or outfall was not required by the permit to be sampled and analyzed over the reporting period (annual, semi-annual, etc.).
Avg	Average.
B	Laboratory method blank contamination.
BA	Relative percent difference out of control.
BEF	Bioaccumulation equivalency factor.
BU	Analyzed out of holding time.
BV	Sample received after holding time expired.
C	Calibration %RSD (relative standard deviation) or %D (difference) were noncompliant.
Comp	Composite sample type.
C5	Calibration verification %R (recovery) was outside method control limits.
CEs/100 ml	Cell equivalents per 100 milliliters.
D	The analysis with this flag should not be used because another more technically sound analysis is available.
%D	Percent difference between the initial and continuing calibration relative response factors.
deg C	Degrees Celsius.
deg F	Degrees Fahrenheit.
DL	Detection limit.
DNQ	Detected but not quantified (constituent value greater than or equal to the laboratory method detection limit and less than the laboratory reporting limit).
E	E in validation qualifier indicates that duplicates show poor agreement.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	MS and/or MSD Recovery is outside acceptance limits.
ft/sec	Feet per second.
G	Gallons.
gpd	Gallons per day.
H	Holding time was exceeded.
I	ICP interference check solution results were unsatisfactory.
J	Estimated value.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
J, DX	Estimated value, value < lowest standard (MQL), but > than MDL.
K	The sample dilution's set-up did not meet the oxygen depletion criteria of at least 2 mg/l; therefore, the reported result is an estimated value only.
L	Laboratory control sample %R was outside control limits.
L1	Laboratory Control Standard (LCS)/laboratory control standard duplicate (LCSD) relative percent difference (RPD) was outside the control limit.
L2	The laboratory control sample %R was below the method control limits.
LBS/DAY	Pounds per day.
LCS	Laboratory control standard.
LCSD	Laboratory control standard duplicate.

REPORTING SUMMARY NOTES
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

LQ	LCS/LCSD recovery above method control limits.
M1	MS and/or MSD were above the acceptance limits due to sample matrix interference.
M2	The MS and/or MS duplicate were below the acceptance limits due to sample matrix interference.
Max	Maximum.
MB	Analyte present in the method blank.
MDA/MDC	Minimum detectable activity/minimum detectable concentration.
MDL	Method Detection Limit.
Meas	Measure sample type.
MFL	Million fibers per liter.
MGD	Million gallons per day.
MHA	Due to high level of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information.
mg/L	Milligrams per liter.
mg/kg	Milligrams per kilogram.
ml/L/hr	Milliliters per liter per hour.
MPN/100 ml	Most probable number per 100 milliliters.
MQL	Method quantitation limit.
MS	Matrix spike.
MSD	Matrix spike duplicate.
NA	Not applicable; no permit limit established for the constituent and/or outfall.
ND	Analyte not detected.
NM	Not measured or determined or MDAs are not calculated as there is no statistical method for combining MDAs.
NTU	Nephelometric turbidity unit.
P	Pounds.
pCi/L	PicoCuries per liter.
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.
Q	Matrix spike recovery outside of control limits.
Q1	MS/MSD RPD was outside the control limit.
R	As a validation qualifier, results are rejected; the presence or absence of analyte cannot be verified.
R	(reason code in parentheses) %R for calibration not within control limits.
RL	Laboratory reporting limit.
RL-1	Reporting limit raised due to sample matrix effects.
RPD	Relative percent difference.
%R	Percent recovery.
%RSD	Percent relative standard deviation.
% survival	Percent survival.

REPORTING SUMMARY NOTES
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S	Surrogate recovery was outside control limits.
s.u.	Standard Unit.
TCDD	2,3,7,8-tetrachlorodibenzo-p-dioxin.
TEQ	Toxic equivalent.
T	Presumed contamination, as indicated by a detect in the trip blank.
U	Result not detected.
µg/L	Micrograms per liter.
µg/kg	Micrograms per kilogram.
UJ	Result not detected at the estimated reporting limit.
umhos/cm	Micromhos per centimeter.
WHO TEF	World Health Organization toxic equivalency factor.
w/out	Without.
^	Analysis not completed due to hold time exceedence or insufficient sample volume.
#	Per ORDER NO. R4-2015-0033 page 16 Footnote 1. The effluent limitations for total suspended solids and settable solids are not applicable for discharges during wet weather. During wet weather flow, a discharge event is greater than 0.1 inch of rainfall in a 24-hour period. No more than one sample per week need be obtained during extended periods of rainfall or the discharge of collected stormwater. A storm event must be preceded by at least 72 hours of dry weather.
(1)	Based on the permit, table E-3a footnote 2, receiving water samples for pH, hardness, and priority pollutants must be collected on the same day as effluent samples.
(2)	Additional sample, not required by the permit.
(4.0)3.1/-	Represents (Dry Weather Limit) Wet Weather Limit / Monthly Average Limit.
(3)	Secondary Maximum Contaminant Level.
(4)	The drinking water maximum contaminant level of 3.00E-05 ug/L is for the dioxin congener 2,3,7,8-TCDD. TCDD TEQ w/out DNQ Values is the sum of the products of the detected dioxin congener concentration multiplied by that congener's TEF and BEF. There are 17 dioxin congeners.

ARROYO SIMI (FRONTIER PARK RECEIVING WATER)

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October 1 through December 31, 2016

				12/24/2016		
ANALYTE	**UNITS**	**Permit Limit Daily Max/Monthly Avg**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**VALIDATION QUALIFIER**
POLLUTANTS WITH LIMITS						
4,4'-DDD	ug/L	0.0014/-	1/Quarter	Grab	ND < 0.0038	U
4,4'-DDE	ug/L	0.001/-	1/Quarter	Grab	ND < 0.0028	U
4,4'-DDT	ug/L	0.001/-	1/Quarter	Grab	ND < 0.0038	U
Aroclor 1016	ug/L	0.0003/-	1/Quarter	Grab	ND < 0.096	U
Aroclor 1221	ug/L	0.0003/-	1/Quarter	Grab	ND < 0.096	U
Aroclor 1232	ug/L	0.0003/-	1/Quarter	Grab	ND < 0.096	U
Aroclor 1242	ug/L	0.0003/-	1/Quarter	Grab	ND < 0.096	U
Aroclor 1248	ug/L	0.0003/-	1/Quarter	Grab	ND < 0.096	U
Aroclor 1254	ug/L	0.0003/-	1/Quarter	Grab	ND < 0.096	U
Aroclor 1260	ug/L	0.0003/-	1/Quarter	Grab	ND < 0.14	U
Chlordane	ug/L	0.001/-	1/Quarter	Grab	ND < 0.075	U
Chlorpyrifos	ug/L	0.02/-	1/Quarter	Grab	ND < 0.48	UJ (*II, I)
Diazinon	ug/L	0.16/-	1/Quarter	Grab	ND < 0.12	R (H)
Dieldrin	ug/L	0.0002/-	1/Quarter	Grab	ND < 0.0019	U
E. Coli	MPN/100 ml	235/-	1/Year	ANR	ANR	ANR
pH (Field)	s.u.	6.5-8.5/-	1/Quarter	Grab	7.34	*
Toxaphene	ug/L	0.0003/-	1/Quarter	Grab	ND < 0.23	U
POLLUTANTS WITHOUT LIMITS						
Hardness (as CaCO3)	mg/L	-/-	1/Quarter	Grab	330	--
Temperature (Field)	deg F	-/-	1/Quarter	Grab	52.41	*
Total Suspended Solids	mg/L	-/-	1/Year	ANR	ANR	ANR
Water Velocity	ft/sec	-/-	1/Quarter	Meas	0.3	*

See attached notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 009 (WS-13 DRAINAGE)

FOURTH QUARTER 2016 REPORTING SUMMARY
THE BOEING COMPANY
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October 1 through December 31, 2016

				12/24/2016 and 12/25/2016 (Grab and Composite)		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX/MONTHLY AVG**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**VALIDATION QUALIFIER**
Flow	MGD	64.33/-	1/Discharge	Meas	0.266718	*
CONVENTIONAL POLLUTANTS						
Oil & Grease	mg/L	15/-	1/Discharge	Grab	ND < 1.4	U
pH (Field)	s.u.	6.5-8.5/-	1/Discharge	Grab	7.23	*
PRIORITY POLLUTANTS						
Antimony	ug/L	6.0/-	1/Discharge	Composite	0.71	J (DNQ)
Cadmium	ug/L	4.0/-	1/Discharge	Composite	ND < 0.25	U
Copper	ug/L	13/-	1/Discharge	Composite	6.5	--
Cyanide	ug/L	9.5/-	1/Discharge	Composite	ND < 2.5	U
Lead	ug/L	5.2/-	1/Discharge	Composite	5.2	--
Mercury	ug/L	0.13/-	1/Discharge	Composite	ND < 0.10	U
Nickel	ug/L	86/-	1/Discharge	Composite	ND < 5.0	U
Thallium	ug/L	2.0/-	1/Discharge	Composite	ND < 0.50	U
Zinc	ug/L	120/-	1/Discharge	Composite	15	J (DNQ)
NON-CONVENTIONAL POLLUTANTS						
Bis (2-Chloroethoxy) Methane	ug/L	-/-	1/Year	ANR	ANR	ANR
Bis (2-Chloroethyl) Ether	ug/L	-/-	1/Year	ANR	ANR	ANR
Chronic Toxicity	Pass or % Effect	Pass or % Effect <50	1st & 2nd rain event/Year	ANR	ANR	ANR
Fluoride	mg/L	1.6/-	1/Year	ANR	ANR	ANR
Nitrate + Nitrite as Nitrogen (N)	mg/L	10/-	1/Discharge	Composite	0.78	--
Perchlorate	ug/L	6.0/-	1/Semiannual	Composite	ND < 0.95	U
Sulfate	mg/L	250/-	1/Discharge	Composite	5.0	--
Temperature (Field)	deg. F	86/-	1/Discharge	Grab	46.7	*
Total Dissolved Solids	mg/L	850/-	1/Discharge	Composite	84	--
REMAINING PRIORITY POLLUTANTS						
1,1,1-Trichloroethane	ug/L	-/-	1/Year	ANR	ANR	ANR
1,1,2,2-Tetrachloroethane	ug/L	-/-	1/Year	ANR	ANR	ANR
1,1,2-Trichloroethane	ug/L	-/-	1/Year	ANR	ANR	ANR
1,1-Dichloroethane	ug/L	-/-	1/Year	ANR	ANR	ANR
1,1-Dichloroethene	ug/L	-/-	1/Year	ANR	ANR	ANR
1,2,4-Trichlorobenzene	ug/L	-/-	1/Year	ANR	ANR	ANR
1,2-Dichlorobenzene	ug/L	-/-	1/Year	ANR	ANR	ANR
1,2-Dichlorobenzene	ug/L	-/-	1/Year	ANR	ANR	ANR
1,2-Dichloroethane	ug/L	-/-	1/Year	ANR	ANR	ANR
1,2-Dichloropropane	ug/L	-/-	1/Year	ANR	ANR	ANR
1,2-Diphenylhydrazine/Azobenzene	ug/L	-/-	1/Year	ANR	ANR	ANR
1,3-Dichlorobenzene	ug/L	-/-	1/Year	ANR	ANR	ANR
1,3-Dichlorobenzene	ug/L	-/-	1/Year	ANR	ANR	ANR
1,4-Dichlorobenzene	ug/L	-/-	1/Year	ANR	ANR	ANR
1,4-Dichlorobenzene	ug/L	-/-	1/Year	ANR	ANR	ANR
2,4-Dichlorophenol	ug/L	-/-	1/Year	ANR	ANR	ANR
2,4-Dimethylphenol	ug/L	-/-	1/Year	ANR	ANR	ANR
2,4-Dinitrophenol	ug/L	-/-	1/Year	ANR	ANR	ANR
2,4-Dinitrotoluene	ug/L	-/-	1/Year	ANR	ANR	ANR
2,4,6-Trichlorophenol	ug/L	-/-	1/Year	ANR	ANR	ANR
2,6-Dinitrotoluene	ug/L	-/-	1/Year	ANR	ANR	ANR
2-Chloroethylvinylether	ug/L	-/-	1/Year	ANR	ANR	ANR
2-Chloronaphthalene	ug/L	-/-	1/Year	ANR	ANR	ANR
2-Chlorophenol	ug/L	-/-	1/Year	ANR	ANR	ANR
2-Methyl-4,6-Dinitrophenol	ug/L	-/-	1/Year	ANR	ANR	ANR
2-Nitrophenol	ug/L	-/-	1/Year	ANR	ANR	ANR

See attached notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 009 (WS-13 DRAINAGE)

FOURTH QUARTER 2016 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
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October 1 through December 31, 2016

				12/24/2016 and 12/25/2016 (Grab and Composite)		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX/MONTHLY AVG**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**VALIDATION QUALIFIER**
3,3'-Dichlorobenzidine	ug/L	-/-	1/Year	ANR	ANR	ANR
4,4'-DDD	ug/L	-/-	1/Year	ANR	ANR	ANR
4,4'-DDE	ug/L	-/-	1/Year	ANR	ANR	ANR
4,4'-DDT	ug/L	-/-	1/Year	ANR	ANR	ANR
4-Bromophenylphenylether	ug/L	-/-	1/Year	ANR	ANR	ANR
4-Chloro-3-methylphenol	ug/L	-/-	1/Year	ANR	ANR	ANR
4-Chlorophenylphenylether	ug/L	-/-	1/Year	ANR	ANR	ANR
4-Nitrophenol	ug/L	-/-	1/Year	ANR	ANR	ANR
Acenaphthene	ug/L	-/-	1/Year	ANR	ANR	ANR
Acenaphthylene	ug/L	-/-	1/Year	ANR	ANR	ANR
Acrolein	ug/L	-/-	1/Year	ANR	ANR	ANR
Acrylonitrile	ug/L	-/-	1/Year	ANR	ANR	ANR
Aldrin	ug/L	-/-	1/Year	ANR	ANR	ANR
alpha-BHC	ug/L	-/-	1/Year	ANR	ANR	ANR
Anthracene	ug/L	-/-	1/Year	ANR	ANR	ANR
Aroclor 1016	ug/L	-/-	1/Year	ANR	ANR	ANR
Aroclor 1221	ug/L	-/-	1/Year	ANR	ANR	ANR
Aroclor 1232	ug/L	-/-	1/Year	ANR	ANR	ANR
Aroclor 1242	ug/L	-/-	1/Year	ANR	ANR	ANR
Aroclor 1248	ug/L	-/-	1/Year	ANR	ANR	ANR
Aroclor 1254	ug/L	-/-	1/Year	ANR	ANR	ANR
Aroclor 1260	ug/L	-/-	1/Year	ANR	ANR	ANR
Arsenic	ug/L	-/-	1/Year	ANR	ANR	ANR
Asbestos	MFL	-/-	1/Year	ANR	ANR	ANR
Benzene	ug/L	-/-	1/Year	ANR	ANR	ANR
Benzidine	ug/L	-/-	1/Year	ANR	ANR	ANR
Benzo(a)anthracene	ug/L	-/-	1/Year	ANR	ANR	ANR
Benzo(a)pyrene	ug/L	-/-	1/Year	ANR	ANR	ANR
Benzo(b)fluoranthene	ug/L	-/-	1/Year	ANR	ANR	ANR
Benzo(g,h,i)Perylene	ug/L	-/-	1/Year	ANR	ANR	ANR
Benzo(k)fluoranthene	ug/L	-/-	1/Year	ANR	ANR	ANR
Beryllium	ug/L	-/-	1/Year	ANR	ANR	ANR
Beryllium, dissolved	ug/L	-/-	Additional/Year	ANR	ANR	ANR
Bis (2-Chloroisopropyl) Ether	ug/L	-/-	1/Year	ANR	ANR	ANR
Bis (2-Ethylhexyl) Phthalate	ug/L	-/-	1/Year	ANR	ANR	ANR
Boron	mg/L	1.0/-	1/Year	ANR	ANR	ANR
Boron, dissolved	mg/L	-/-	Additional/Year	ANR	ANR	ANR
Bromodichloromethane	ug/L	-/-	1/Year	ANR	ANR	ANR
Bromoform	ug/L	-/-	1/Year	ANR	ANR	ANR
Bromomethane	ug/L	-/-	1/Year	ANR	ANR	ANR
Butylbenzylphthalate	ug/L	-/-	1/Year	ANR	ANR	ANR
Carbon Tetrachloride	ug/L	-/-	1/Year	ANR	ANR	ANR
Chlordane	ug/L	-/-	1/Year	ANR	ANR	ANR
Chloride	mg/L	150/-	1/Discharge	Composite	4.2	--
Chlorobenzene	ug/L	-/-	1/Year	ANR	ANR	ANR
Chloroform	ug/L	-/-	1/Year	ANR	ANR	ANR
Chloromethane	ug/L	-/-	1/Year	ANR	ANR	ANR
Chromium	ug/L	-/-	1/Year	ANR	ANR	ANR
Chromium VI	ug/L	-/-	1/Year	ANR	ANR	ANR
Chrysene	ug/L	-/-	1/Year	ANR	ANR	ANR
cis-1,3-Dichloropropene	ug/L	-/-	1/Year	ANR	ANR	ANR
delta-BHC	ug/L	-/-	1/Year	ANR	ANR	ANR

See attached notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 009 (WS-13 DRAINAGE)

FOURTH QUARTER 2016 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

October 1 through December 31, 2016

				12/24/2016 and 12/25/2016 (Grab and Composite)		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX/MONTHLY AVG**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**VALIDATION QUALIFIER**
Dibenzo(a,h)anthracene	ug/L	-/-	1/Year	ANR	ANR	ANR
Dibromochloromethane	ug/L	-/-	1/Year	ANR	ANR	ANR
Dieldrin	ug/L	-/-	1/Year	ANR	ANR	ANR
Diethylphthalate	ug/L	-/-	1/Year	ANR	ANR	ANR
Dimethylphthalate	ug/L	-/-	1/Year	ANR	ANR	ANR
Di-n-butylphthalate	ug/L	-/-	1/Year	ANR	ANR	ANR
Di-n-octylphthalate	ug/L	-/-	1/Year	ANR	ANR	ANR
Endosulfan I	ug/L	-/-	1/Year	ANR	ANR	ANR
Endosulfan II	ug/L	-/-	1/Year	ANR	ANR	ANR
Endosulfan Sulfate	ug/L	-/-	1/Year	ANR	ANR	ANR
Endrin	ug/L	-/-	1/Year	ANR	ANR	ANR
Endrin Aldehyde	ug/L	-/-	1/Year	ANR	ANR	ANR
Ethylbenzene	ug/L	-/-	1/Year	ANR	ANR	ANR
Fluoranthene	ug/L	-/-	1/Year	ANR	ANR	ANR
Fluorene	ug/L	-/-	1/Year	ANR	ANR	ANR
Heptachlor	ug/L	-/-	1/Year	ANR	ANR	ANR
Heptachlor Epoxide	ug/L	-/-	1/Year	ANR	ANR	ANR
Hexachlorobenzene	ug/L	-/-	1/Year	ANR	ANR	ANR
Hexachlorobutadiene	ug/L	-/-	1/Year	ANR	ANR	ANR
Hexachlorocyclopentadiene	ug/L	-/-	1/Year	ANR	ANR	ANR
Hexachloroethane	ug/L	-/-	1/Year	ANR	ANR	ANR
Indeno(1,2,3-cd)pyrene	ug/L	-/-	1/Year	ANR	ANR	ANR
Isophorone	ug/L	-/-	1/Year	ANR	ANR	ANR
Lindane (gamma-BHC)	ug/L	-/-	1/Year	ANR	ANR	ANR
Methylene chloride	ug/L	-/-	1/Year	ANR	ANR	ANR
Naphthalene	ug/L	-/-	1/Year	ANR	ANR	ANR
Naphthalene	ug/L	-/-	1/Year	ANR	ANR	ANR
Nitrobenzene	ug/L	-/-	1/Year	ANR	ANR	ANR
N-Nitrosodimethylamine	ug/L	-/-	1/Year	ANR	ANR	ANR
N-Nitroso-di-n-propylamine	ug/L	-/-	1/Year	ANR	ANR	ANR
N-Nitrosodiphenylamine	ug/L	-/-	1/Year	ANR	ANR	ANR
Pentachlorophenol	ug/L	-/-	1/Year	ANR	ANR	ANR
Phenanthrene	ug/L	-/-	1/Year	ANR	ANR	ANR
Phenol	ug/L	-/-	1/Year	ANR	ANR	ANR
Pyrene	ug/L	-/-	1/Year	ANR	ANR	ANR
Tetrachloroethene	ug/L	-/-	1/Year	ANR	ANR	ANR
Toluene	ug/L	-/-	1/Year	ANR	ANR	ANR
Toxaphene	ug/L	-/-	1/Year	ANR	ANR	ANR
trans-1,2-Dichloroethene	ug/L	-/-	1/Year	ANR	ANR	ANR
trans-1,3-Dichloropropene	ug/L	-/-	1/Year	ANR	ANR	ANR
Trichloroethene	ug/L	-/-	1/Year	ANR	ANR	ANR
Trichlorofluoromethane	ug/L	-/-	1/Year	ANR	ANR	ANR
Vinyl chloride	ug/L	-/-	1/Year	ANR	ANR	ANR
Xylenes (Total)	ug/L	-/-	1/Year	ANR	ANR	ANR

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OUTFALL 009 (WS-13 DRAINAGE)

FOURTH QUARTER 2016 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
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October 1 through December 31, 2016

				12/24/2016 and 12/25/2016 (Grab and Composite)		
ANALYTE	**UNITS**	**PERMIT LIMIT DAILY MAX/MONTHLY AVG**	**SAMPLE FREQUENCY**	**SAMPLE TYPE**	**RESULT**	**VALIDATION QUALIFIER**
EFFLUENT MONITORING (NO LIMITATIONS) POLLUTANTS						
Aluminum	ug/L	-/-	1/Year	ANR	ANR	ANR
Chlorpyrifos	ug/L	-/-	1/Year	ANR	ANR	ANR
Diazinon	ug/L	-/-	1/Year	ANR	ANR	ANR
E. Coli	MPN/100mL	-/-	1/Year	ANR	ANR	ANR
Hardness	mg/L	-/-	1/Year	ANR	ANR	ANR
Iron	mg/L	-/-	1/Year	ANR	ANR	ANR
Selenium	ug/L	-/-	1/Discharge	Composite	ND < 0.50	U
Silver	ug/L	-/-	1/Discharge	Composite	ND < 5.0	U
Silver	ug/L	-/-	1/Discharge	Composite	ND < 0.50	U*
Total Suspended Solids	mg/L	-/-	1/Year	ANR	ANR	ANR
Vanadium	ug/L	-/-	1/Year	ANR	ANR	ANR
ADDITIONAL POLLUTANTS						
Aluminum, dissolved	ug/L	-/-	Additional/Year	ANR	ANR	ANR
Antimony, dissolved	ug/L	-/-	Additional/Discharge	Composite	0.54	J (DNQ)
Arsenic, dissolved	ug/L	-/-	Additional/Year	ANR	ANR	ANR
beta-BHC	ug/L	-/-	1/Year	ANR	ANR	ANR
Chloroethane	ug/L	-/-	1/Year	ANR	ANR	ANR
Cadmium, dissolved	ug/L	-/-	Additional/Discharge	Composite	0.25	J (DNQ)
Chromium, dissolved	ug/L	-/-	Additional/Year	ANR	ANR	ANR
cis-1,2-Dichloroethene	ug/L	-/-	Additional/Year	ANR	ANR	ANR
Copper, dissolved	ug/L	-/-	Additional/Discharge	Composite	4.6	--
Hardness, dissolved	mg/L	-/-	Additional/Year	ANR	ANR	ANR
Human Bacteroides	CEs/100mL	-/-	Additional/Year	ANR	ANR	ANR
Iron, dissolved	mg/L	-/-	Additional/Year	ANR	ANR	ANR
Lead, dissolved	ug/L	-/-	Additional/Discharge	Composite	1.0	--
Mercury, dissolved	ug/L	-/-	Additional/Discharge	Composite	ND < 0.10	U
Nickel, dissolved	ug/L	-/-	Additional/Discharge	Composite	ND < 5.0	U
Selenium, dissolved	ug/L	-/-	Additional/Discharge	Composite	ND < 0.50	U
Silver, dissolved	ug/L	-/-	Additional/Discharge	Composite	ND < 5.0	U
Silver, dissolved	ug/L	-/-	Additional/Discharge	Composite	ND < 0.50	U*
Thallium, dissolved	ug/L	-/-	Additional/Discharge	Composite	ND < 0.50	U
Vanadium, dissolved	ug/L	-/-	Additional/Year	ANR	ANR	ANR
Zinc, dissolved	ug/L	-/-	Additional/Discharge	Composite	ND < 10	U

See attached notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 009 (WS-13 DRAINAGE)

FOURTH QUARTER 2016 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
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Sample Type: Composite
Sample Date: December 25, 2016

ANALYTE	SAMPLE FREQUENCY	LAB MDL (ug/L)	LAB RL (ug/L)	LAB RESULT (ug/L)	VALIDATION QUALIFIER	1998 WHO TEF	BEF Great Lakes Water Quality Initiative	TCDD Equivalent (w/out DNQ Values) (ug/L)
1,2,3,4,6,7,8-HpCDD	1/Discharge	4.90E-07	5.20E-05	2.10E-05	U (B)	0.01	0.05	**ND**
1,2,3,4,6,7,8-HpCDF	1/Discharge	1.80E-07	5.20E-05	6.80E-06	U (B)	0.01	0.01	**ND**
1,2,3,4,7,8,9-HpCDF	1/Discharge	2.30E-07	5.20E-05	4.30E-07	U (B)	0.01	0.4	**ND**
1,2,3,4,7,8-HxCDD	1/Discharge	1.30E-07	5.20E-05	6.50E-07	U (B)	0.1	0.3	**ND**
1,2,3,4,7,8-HxCDF	1/Discharge	1.80E-07	5.20E-05	4.80E-07	U (B)	0.1	0.08	**ND**
1,2,3,6,7,8-HxCDD	1/Discharge	1.30E-07	5.20E-05	1.10E-06	U (B)	0.1	0.1	**ND**
1,2,3,6,7,8-HxCDF	1/Discharge	1.70E-07	5.20E-05	2.60E-07	U (B)	0.1	0.2	**ND**
1,2,3,7,8,9-HxCDD	1/Discharge	1.00E-07	5.20E-05	1.10E-06	U (B)	0.1	0.1	**ND**
1,2,3,7,8,9-HxCDF	1/Discharge	1.50E-07	5.20E-05	1.70E-07	U (B)	0.1	0.6	**ND**
1,2,3,7,8-PeCDD	1/Discharge	1.70E-07	5.20E-05	3.30E-07	U (B)	1.0	0.9	**ND**
1,2,3,7,8-PeCDF	1/Discharge	1.30E-07	5.20E-05	1.50E-07	U (B)	0.05	0.2	**ND**
2,3,4,6,7,8-HxCDF	1/Discharge	1.50E-07	5.20E-05	3.20E-07	U (B)	0.1	0.7	**ND**
2,3,4,7,8-PeCDF	1/Discharge	1.40E-07	5.20E-05	2.00E-07	U (B)	0.5	1.6	**ND**
2,3,7,8-TCDD	1/Discharge	1.60E-07	1.00E-05	ND	U	1.0	1.0	**ND**
2,3,7,8-TCDF	1/Discharge	1.10E-06	1.00E-05	ND	U	0.1	0.8	**ND**
OCDD	1/Discharge	3.40E-07	1.00E-04	2.30E-04	--	0.0001	0.01	**2.30E-10**
OCDF	1/Discharge	2.40E-07	1.00E-04	1.70E-05	U (B)	0.0001	0.02	**ND**

TCDD TEQ w/out DNQ Values	**2.30E-10**

TCDD TEQ (PRIORITY POLLUTANTS) PERMIT LIMIT = 2.80E-08

See attached notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 009 (WS-13 DRAINAGE)

FOURTH QUARTER 2016 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

October 1 through December 31, 2016

				12/25/2016 (Composite)		
ANALYTE	**UNITS**	**Permit Limit Daily Max/Monthly Avg**	**SAMPLE FREQUENCY**	**RESULT**	**MDA**	**VALIDATION QUALIFIER**
NON-CONVENTIONAL POLLUTANTS						
Gross Alpha	pCi/L	15/-	1/Discharge	1.66 ± 0.921	1.20	*
Gross Beta	pCi/L	50/-	1/Discharge	2.79 ± 0.874	1.07	*
Total Combined Radium-226 & Radium 228	pCi/L	5.0/-	1/Discharge	1.53 ± 0.774	NM	*
Strontium-90	pCi/L	8.0/-	1/Discharge	0.455 ± 0.352	0.551	U*
Tritium	pCi/L	20000/-	1/Discharge	-143 ± 191	363	U*
ADDITIONAL POLLUTANTS						
Cesium-137	pCi/L	200/-	1/Discharge	-5.88 ± 11.0	18.4	U*
Uranium, Total	pCi/L	20/-	1/Discharge	0.284 ± 0.293	0.375	U*
ADDITIONAL POLLUTANTS WITHOUT LIMITS						
Potassium-40	pCi/L	-/-	1/Discharge	-115 ± 176	231	U*

See attached notes for abbreviations, definitions, and other explanations for the data presented.

OUTFALL 009 (WS-13 DRAINAGE)

FOURTH QUARTER 2016 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

October 1 through December 31, 2016

				12/24/2016 and 12/25/2016 (Grab & Composite)		
ANALYTE	**UNITS**	**Permit Limit Daily Max/Monthly Avg**	**Sample Frequency**	**Sample Type**	**Result**	**Concentration Result Validation Qualifier**
Flow	MGD	64.33/-	1/Discharge	Meas	0.266718	*
CONVENTIONAL POLLUTANTS						
Oil & Grease	LBS/DAY	8,048/-	1/Discharge	Grab	ND	U
PRIORITY POLLUTANTS						
Antimony	LBS/DAY	3.22/-	1/Discharge	Composite	0.0016	J (DNQ)
Cadmium	LBS/DAY	2.15/-	1/Discharge	Composite	ND	U
Copper	LBS/DAY	7/-	1/Discharge	Composite	0.014	--
Cyanide	LBS/DAY	5.1/-	1/Discharge	Composite	ND	U
Lead	LBS/DAY	2.8/-	1/Discharge	Composite	0.012	--
Mercury	LBS/DAY	0.07/-	1/Discharge	Composite	ND	U
Nickel	LBS/DAY	46.14/-	1/Discharge	Composite	ND	U
TCDD TEQ_NoDNQ	LBS/DAY	1.5E-08/-	1/Discharge	Composite	5.12E-13	*
Thallium	LBS/DAY	1.1/-	1/Discharge	Composite	ND	U
Zinc	LBS/DAY	64.4/-	1/Discharge	Composite	0.033	J (DNQ)
NON-CONVENTIONAL POLLUTANTS						
Boron	LBS/DAY	537/-	1/Year	ANR	ANR	ANR
Chloride	LBS/DAY	80,477/-	1/Discharge	Composite	9.3	--
Fluoride	LBS/DAY	858-	1/Year	ANR	ANR	ANR
Nitrate + Nitrite as Nitrogen (N)	LBS/DAY	5,365/-	1/Discharge	Composite	1.7	--
Perchlorate	LBS/DAY	3.22/-	1/Discharge	Composite	ND	U
Sulfate	LBS/DAY	134,128/-	1/Discharge	Composite	11	--
Total Dissolved Solids	LBS/DAY	456,034/-	1/Discharge	Composite	187	--

See attached notes for abbreviations, definitions, and other explanations for the data presented.

APPENDIX D

Fourth Quarter 2016 Analytical Laboratory Report, Chain of Custody, and Validation Report

APPENDIX D

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Section No.

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-171019-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

January 24, 2017

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TABLES

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003H.01

Sample Delivery Group: 440-171019-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 2

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine and Sacramento

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
Outfall009_20161225_Comp	440-171019-1	N/A	Water	12/25/2016 8:50:00 AM	1613B, 200.7, 200.8, 245.1, 300.0, 314.0, SM2540C, SM4500-CN-E
Outfall009_20161225_Comp_F	440-171019-2	N/A	Water	12/25/2016 8:50:00 AM	200.7, 200.8, 245.1

II. SAMPLE MANAGEMENT

According to the case narrative, sample condition upon receipt form and the chain-of-custody (COC) provided by the laboratory for sample delivery group (SDG) 440-171019-1:

- The laboratory received the samples in this sample delivery group (SDG) on ice and within the temperature limits of less than 6 degrees Celsius (°C) and greater than 0°C.
- The laboratory received the sample containers intact and properly preserved, as applicable.
- Field and laboratory personnel signed and dated the COC.
- According to the laboratory's sample receipt checklist, custody seals were intact.

MEC^X noted anomalies regarding sample management identified below.

- Minor corrections to the COC were not initialed or dated.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

IV. EPA METHOD 1613B — DIOXIN/FURANS

Lynn Calvin of MEC[X] reviewed the SDG on January 24, 2017

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0)*, *USEPA Method 1613B* and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review* (2011).

IV.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.

IV.2. INSTRUMENT PERFORMANCE

Instrument performance criteria were met. Following are findings associated with instrument performance:

IV.2.1. *GC COLUMN PERFORMANCE*

A Windows Defining Mix (WDM) containing the first and last eluting congeners of each descriptor and isomer specificity compounds was analyzed prior to the initial calibration sequence and at the beginning of each analytical sequence. The GC column performance in the calibrations was acceptable, with the height of the valley between the closely eluting isomers and 2,3,7,8-TCDD reported as less than 25%.

IV.2.2. *MASS SPECTROMETER PERFORMANCE*

The mass spectrometer performance was acceptable with the static resolving power greater than 10,000.

IV.3. CALIBRATION

Calibration criteria were met. The initial calibration was acceptable with %RSDs ≤20% for the 15 native compounds (calibration by isotope dilution) and ≤35% for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the Method 1613B control limits for all standards.

Continuing Calibration: Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of the analytical sequence. The VER was acceptable with the concentrations within the acceptance criteria listed in Table 6 of EPA Method 1613B. The ion abundance ratios and relative retention times were within the method control limits.

IV.4. QUALITY CONTROL SAMPLES

IV.4.1. *METHOD BLANKS*

The method blank had detects above the EDL and below the reporting limit for all isomers except 2,3,7,8-TCDD and for all totals except TCDD. Isomer results for the method blank contaminants detected below the reporting limit in the sample were qualified as nondetects (U) at the level of contamination based upon professional judgement and the guidance for blank qualification in the National Functional Guidelines for Dioxin Review. The sample result above the reporting limit for OCDD in sample Outfall009_20161225_Comp_F was detected at >10× the method blank concentration and required no qualification.

The reviewer verified that peaks comprising totals TCDF and HpCDD in the method blank were the same peaks comprising the same totals in the sample. The sample results for totals TCDF and HpCDD were therefore qualified as nondetects (U) at the level of contamination. Only a portion of the remaining sample total detects were determined to be method blank contamination, and were qualified as estimated (J).

IV.4.2. *LABORATORY CONTROL SAMPLES*

Recoveries were within the acceptance criteria listed in Table 6 of Method 1613B, and all RPDs were within the laboratory control limit of ≤50%.

IV.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Remaining detects were used to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

IV.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

IV.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

IV.6. INTERNAL STANDARDS PERFORMANCE

The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613B.

IV.7. COMPOUND IDENTIFICATION

Compound identification was verified. The reported detect for OCDD met the ion abundance ratio, retention time window and signal to noise ratio criteria for identification. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613B. A confirmation analysis was performed for 2,3,7,8-TCDF detected in sample EPNDSW03S01, and the original result was not confirmed and the original result was subsequently qualified as method blank contamination (see Blanks Section). As both results were reported, the confirmation result was accepted as the confirmation is more specific to 2,3,7,8-TCDF and the original results rejected.

IV.8. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified by recalculating a representative number of sample results. The laboratory calculated and reported compound-specific detection limits (EDL). Detects below the laboratory lower calibration level were qualified as estimated (J). Detects between the EDL and the reporting limit (RL) were qualified as estimated (J) and coded with DNQ in order to comply with the NPDES permit; however, all isomer results originally qualified (J) were subsequently qualified as method blank contamination (see Blanks section). Nondetects are valid to the EDL. Per client request, results below the EDL meeting retention time and signal to noise (S/N) criteria were to be reported; however, for the sample in this SDG, results were not reported below the EDL.

A result previously qualified as a nondetect for method blank contamination was not further qualified as an EMPC. Totals containing EMPC peaks were qualified as estimated (J).

V. EPA METHODS 200.7, 200.8, 245.1 —METALS AND MERCURY

Marcia Hilchey of MEC[X] reviewed the SDG on January 23, 2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for Metals (DVP-5, Rev.2); EPA Methods 200.7, 200.8 and 245.1*; and the *National Functional Guidelines for Inorganic Data Review* (2014).

V.1. HOLDING TIMES

The analytical holding times, 28 days for mercury and six months for the remaining metals, were met.

V.2. ICP-MS TUNING AND CALIBRATION

Mass calibrations were within 0.1 atomic mass units of the true value and the %RSDs were ≤5%.

Calibration criteria were met. The initial calibration r values were ≥0.995, y-intercepts were below the CRQL, and %Ds were <30%. ICV and CCV recoveries were within NFG control limits of 90-110% for ICP-AES and ICPMS, and within 85-115% for CVAA.

V.3. QUALITY CONTROL SAMPLES

V.3.1. *METHOD BLANKS*

All method blank, initial calibration blank, and bracketing continuing calibration blanks were nondetects.

V.3.2. *INTERFERENCE CHECK SAMPLES:*

ICP-AES and ICP-MS ICSAB recoveries were within the control limits of 80-120% or ±2x the reporting limit, whichever is greater. All of the interferents were present in the site samples at concentrations less than half that of the ICSA, therefore, the samples were not assessed for matrix interference.

V.3.3. *LABORATORY CONTROL SAMPLES*

The recoveries were within the method control limits of 85-115%.

V.3.4. *LABORATORY DUPLICATES:*

No laboratory duplicate analyses were performed on the samples in this SDG.

V.3.5. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on samples Outfall009_20161225_Comp and Outfall009_20161225_Comp_F for all methods. Recoveries and RPDs were within the method control limits of 70-130% and ≤20%, respectively.

V.4. SERIAL DILUTION:

No serial dilution analyses were performed on the samples in this SDG.

V.5. INTERNAL STANDARDS PERFORMANCE

Sample internal standard recoveries were within 60-125% of the calibration blank.

V.6. ANALYTE QUANTIFICATION AND REPORTED DETECTION LIMITS

Calculations were verified and the sample results reported on the sample result summary were verified

against the raw data. No transcription errors or calculation errors were noted. It should be noted that raw data for the CVAA initial calibration performed on 12/27/2016 was not available in the reviewed package and therefore could not be verified. All reported results from that initial calibration were verified against instrument raw data. Any detects between the method detection limit and the reporting limit were qualified as estimated, "J," and coded with "DNQ," in order to comply with the NPDES permit. Reported nondetects are valid to the MDL.

V.7. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

V.7.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

V.7.2. *FIELD DUPLICATES*

There were no field duplicate samples identified for this SDG.

VI. EPA METHOD 314.0 — PERCHLORATE

Marcia Hilchey of MEC^X reviewed the SDG on January 24, 2017

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Method 314.0,* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

VI.1. HOLDING TIMES

The analytical holding time, 28 days, was met.

VI.2. CALIBRATION

Calibration criteria were met. The initial calibration r^2 value was $\geq$0.995 and all initial and continuing calibration recoveries were within 90-110%. The Minimum Reporting Level check was recovered in the method QC limits of 90-110%. Instrument Performance Check recoveries were within the method-established control limit of 80-120%.

VI.3. QUALITY CONTROL SAMPLES

VI.3.1. *METHOD BLANKS*

Method blanks and calibration blanks had no detects.

VI.3.2. *LABORATORY CONTROL SAMPLES*

Recoveries were within the method QC limits of 85-115%.

VI.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analyses were not performed on the sample from this SDG.

VI.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

Matrix spike/matrix spike duplicate analyses were performed on the sample in this SDG. Recoveries and the RPD were within method control limits of 80-120% and ≤15%, respectively, with the exception of the MSD recovery (122%). The sample result was a nondetect and was not qualified.

VI.4. SAMPLE RESULT VERIFICATION

Calculations were verified and the sample result reported on the sample results summary was verified against the raw data. No transcription errors or calculation errors were noted. Reported nondetects are valid to the MDL.

VI.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

VI.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

VI.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

VII. VARIOUS METHODS — GENERAL CHEMISTRY

Marcia Hilchey of MEC^X reviewed the SDG on January 24, 2017

The sample listed in Table 1 for these analyses was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Methods 300.0, Standard Methods for the Examination of Water and Wastewater 2540C and 4500-CN-E,* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

VII.1. HOLDING TIMES

The holding times as listed below were met:

- 48 hours for combined nitrate as nitrogen and nitrite as nitrogen
- 7 days for total dissolved solids (TDS)
- 14 days for total cyanide
- 28 days for chloride and sulfate

VII.2. CALIBRATION

Calibration criteria were met. The initial calibration r^2 values were ≥0.995 and all initial and continuing calibration recoveries were within 90-110%. Analytical balance calibration logs were provided by the laboratory.

VII.3. QUALITY CONTROL SAMPLES

VII.3.1. *METHOD BLANKS*

The method blanks and calibration blanks had no detects.

VII.3.2. *LABORATORY CONTROL SAMPLES*

Laboratory control sample recoveries were within the laboratory control limits.

VII.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analysis was performed on the sample in this SDG for TDS. The RPD met the laboratory control limit of ≤5%.

VII.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the sample in this SDG for anions and total cyanide. Recoveries and RPDs were within the laboratory-established control limits.

VII.4. SAMPLE RESULT VERIFICATION

Calculations were verified and the sample results reported on the sample results summary were verified against the raw data. No transcription errors or calculation errors were noted. Reported nondetects are valid to the MDL.

It should be noted that only Form 1s were provided in the reviewed data package for nitrate/nitrite analysis. The reviewer was not able to determine data quality for this analysis.

VII.5. FIELD QC SAMPLES

MEC^X evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

VII.5.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

VII.5.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

Validated Sample Result Forms 4401710191

Analysis Method E1613B

Sample Name Outfall009_20161225_Comp **Matrix Type:** W **Result Type:** TRG

Sample Date: 12/25/2016 8:50:00 AM **Validation Level:** 8

Lab Sample Name: 440-171019-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	N	39001-02-0	0.000017	0.00010	0.00000024	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	N	3268-87-9	0.00023	0.00010	0.00000034	ug/L	MB		
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	N	67562-39-4	0.0000068	0.000052	0.00000018	ug/L	J,DXMB	U	B
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	N	35822-46-9	0.000021	0.000052	0.00000049	ug/L	J,DXMB	U	B
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	N	55673-89-7	0.00000043	0.000052	0.00000023	ug/L	J,DXMB	U	B
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	N	70648-26-9	0.00000048	0.000052	0.00000018	ug/L	J,DXMB	U	B
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	39227-28-6	0.00000065	0.000052	0.00000013	ug/L	J,DXMB	U	B
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	57117-44-9	0.00000026	0.000052	0.00000017	ug/L	J,DXMBq	U	B
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	N	57653-85-7	0.0000011	0.000052	0.00000013	ug/L	J,DXMB	U	B
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	N	72918-21-9	0.00000017	0.000052	0.00000015	ug/L	J,DXMBq	U	B
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	N	19408-74-3	0.0000011	0.000052	0.00000010	ug/L	J,DXMB	U	B
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-41-6	0.00000015	0.000052	0.00000013	ug/L	J,DXMBq	U	B
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	N	40321-76-4	0.00000033	0.000052	0.00000017	ug/L	J,DXMBq	U	B
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	N	60851-34-5	0.00000032	0.000052	0.00000015	ug/L	J,DXMB	U	B
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	N	57117-31-4	0.00000020	0.000052	0.00000014	ug/L	J,DXMBq	U	B
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	0.000010	0.000010	0.0000011	ug/L	U	U	
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	N	51207-31-9	0.00000059	0.000010	0.00000011	ug/L	J,DXMB	R	D
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	N	1746-01-6	0.000010	0.000010	0.00000016	ug/L	U	U	
Total Heptachlorodibenzofuran (HpCDF)	N	38998-75-3	0.000015	0.000052	0.00000021	ug/L	J,DXMB	J	B, DNQ
Total Heptachlorodibenzo-p-dioxin (HpCDD)	N	37871-00-4	0.000052	0.000052	0.00000049	ug/L	J,DXMB	U	B
Total Hexachlorodibenzofuran (HxCDF)	N	55684-94-1	0.0000052	0.000052	0.00000016	ug/L	J,DXMBq	J	B, DNQ, *III

Analysis Method E1613B

Total Hexachlorodibenzo-p-dioxin (HxCDD), Mixture	N	34465-46-8	0.0000069	0.000052	0.00000012	ug/L	J,DXMBq	J	B, DNQ, *III
Total Pentachlorodibenzofuran (PeCDF)	N	30402-15-4	0.00000057	0.000052	0.00000013	ug/L	J,DXMBq	J	B, DNQ, *III
Total Pentachlorodibenzo-p-dioxin (PeCDD)	N	36088-22-9	0.00000033	0.000052	0.00000017	ug/L	J,DXMBq	J	B, DNQ, *III
Total Tetrachlorodibenzofuran (TCDF)	N	55722-27-5	0.00000094	0.000010	0.00000011	ug/L	J,DXMBq	U	B
Total Tetrachlorodibenzo-p-dioxin (TCDD)	N	41903-57-5	0.000010	0.000010	0.00000016	ug/L	U	U	

Analysis Method E200.7

Sample Name Outfall009_20161225_Comp **Matrix Type:** W **Result Type:** TRG

Sample Date: 12/25/2016 8:50:00 AM **Validation Level:** 8

Lab Sample Name: 440-171019-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Nickel	T	7440-02-0	10	10	5.0	ug/L	U	U	
Silver	T	7440-22-4	10	10	5.0	ug/L	U	U	
Zinc	T	7440-66-6	15	20	10	ug/L	J,DX	J	DNQ

Sample Name Outfall009_20161225_Comp_F **Matrix Type:** W **Result Type:** TRG

Sample Date: 12/25/2016 8:50:00 AM **Validation Level:** 8

Lab Sample Name: 440-171019-2

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Nickel	D	7440-02-0	10	10	5.0	ug/L	UQP	U	
Silver	D	7440-22-4	10	10	5.0	ug/L	UQP	U	
Zinc	D	7440-66-6	20	20	10	ug/L	UQP	U	

Analysis Method E200.8

Sample Name Outfall009_20161225_Comp **Matrix Type:** W **Result Type:** TRG

Sample Date: 12/25/2016 8:50:00 AM **Validation Level:** 8

Lab Sample Name: 440-171019-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.71	2.0	0.50	ug/L	J,DX	J	DNQ
Cadmium	T	7440-43-9	1.0	1.0	0.25	ug/L	U	U	
Copper	T	7440-50-8	6.5	2.0	0.50	ug/L			
Lead	T	7439-92-1	5.2	1.0	0.50	ug/L			
Selenium	T	7782-49-2	2.0	2.0	0.50	ug/L	U	U	
Thallium	T	7440-28-0	1.0	1.0	0.50	ug/L	U	U	

Analysis Method E200.8

Sample Name Outfall009_20161225_Comp_F **Matrix Type:** W **Result Type:** TRG

Sample Date: 12/25/2016 8:50:00 AM **Validation Level:** 8

Lab Sample Name: 440-171019-2

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	D	7440-36-0	0.54	2.0	0.50	ug/L	J,DX	J	DNQ
Cadmium	D	7440-43-9	0.25	1.0	0.25	ug/L	J,DX	J	DNQ
Copper	D	7440-50-8	4.6	2.0	0.50	ug/L			
Lead	D	7439-92-1	1.0	1.0	0.50	ug/L			
Selenium	D	7782-49-2	2.0	2.0	0.50	ug/L	U	U	
Thallium	D	7440-28-0	1.0	1.0	0.50	ug/L	U	U	

Analysis Method E245.1

Sample Name Outfall009_20161225_Comp **Matrix Type:** W **Result Type:** TRG

Sample Date: 12/25/2016 8:50:00 AM **Validation Level:** 8

Lab Sample Name: 440-171019-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.20	0.20	0.10	ug/L	U	U	

Sample Name Outfall009_20161225_Comp_F **Matrix Type:** W **Result Type:** TRG

Sample Date: 12/25/2016 8:50:00 AM **Validation Level:** 8

Lab Sample Name: 440-171019-2

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	D	7439-97-6	0.20	0.20	0.10	ug/L	U	U	

Analysis Method E300

Sample Name Outfall009_20161225_Comp **Matrix Type:** W **Result Type:** TRG

Sample Date: 12/25/2016 8:50:00 AM **Validation Level:** 8

Lab Sample Name: 440-171019-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chloride	N	16887-00-6	4.2	0.50	0.25	mg/L			
Nitrite/Nitrate	N	NO2NO3	0.78	0.15	0.070	mg/L			
Sulfate	N	14808-79-8	5.0	0.50	0.25	mg/L			

Analysis Method E314.0

Sample Name Outfall009_20161225_Comp **Matrix Type:** W **Result Type:** TRG

Sample Date: 12/25/2016 8:50:00 AM **Validation Level:** 8

Lab Sample Name: 440-171019-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Perchlorate	N	14797-73-0	4.0	4.0	0.95	ug/L	U	U	

Analysis Method SM2540C

Sample Name Outfall009_20161225_Comp **Matrix Type:** W **Result Type:** TRG

Sample Date: 12/25/2016 8:50:00 AM **Validation Level:** 8

Lab Sample Name: 440-171019-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Dissolved Solids (TDS)	N	TDS	84	10	5.0	mg/L			

Analysis Method SM4500-CN-E

Sample Name Outfall009_20161225_Comp **Matrix Type:** W **Result Type:** TRG

Sample Date: 12/25/2016 8:50:00 AM **Validation Level:** 8

Lab Sample Name: 440-171019-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cyanide	N	57-12-5	5.0	5.0	2.5	ug/L	U	U	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-171019-1
Client Project/Site: Boeing NPDES SSFL-SemiAnnual Outfall009
Revision: 1

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
2/3/2017 11:55:50 AM

Urvashi Patel, Manager of Project Management
(949)261-1022
urvashi.patel@testamericainc.com

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.

Urvashi Patel
Manager of Project Management
2/3/2017 11:55:50 AM

Table of Contents

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL-SemiAnnual Outfall009

TestAmerica Job ID: 440-171019-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-171019-1	Outfall009_20161225_Comp	Water	12/25/16 08:50	12/25/16 12:10
440-171019-2	Outfall009_20161225_Comp_F	Water	12/25/16 08:50	12/25/16 12:10

Job ID: 440-171019-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-171019-1

Comments
Revised to add Silver by 200.8

Receipt
The samples were received on 12/25/2016 12:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 1.2º C, 1.6º C, 1.7º C and 2.1º C.

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

Dioxin
Method(s) 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 9D2 exceeded this criteria: Outfall009_20161225_Comp (440-171019-1), (CCV 320-146060/2), (CPS 320-146060/1) and (MB 320-144639/1-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.

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

General Chemistry
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.

Client Sample ID: Outfall009_20161225_Comp

Date Collected: 12/25/16 08:50
Date Received: 12/25/16 12:10

Lab Sample ID: 440-171019-1

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**4.2**		0.50	0.25	mg/L			12/28/16 16:18	1
Nitrate as N	**0.78**		0.11	0.055	mg/L			12/26/16 08:05	1
Nitrite as N	ND		0.15	0.070	mg/L			12/26/16 08:05	1
Sulfate	**5.0**		0.50	0.25	mg/L			12/28/16 16:18	1

Method: 314.0 - Perchlorate (IC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			12/28/16 09:53	1

Method: NO3NO2 Calc - Nitrogen, Nitrate-Nitrite

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	**0.78**		0.15	0.070	mg/L			01/04/17 16:36	1

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000016	ug/L		01/03/17 09:04	01/07/17 23:03	1
1,2,3,7,8-PeCDD	**0.00000033**	**J,DX MB q**	0.000052	0.00000017	ug/L		01/03/17 09:04	01/07/17 23:03	1
1,2,3,7,8-PeCDF	**0.00000015**	**J,DX MB q**	0.000052	0.00000013	ug/L		01/03/17 09:04	01/07/17 23:03	1
2,3,4,7,8-PeCDF	**0.00000020**	**J,DX MB q**	0.000052	0.00000014	ug/L		01/03/17 09:04	01/07/17 23:03	1
1,2,3,4,7,8-HxCDD	**0.00000065**	**J,DX MB**	0.000052	0.00000013	ug/L		01/03/17 09:04	01/07/17 23:03	1
1,2,3,6,7,8-HxCDD	**0.0000011**	**J,DX MB**	0.000052	0.00000013	ug/L		01/03/17 09:04	01/07/17 23:03	1
1,2,3,7,8,9-HxCDD	**0.0000011**	**J,DX MB**	0.000052	0.00000010	ug/L		01/03/17 09:04	01/07/17 23:03	1
1,2,3,4,7,8-HxCDF	**0.00000048**	**J,DX MB**	0.000052	0.00000018	ug/L		01/03/17 09:04	01/07/17 23:03	1
1,2,3,6,7,8-HxCDF	**0.00000026**	**J,DX MB q**	0.000052	0.00000017	ug/L		01/03/17 09:04	01/07/17 23:03	1
1,2,3,7,8,9-HxCDF	**0.00000017**	**J,DX MB q**	0.000052	0.00000015	ug/L		01/03/17 09:04	01/07/17 23:03	1
2,3,4,6,7,8-HxCDF	**0.00000032**	**J,DX MB**	0.000052	0.00000015	ug/L		01/03/17 09:04	01/07/17 23:03	1
1,2,3,4,6,7,8-HpCDD	**0.000021**	**J,DX MB**	0.000052	0.00000049	ug/L		01/03/17 09:04	01/07/17 23:03	1
1,2,3,4,6,7,8-HpCDF	**0.0000068**	**J,DX MB**	0.000052	0.00000018	ug/L		01/03/17 09:04	01/07/17 23:03	1
1,2,3,4,7,8,9-HpCDF	**0.00000043**	**J,DX MB**	0.000052	0.00000023	ug/L		01/03/17 09:04	01/07/17 23:03	1
OCDD	**0.00023**	**MB**	0.00010	0.00000034	ug/L		01/03/17 09:04	01/07/17 23:03	1
OCDF	**0.000017**	**J,DX MB**	0.00010	0.00000024	ug/L		01/03/17 09:04	01/07/17 23:03	1
Total TCDD	ND		0.000010	0.00000016	ug/L		01/03/17 09:04	01/07/17 23:03	1
Total TCDF	**0.00000094**	**J,DX MB q**	0.000010	0.00000011	ug/L		01/03/17 09:04	01/07/17 23:03	1
Total PeCDD	**0.00000033**	**J,DX MB q**	0.000052	0.00000017	ug/L		01/03/17 09:04	01/07/17 23:03	1
Total PeCDF	**0.00000057**	**J,DX MB q**	0.000052	0.00000013	ug/L		01/03/17 09:04	01/07/17 23:03	1

Client Sample ID: Outfall009_20161225_Comp
Date Collected: 12/25/16 08:50
Date Received: 12/25/16 12:10

Lab Sample ID: 440-171019-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HxCDD	**0.0000069**	**J,DX MB q**	0.000052	0.00000012	ug/L		01/03/17 09:04	01/07/17 23:03	1
Total HxCDF	**0.0000052**	**J,DX MB q**	0.000052	0.00000016	ug/L		01/03/17 09:04	01/07/17 23:03	1
Total HpCDD	**0.000052**	**J,DX MB**	0.000052	0.00000049	ug/L		01/03/17 09:04	01/07/17 23:03	1
Total HpCDF	**0.000015**	**J,DX MB**	0.000052	0.00000021	ug/L		01/03/17 09:04	01/07/17 23:03	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*67*		*25 - 164*	*01/03/17 09:04*	*01/07/17 23:03*	*1*
13C-2,3,7,8-TCDF	*67*		*24 - 169*	*01/03/17 09:04*	*01/07/17 23:03*	*1*
13C-1,2,3,7,8-PeCDD	*78*		*25 - 181*	*01/03/17 09:04*	*01/07/17 23:03*	*1*
13C-1,2,3,7,8-PeCDF	*74*		*24 - 185*	*01/03/17 09:04*	*01/07/17 23:03*	*1*
13C-2,3,4,7,8-PeCDF	*81*		*21 - 178*	*01/03/17 09:04*	*01/07/17 23:03*	*1*
13C-1,2,3,4,7,8-HxCDD	*81*		*32 - 141*	*01/03/17 09:04*	*01/07/17 23:03*	*1*
13C-1,2,3,6,7,8-HxCDD	*84*		*28 - 130*	*01/03/17 09:04*	*01/07/17 23:03*	*1*
13C-1,2,3,4,7,8-HxCDF	*82*		*26 - 152*	*01/03/17 09:04*	*01/07/17 23:03*	*1*
13C-1,2,3,6,7,8-HxCDF	*80*		*26 - 123*	*01/03/17 09:04*	*01/07/17 23:03*	*1*
13C-1,2,3,7,8,9-HxCDF	*72*		*29 - 147*	*01/03/17 09:04*	*01/07/17 23:03*	*1*
13C-2,3,4,6,7,8-HxCDF	*81*		*28 - 136*	*01/03/17 09:04*	*01/07/17 23:03*	*1*
13C-1,2,3,4,6,7,8-HpCDD	*76*		*23 - 140*	*01/03/17 09:04*	*01/07/17 23:03*	*1*
13C-1,2,3,4,6,7,8-HpCDF	*80*		*28 - 143*	*01/03/17 09:04*	*01/07/17 23:03*	*1*
13C-1,2,3,4,7,8,9-HpCDF	*79*		*26 - 138*	*01/03/17 09:04*	*01/07/17 23:03*	*1*
13C-OCDD	*74*		*17 - 157*	*01/03/17 09:04*	*01/07/17 23:03*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*88*		*35 - 197*	*01/03/17 09:04*	*01/07/17 23:03*	*1*

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF	ND		0.000010	0.0000011	ug/L		01/03/17 09:04	01/12/17 05:22	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDF	*74*		*24 - 169*	*01/03/17 09:04*	*01/12/17 05:22*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
37Cl4-2,3,7,8-TCDD	*87*		*35 - 197*	*01/03/17 09:04*	*01/12/17 05:22*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		10	5.0	ug/L		01/03/17 18:01	01/07/17 13:07	1
Zinc	**15**	**J,DX**	20	10	ug/L		01/03/17 18:01	01/07/17 13:07	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		01/03/17 17:58	01/05/17 11:48	1
Copper	**6.5**		2.0	0.50	ug/L		01/03/17 17:58	01/05/17 11:48	1
Lead	**5.2**		1.0	0.50	ug/L		01/03/17 17:58	01/05/17 11:48	1
Antimony	**0.71**	**J,DX**	2.0	0.50	ug/L		01/03/17 17:58	01/05/17 11:48	1
Selenium	ND		2.0	0.50	ug/L		01/03/17 17:58	01/05/17 11:48	1
Thallium	ND		1.0	0.50	ug/L		01/03/17 17:58	01/05/17 11:48	1
Silver	ND		1.0	0.50	ug/L		01/03/17 17:58	01/05/17 11:48	1

Client Sample ID: Outfall009_20161225_Comp
Lab Sample ID: 440-171019-1
Date Collected: 12/25/16 08:50
Matrix: Water
Date Received: 12/25/16 12:10

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		12/27/16 13:25	12/27/16 22:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**84**		10	5.0	mg/L			12/28/16 08:54	1
Cyanide, Total	ND		5.0	2.5	ug/L		12/28/16 16:56	12/29/16 14:47	1

Client Sample ID: Outfall009_20161225_Comp_F
Lab Sample ID: 440-171019-2
Date Collected: 12/25/16 08:50
Matrix: Water
Date Received: 12/25/16 12:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND	QP	10	5.0	ug/L		01/09/17 08:37	01/11/17 21:46	1
Zinc	ND	QP	20	10	ug/L		01/09/17 08:37	01/11/17 21:46	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	**0.25**	**J,DX**	1.0	0.25	ug/L		01/05/17 16:19	01/06/17 13:28	1
Silver	ND	QP	1.0	0.50	ug/L		01/31/17 11:26	02/01/17 11:40	1
Copper	**4.6**		2.0	0.50	ug/L		01/05/17 16:19	01/06/17 13:28	1
Lead	**1.0**		1.0	0.50	ug/L		01/05/17 16:19	01/06/17 13:28	1
Antimony	**0.54**	**J,DX**	2.0	0.50	ug/L		01/05/17 16:19	01/06/17 13:28	1
Selenium	ND		2.0	0.50	ug/L		01/05/17 16:19	01/06/17 13:28	1
Thallium	ND		1.0	0.50	ug/L		01/05/17 16:19	01/06/17 13:28	1

Method: 245.1 - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		01/04/17 18:38	01/05/17 15:30	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL-SemiAnnual Outfall009

TestAmerica Job ID: 440-171019-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL IRV
314.0	Perchlorate (IC)	EPA	TAL IRV
NO3NO2 Calc	Nitrogen, Nitrate-Nitrite	EPA	TAL IRV
1613B	Dioxins and Furans (HRGC/HRMS)	40CFR136A	TAL SAC
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
200.8	Metals (ICP/MS)	EPA	TAL IRV
245.1	Mercury (CVAA)	EPA	TAL IRV
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL IRV
SM 4500 CN E	Cyanide, Total (Low Level)	SM	TAL IRV

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
SM = "Standard Methods For The Examination Of Water And Wastewater",

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022
TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Client Sample ID: Outfall009_20161225_Comp

Lab Sample ID: 440-171019-1

Date Collected: 12/25/16 08:50

Matrix: Water

Date Received: 12/25/16 12:10

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	5 mL	1.0 mL	378563	12/28/16 16:18	NTN	TAL IRV
Total/NA	Analysis	300.0		1			378208	12/26/16 08:05	NN	TAL IRV
Total/NA	Analysis	314.0		1			378542	12/28/16 09:53	CTH	TAL IRV
Total/NA	Analysis	NO3NO2 Calc		1			379867	01/04/17 16:36	NN	TAL IRV
Total/NA	Prep	1613B			954.1 mL	20 uL	144639	01/03/17 09:04	DXD	TAL SAC
Total/NA	Analysis	1613B		1			145703	01/07/17 23:03	ALM	TAL SAC
Total/NA	Prep	1613B	RA		954.1 mL	20 uL	144639	01/03/17 09:04	DXD	TAL SAC
Total/NA	Analysis	1613B	RA	1			146060	01/12/17 05:22	SMA	TAL SAC
Total Recoverable	Prep	200.2			25 mL	25 mL	379589	01/03/17 18:01	Q1N	TAL IRV
Total Recoverable	Analysis	200.7 Rev 4.4		1			380576	01/07/17 13:07	B1H	TAL IRV
Total Recoverable	Prep	200.2			25 mL	25 mL	379588	01/03/17 17:58	Q1N	TAL IRV
Total Recoverable	Analysis	200.8		1			380064	01/05/17 11:48	IH1	TAL IRV
Total/NA	Prep	245.1			20 mL	20 mL	378381	12/27/16 13:25	DB	TAL IRV
Total/NA	Analysis	245.1		1			378488	12/27/16 22:23	DB	TAL IRV
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	378531	12/28/16 08:54	XL	TAL IRV
Total/NA	Prep	Distill/CN			50 mL	50 mL	378690	12/28/16 16:56	SN	TAL IRV
Total/NA	Analysis	SM 4500 CN E		1			378936	12/29/16 14:47	SN	TAL IRV

Client Sample ID: Outfall009_20161225_Comp_F

Lab Sample ID: 440-171019-2

Date Collected: 12/25/16 08:50

Matrix: Water

Date Received: 12/25/16 12:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			200 mL	200 mL	379729	01/04/17 10:41	Q1N	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	380661	01/09/17 08:37	Q1N	TAL IRV
Dissolved	Analysis	200.7 Rev 4.4		1			381374	01/11/17 21:46	EN	TAL IRV
Dissolved	Filtration	FILTRATION			200 mL	200 mL	379729	01/04/17 10:41	Q1N	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	380130	01/05/17 16:19	Q1N	TAL IRV
Dissolved	Analysis	200.8		1			380381	01/06/17 13:28	IH1	TAL IRV
Dissolved	Filtration	FILTRATION			200 mL	200 mL	385307	01/30/17 16:59	ZEM	TAL IRV
Dissolved	Prep	200.2			25 mL	25 mL	385470	01/31/17 11:26	Q1N	TAL IRV
Dissolved	Analysis	200.8		1			385812	02/01/17 11:40	IH1	TAL IRV
Dissolved	Filtration	FILTRATION			200 mL	200 mL	379729	01/04/17 10:41	Q1N	TAL IRV
Dissolved	Prep	245.1			20 mL	20 mL	379901	01/04/17 18:38	DB	TAL IRV
Dissolved	Analysis	245.1		1			380149	01/05/17 15:30	DB	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

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

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 440-378208/3
Matrix: Water
Analysis Batch: 378208

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.11	0.055	mg/L			12/26/16 07:54	1
Nitrite as N	ND		0.15	0.070	mg/L			12/26/16 07:54	1

Lab Sample ID: LCS 440-378208/2
Matrix: Water
Analysis Batch: 378208

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	1.13	1.07		mg/L		94	90 - 110
Nitrite as N	1.52	1.59		mg/L		104	90 - 110

Lab Sample ID: 440-171019-1 MS
Matrix: Water
Analysis Batch: 378208

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.78		1.13	1.97		mg/L		106	80 - 120
Nitrite as N	ND		1.52	1.68		mg/L		111	80 - 120

Lab Sample ID: 440-171019-1 MSD
Matrix: Water
Analysis Batch: 378208

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.78		1.13	2.01		mg/L		109	80 - 120	2	20
Nitrite as N	ND		1.52	1.73		mg/L		114	80 - 120	3	20

Lab Sample ID: MB 440-378563/4
Matrix: Water
Analysis Batch: 378563

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.25	mg/L			12/28/16 11:11	1
Sulfate	ND		0.50	0.25	mg/L			12/28/16 11:11	1

Lab Sample ID: LCS 440-378563/6
Matrix: Water
Analysis Batch: 378563

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.00	4.98		mg/L		100	90 - 110
Sulfate	5.00	5.16		mg/L		103	90 - 110

Lab Sample ID: 440-171019-1 MS
Matrix: Water
Analysis Batch: 378563

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	4.2		5.00	9.21		mg/L		100	80 - 120

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 440-171019-1 MS
Matrix: Water
Analysis Batch: 378563

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	5.0		5.00	10.2		mg/L		104	80 - 120

Lab Sample ID: 440-171019-1 MSD
Matrix: Water
Analysis Batch: 378563

Client Sample ID: Outfall009_20161225_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	4.2		5.00	9.20		mg/L		100	80 - 120	0	20
Sulfate	5.0		5.00	10.2		mg/L		105	80 - 120	0	20

Method: 314.0 - Perchlorate (IC)

Lab Sample ID: MB 440-378542/3
Matrix: Water
Analysis Batch: 378542

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		4.0	0.95	ug/L			12/28/16 08:54	1

Lab Sample ID: LCS 440-378542/2
Matrix: Water
Analysis Batch: 378542

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	23.6		ug/L		94	85 - 115

Lab Sample ID: MRL 440-378542/5
Matrix: Water
Analysis Batch: 378542

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	4.00	3.45	J,DX	ug/L		86	75 - 125

Lab Sample ID: 440-171019-1 MS
Matrix: Water
Analysis Batch: 378542

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perchlorate	ND		25.0	29.8		ug/L		119	80 - 120

Lab Sample ID: 440-171019-1 MSD
Matrix: Water
Analysis Batch: 378542

Client Sample ID: Outfall009_20161225_Comp
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		25.0	30.5	LM	ug/L		122	80 - 120	2	20

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

Lab Sample ID: MB 320-144639/1-A
Matrix: Water
Analysis Batch: 145703

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 144639

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDD	ND		0.000010	0.00000014	ug/L		01/03/17 09:04	01/07/17 15:22	1
1,2,3,7,8-PeCDD	0.000000848	J,DX	0.000050	0.00000015	ug/L		01/03/17 09:04	01/07/17 15:22	1
1,2,3,7,8-PeCDF	0.000000791	J,DX	0.000050	0.00000014	ug/L		01/03/17 09:04	01/07/17 15:22	1
2,3,4,7,8-PeCDF	0.000000696	J,DX	0.000050	0.00000015	ug/L		01/03/17 09:04	01/07/17 15:22	1
1,2,3,4,7,8-HxCDD	0.000000744	J,DX	0.000050	0.00000011	ug/L		01/03/17 09:04	01/07/17 15:22	1
1,2,3,6,7,8-HxCDD	0.000000896	J,DX q	0.000050	0.00000011	ug/L		01/03/17 09:04	01/07/17 15:22	1
1,2,3,7,8,9-HxCDD	0.000000766	J,DX	0.000050	0.0000000089	ug/L		01/03/17 09:04	01/07/17 15:22	1
1,2,3,4,7,8-HxCDF	0.000000990	J,DX	0.000050	0.00000022	ug/L		01/03/17 09:04	01/07/17 15:22	1
1,2,3,6,7,8-HxCDF	0.000000813	J,DX	0.000050	0.00000022	ug/L		01/03/17 09:04	01/07/17 15:22	1
1,2,3,7,8,9-HxCDF	0.000000920	J,DX	0.000050	0.00000019	ug/L		01/03/17 09:04	01/07/17 15:22	1
2,3,4,6,7,8-HxCDF	0.000000801	J,DX	0.000050	0.00000019	ug/L		01/03/17 09:04	01/07/17 15:22	1
1,2,3,4,6,7,8-HpCDD	0.00000153	J,DX q	0.000050	0.00000011	ug/L		01/03/17 09:04	01/07/17 15:22	1
1,2,3,4,6,7,8-HpCDF	0.00000139	J,DX	0.000050	0.00000012	ug/L		01/03/17 09:04	01/07/17 15:22	1
1,2,3,4,7,8,9-HpCDF	0.000000851	J,DX q	0.000050	0.00000016	ug/L		01/03/17 09:04	01/07/17 15:22	1
OCDD	0.00000635	J,DX	0.00010	0.00000018	ug/L		01/03/17 09:04	01/07/17 15:22	1
OCDF	0.00000357	J,DX	0.00010	0.00000018	ug/L		01/03/17 09:04	01/07/17 15:22	1
Total TCDD	ND		0.000010	0.00000014	ug/L		01/03/17 09:04	01/07/17 15:22	1
Total TCDF	0.000000779	J,DX	0.000010	0.00000012	ug/L		01/03/17 09:04	01/07/17 15:22	1
Total PeCDD	0.000000848	J,DX	0.000050	0.00000015	ug/L		01/03/17 09:04	01/07/17 15:22	1
Total PeCDF	0.00000149	J,DX	0.000050	0.00000014	ug/L		01/03/17 09:04	01/07/17 15:22	1
Total HxCDD	0.00000241	J,DX q	0.000050	0.00000010	ug/L		01/03/17 09:04	01/07/17 15:22	1
Total HxCDF	0.00000352	J,DX	0.000050	0.00000020	ug/L		01/03/17 09:04	01/07/17 15:22	1
Total HpCDD	0.00000266	J,DX q	0.000050	0.00000011	ug/L		01/03/17 09:04	01/07/17 15:22	1
Total HpCDF	0.00000224	J,DX q	0.000050	0.00000014	ug/L		01/03/17 09:04	01/07/17 15:22	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C-2,3,7,8-TCDD	*68*		*25 - 164*	*01/03/17 09:04*	*01/07/17 15:22*	*1*
13C-2,3,7,8-TCDF	*68*		*24 - 169*	*01/03/17 09:04*	*01/07/17 15:22*	*1*
13C-1,2,3,7,8-PeCDD	*74*		*25 - 181*	*01/03/17 09:04*	*01/07/17 15:22*	*1*
13C-1,2,3,7,8-PeCDF	*71*		*24 - 185*	*01/03/17 09:04*	*01/07/17 15:22*	*1*

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

Lab Sample ID: MB 320-144639/1-A
Matrix: Water
Analysis Batch: 145703

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 144639

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,4,7,8-PeCDF	79		21 - 178	01/03/17 09:04	01/07/17 15:22	1
13C-1,2,3,4,7,8-HxCDD	77		32 - 141	01/03/17 09:04	01/07/17 15:22	1
13C-1,2,3,6,7,8-HxCDD	74		28 - 130	01/03/17 09:04	01/07/17 15:22	1
13C-1,2,3,4,7,8-HxCDF	77		26 - 152	01/03/17 09:04	01/07/17 15:22	1
13C-1,2,3,6,7,8-HxCDF	73		26 - 123	01/03/17 09:04	01/07/17 15:22	1
13C-1,2,3,7,8,9-HxCDF	68		29 - 147	01/03/17 09:04	01/07/17 15:22	1
13C-2,3,4,6,7,8-HxCDF	76		28 - 136	01/03/17 09:04	01/07/17 15:22	1
13C-1,2,3,4,6,7,8-HpCDD	68		23 - 140	01/03/17 09:04	01/07/17 15:22	1
13C-1,2,3,4,6,7,8-HpCDF	73		28 - 143	01/03/17 09:04	01/07/17 15:22	1
13C-1,2,3,4,7,8,9-HpCDF	73		26 - 138	01/03/17 09:04	01/07/17 15:22	1
13C-OCDD	65		17 - 157	01/03/17 09:04	01/07/17 15:22	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD	96		35 - 197	01/03/17 09:04	01/07/17 15:22	1

Lab Sample ID: LCS 320-144639/2-A
Matrix: Water
Analysis Batch: 145703

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 144639

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,7,8-TCDD	0.000200	0.000206		ug/L		103	67 - 158
2,3,7,8-TCDF	0.000200	0.000207	MB	ug/L		103	75 - 158
1,2,3,7,8-PeCDD	0.00100	0.00105	MB	ug/L		105	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	0.000992	MB	ug/L		99	68 - 160
1,2,3,4,7,8-HxCDD	0.00100	0.000989	MB	ug/L		99	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	0.000928	MB	ug/L		93	64 - 162
1,2,3,4,7,8-HxCDF	0.00100	0.00101	MB	ug/L		101	72 - 134
1,2,3,6,7,8-HxCDF	0.00100	0.00103	MB	ug/L		103	84 - 130
1,2,3,7,8,9-HxCDF	0.00100	0.00106	MB	ug/L		106	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	0.00101	MB	ug/L		101	70 - 140
1,2,3,4,6,7,8-HpCDF	0.00100	0.000966	MB	ug/L		97	82 - 122
1,2,3,4,7,8,9-HpCDF	0.00100	0.000964	MB	ug/L		96	78 - 138
OCDD	0.00200	0.00182	MB	ug/L		91	78 - 144
OCDF	0.00200	0.00199	MB	ug/L		99	63 - 170

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-2,3,7,8-TCDD	60		20 - 175
13C-2,3,7,8-TCDF	58		22 - 152
13C-1,2,3,7,8-PeCDD	66		21 - 227
13C-1,2,3,7,8-PeCDF	64		21 - 192
13C-2,3,4,7,8-PeCDF	68		13 - 328
13C-1,2,3,4,7,8-HxCDD	68		21 - 193
13C-1,2,3,6,7,8-HxCDD	65		25 - 163
13C-1,2,3,4,7,8-HxCDF	69		19 - 202
13C-1,2,3,6,7,8-HxCDF	66		21 - 159

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

Lab Sample ID: LCS 320-144639/2-A
Matrix: Water
Analysis Batch: 145703

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 144639

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-1,2,3,7,8,9-HxCDF	61		17 - 205
13C-2,3,4,6,7,8-HxCDF	65		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	60		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	67		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	66		20 - 186
13C-OCDD	61		13 - 199

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

Lab Sample ID: LCSD 320-144639/3-A
Matrix: Water
Analysis Batch: 145703

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 144639

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,3,7,8-TCDD			0.000200	0.000211		ug/L		105	67 - 158	2	50
2,3,7,8-TCDF			0.000200	0.000217	MB	ug/L		109	75 - 158	5	50
1,2,3,7,8-PeCDD			0.00100	0.00109	MB	ug/L		109	70 - 142	4	50
1,2,3,7,8-PeCDF			0.00100	0.00106	MB	ug/L		106	80 - 134	2	50
2,3,4,7,8-PeCDF			0.00100	0.00103	MB	ug/L		103	68 - 160	4	50
1,2,3,4,7,8-HxCDD			0.00100	0.00102	MB	ug/L		102	70 - 164	3	50
1,2,3,6,7,8-HxCDD			0.00100	0.00104	MB	ug/L		104	76 - 134	1	50
1,2,3,7,8,9-HxCDD			0.00100	0.000902	MB	ug/L		90	64 - 162	3	50
1,2,3,4,7,8-HxCDF			0.00100	0.00101	MB	ug/L		101	72 - 134	0	50
1,2,3,6,7,8-HxCDF			0.00100	0.00101	MB	ug/L		101	84 - 130	2	50
1,2,3,7,8,9-HxCDF			0.00100	0.00107	MB	ug/L		107	78 - 130	1	50
2,3,4,6,7,8-HxCDF			0.00100	0.00105	MB	ug/L		105	70 - 156	0	50
1,2,3,4,6,7,8-HpCDD			0.00100	0.000995	MB	ug/L		100	70 - 140	2	50
1,2,3,4,6,7,8-HpCDF			0.00100	0.000978	MB	ug/L		98	82 - 122	1	50
1,2,3,4,7,8,9-HpCDF			0.00100	0.000960	MB	ug/L		96	78 - 138	0	50
OCDD			0.00200	0.00184	MB	ug/L		92	78 - 144	1	50
OCDF			0.00200	0.00194	MB	ug/L		97	63 - 170	2	50

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C-2,3,7,8-TCDD	64		20 - 175
13C-2,3,7,8-TCDF	64		22 - 152
13C-1,2,3,7,8-PeCDD	71		21 - 227
13C-1,2,3,7,8-PeCDF	66		21 - 192
13C-2,3,4,7,8-PeCDF	75		13 - 328
13C-1,2,3,4,7,8-HxCDD	72		21 - 193
13C-1,2,3,6,7,8-HxCDD	71		25 - 163
13C-1,2,3,4,7,8-HxCDF	71		19 - 202
13C-1,2,3,6,7,8-HxCDF	68		21 - 159
13C-1,2,3,7,8,9-HxCDF	63		17 - 205
13C-2,3,4,6,7,8-HxCDF	70		22 - 176
13C-1,2,3,4,6,7,8-HpCDD	67		26 - 166
13C-1,2,3,4,6,7,8-HpCDF	71		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	69		20 - 186

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

Lab Sample ID: LCSD 320-144639/3-A
Matrix: Water
Analysis Batch: 145703

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 144639

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C-OCDD	65		13 - 199

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
37Cl4-2,3,7,8-TCDD	95		31 - 191

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

Lab Sample ID: MB 320-144639/1-A
Matrix: Water
Analysis Batch: 146060

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 144639

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
2,3,7,8-TCDF - RA	ND		0.000010	0.0000012	ug/L		01/03/17 09:04	01/12/17 00:19	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-2,3,7,8-TCDF - RA	76		24 - 169	01/03/17 09:04	01/12/17 00:19	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
37Cl4-2,3,7,8-TCDD - RA	99		35 - 197	01/03/17 09:04	01/12/17 00:19	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-379589/1-A
Matrix: Water
Analysis Batch: 380576

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 379589

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		10	5.0	ug/L		01/03/17 18:01	01/07/17 12:24	1
Zinc	ND		20	10	ug/L		01/03/17 18:01	01/07/17 12:24	1

Lab Sample ID: LCS 440-379589/2-A
Matrix: Water
Analysis Batch: 380576

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 379589

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	500	536		ug/L		107	85 - 115
Zinc	500	524		ug/L		105	85 - 115
Silver	250	247		ug/L		99	85 - 115

Lab Sample ID: 440-171019-1 MS
Matrix: Water
Analysis Batch: 380576

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total Recoverable
Prep Batch: 379589

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	ND		500	539		ug/L		108	70 - 130
Zinc	15	J,DX	500	548		ug/L		107	70 - 130
Silver	ND		250	251		ug/L		101	70 - 130

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 440-171019-1 MSD — **Client Sample ID: Outfall009_20161225_Comp**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 380576 — **Prep Batch: 379589**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nickel	ND		500	525		ug/L		105	70 - 130	3	20
Zinc	15	J,DX	500	531		ug/L		103	70 - 130	3	20
Silver	ND		250	247		ug/L		99	70 - 130	2	20

Lab Sample ID: MB 440-379729/1-F — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 381374 — **Prep Batch: 380661**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		10	5.0	ug/L		01/09/17 08:37	01/11/17 21:41	1
Zinc	ND		20	10	ug/L		01/09/17 08:37	01/11/17 21:41	1

Lab Sample ID: LCS 440-379729/2-F — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 381374 — **Prep Batch: 380661**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	500	511		ug/L		102	85 - 115
Zinc	500	469		ug/L		94	85 - 115
Silver	250	248		ug/L		99	85 - 115

Lab Sample ID: 440-171019-2 MS — **Client Sample ID: Outfall009_20161225_Comp_F**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 381374 — **Prep Batch: 380661**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	ND	QP	500	531		ug/L		106	70 - 130
Zinc	ND	QP	500	500		ug/L		100	70 - 130
Silver	ND	QP	250	245		ug/L		98	70 - 130

Lab Sample ID: 440-171019-2 MSD — **Client Sample ID: Outfall009_20161225_Comp_F**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 381374 — **Prep Batch: 380661**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nickel	ND	QP	500	506		ug/L		101	70 - 130	5	20
Zinc	ND	QP	500	482		ug/L		96	70 - 130	4	20
Silver	ND	QP	250	235		ug/L		94	70 - 130	4	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 440-379588/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 380064 — **Prep Batch: 379588**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		01/03/17 17:58	01/05/17 11:05	1
Copper	ND		2.0	0.50	ug/L		01/03/17 17:58	01/05/17 11:05	1
Lead	ND		1.0	0.50	ug/L		01/03/17 17:58	01/05/17 11:05	1

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

Lab Sample ID: MB 440-379588/1-A
Matrix: Water
Analysis Batch: 380064

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 379588

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.0	0.50	ug/L		01/03/17 17:58	01/05/17 11:05	1
Selenium	ND		2.0	0.50	ug/L		01/03/17 17:58	01/05/17 11:05	1
Thallium	ND		1.0	0.50	ug/L		01/03/17 17:58	01/05/17 11:05	1
Silver	ND		1.0	0.50	ug/L		01/03/17 17:58	01/05/17 11:05	1

Lab Sample ID: LCS 440-379588/2-A
Matrix: Water
Analysis Batch: 380064

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 379588

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	80.0	80.8		ug/L		101	85 - 115
Copper	80.0	80.9		ug/L		101	85 - 115
Lead	80.0	80.7		ug/L		101	85 - 115
Antimony	80.0	82.8		ug/L		103	85 - 115
Selenium	80.0	79.4		ug/L		99	85 - 115
Thallium	80.0	81.9		ug/L		102	85 - 115
Silver	80.0	77.7		ug/L		97	85 - 115

Lab Sample ID: 440-171019-1 MS
Matrix: Water
Analysis Batch: 380064

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total Recoverable
Prep Batch: 379588

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		80.0	79.3		ug/L		99	70 - 130
Copper	6.5		80.0	84.0		ug/L		97	70 - 130
Lead	5.2		80.0	85.1		ug/L		100	70 - 130
Antimony	0.71	J,DX	80.0	79.5		ug/L		98	70 - 130
Selenium	ND		80.0	77.9		ug/L		97	70 - 130
Thallium	ND		80.0	81.9		ug/L		102	70 - 130
Silver	ND		80.0	73.6		ug/L		92	70 - 130

Lab Sample ID: 440-171019-1 MSD
Matrix: Water
Analysis Batch: 380064

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total Recoverable
Prep Batch: 379588

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	ND		80.0	81.6		ug/L		102	70 - 130	3	20
Copper	6.5		80.0	86.9		ug/L		101	70 - 130	3	20
Lead	5.2		80.0	87.5		ug/L		103	70 - 130	3	20
Antimony	0.71	J,DX	80.0	81.6		ug/L		101	70 - 130	3	20
Selenium	ND		80.0	78.3		ug/L		98	70 - 130	0	20
Thallium	ND		80.0	84.0		ug/L		105	70 - 130	3	20
Silver	ND		80.0	76.7		ug/L		96	70 - 130	4	20

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

Lab Sample ID: MB 440-380130/1-A
Matrix: Water
Analysis Batch: 380381

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 380130

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.25	ug/L		01/05/17 16:19	01/06/17 12:45	1
Copper	ND		2.0	0.50	ug/L		01/05/17 16:19	01/06/17 12:45	1
Lead	ND		1.0	0.50	ug/L		01/05/17 16:19	01/06/17 12:45	1
Antimony	ND		2.0	0.50	ug/L		01/05/17 16:19	01/06/17 12:45	1
Selenium	ND		2.0	0.50	ug/L		01/05/17 16:19	01/06/17 12:45	1
Thallium	ND		1.0	0.50	ug/L		01/05/17 16:19	01/06/17 12:45	1

Lab Sample ID: LCS 440-380130/2-A
Matrix: Water
Analysis Batch: 380381

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 380130

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	80.0	75.4		ug/L		94	85 - 115
Copper	80.0	73.6		ug/L		92	85 - 115
Lead	80.0	78.8		ug/L		99	85 - 115
Antimony	80.0	76.5		ug/L		96	85 - 115
Selenium	80.0	74.3		ug/L		93	85 - 115
Thallium	80.0	82.9		ug/L		104	85 - 115

Lab Sample ID: 440-171019-2 MS
Matrix: Water
Analysis Batch: 380381

Client Sample ID: Outfall009_20161225_Comp_F
Prep Type: Dissolved
Prep Batch: 380130

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	0.25	J,DX	80.0	74.0		ug/L		92	70 - 130
Copper	4.6		80.0	77.0		ug/L		91	70 - 130
Lead	1.0		80.0	76.2		ug/L		94	70 - 130
Antimony	0.54	J,DX	80.0	76.6		ug/L		95	70 - 130
Selenium	ND		80.0	74.2		ug/L		93	70 - 130
Thallium	ND		80.0	78.3		ug/L		98	70 - 130

Lab Sample ID: 440-171019-2 MSD
Matrix: Water
Analysis Batch: 380381

Client Sample ID: Outfall009_20161225_Comp_F
Prep Type: Dissolved
Prep Batch: 380130

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	0.25	J,DX	80.0	74.8		ug/L		93	70 - 130	1	20
Copper	4.6		80.0	78.7		ug/L		93	70 - 130	2	20
Lead	1.0		80.0	79.1		ug/L		98	70 - 130	4	20
Antimony	0.54	J,DX	80.0	78.0		ug/L		97	70 - 130	2	20
Selenium	ND		80.0	75.5		ug/L		94	70 - 130	2	20
Thallium	ND		80.0	81.4		ug/L		102	70 - 130	4	20

Lab Sample ID: MB 440-385307/1-B
Matrix: Water
Analysis Batch: 385812

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 385470

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.0	0.50	ug/L		01/31/17 11:26	02/01/17 11:21	1

Lab Sample ID: LCS 440-385307/2-B
Matrix: Water
Analysis Batch: 385812

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 385470

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Silver			80.0	70.0		ug/L		87	85 - 115		

Lab Sample ID: 440-171019-2 MS
Matrix: Water
Analysis Batch: 385812

Client Sample ID: Outfall009_20161225_Comp_F
Prep Type: Dissolved
Prep Batch: 385470

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Silver	ND	QP	80.0	75.4		ug/L		94	70 - 130		

Lab Sample ID: 440-171019-2 MSD
Matrix: Water
Analysis Batch: 385812

Client Sample ID: Outfall009_20161225_Comp_F
Prep Type: Dissolved
Prep Batch: 385470

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	ND	QP	80.0	72.5		ug/L		91	70 - 130	4	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 440-378381/1-A
Matrix: Water
Analysis Batch: 378488

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378381

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		12/27/16 13:25	12/27/16 22:16	1

Lab Sample ID: LCS 440-378381/2-A
Matrix: Water
Analysis Batch: 378488

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378381

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			8.00	8.26		ug/L		103	85 - 115		

Lab Sample ID: 440-171019-1 MS
Matrix: Water
Analysis Batch: 378488

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA
Prep Batch: 378381

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	ND		8.00	8.58		ug/L		107	70 - 130		

Lab Sample ID: 440-171019-1 MSD
Matrix: Water
Analysis Batch: 378488

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA
Prep Batch: 378381

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		8.00	8.53		ug/L		107	70 - 130	1	20

Lab Sample ID: MB 440-379729/1-C
Matrix: Water
Analysis Batch: 380149

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 379901

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.10	ug/L		01/04/17 18:38	01/05/17 15:23	1

Lab Sample ID: LCS 440-379729/2-C
Matrix: Water
Analysis Batch: 380149

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 379901

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	8.00	7.50		ug/L		94	85 - 115

Lab Sample ID: 440-171019-2 MS
Matrix: Water
Analysis Batch: 380149

Client Sample ID: Outfall009_20161225_Comp_F
Prep Type: Dissolved
Prep Batch: 379901

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		8.00	7.47		ug/L		93	70 - 130

Lab Sample ID: 440-171019-2 MSD
Matrix: Water
Analysis Batch: 380149

Client Sample ID: Outfall009_20161225_Comp_F
Prep Type: Dissolved
Prep Batch: 379901

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		8.00	7.75		ug/L		97	70 - 130	4	20

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

Lab Sample ID: MB 440-378531/1
Matrix: Water
Analysis Batch: 378531

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	5.0	mg/L			12/28/16 08:54	1

Lab Sample ID: LCS 440-378531/2
Matrix: Water
Analysis Batch: 378531

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	970		mg/L		97	90 - 110

Lab Sample ID: 440-171019-1 DU
Matrix: Water
Analysis Batch: 378531

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	84		86.0		mg/L		2	5

Method: SM 4500 CN E - Cyanide, Total (Low Level)

Lab Sample ID: MB 440-378690/1-A
Matrix: Water
Analysis Batch: 378936

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378690

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		5.0	2.5	ug/L		12/28/16 16:56	12/29/16 14:47	1

Method: SM 4500 CN E - Cyanide, Total (Low Level) (Continued)

Lab Sample ID: LCS 440-378690/2-A
Matrix: Water
Analysis Batch: 378936

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378690

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	100	94.6		ug/L		95	90 - 110

Lab Sample ID: 440-171019-1 MS
Matrix: Water
Analysis Batch: 378936

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA
Prep Batch: 378690

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		100	101		ug/L		101	70 - 115

Lab Sample ID: 440-171019-1 MSD
Matrix: Water
Analysis Batch: 378936

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA
Prep Batch: 378690

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND		100	101		ug/L		101	70 - 115	1	15

HPLC/IC

Analysis Batch: 378208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total/NA	Water	300.0	
MB 440-378208/3	Method Blank	Total/NA	Water	300.0	
LCS 440-378208/2	Lab Control Sample	Total/NA	Water	300.0	
440-171019-1 MS	Outfall009_20161225_Comp	Total/NA	Water	300.0	
440-171019-1 MSD	Outfall009_20161225_Comp	Total/NA	Water	300.0	

Analysis Batch: 378542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total/NA	Water	314.0	
MB 440-378542/3	Method Blank	Total/NA	Water	314.0	
LCS 440-378542/2	Lab Control Sample	Total/NA	Water	314.0	
MRL 440-378542/5	Lab Control Sample	Total/NA	Water	314.0	
440-171019-1 MS	Outfall009_20161225_Comp	Total/NA	Water	314.0	
440-171019-1 MSD	Outfall009_20161225_Comp	Total/NA	Water	314.0	

Analysis Batch: 378563

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total/NA	Water	300.0	
MB 440-378563/4	Method Blank	Total/NA	Water	300.0	
LCS 440-378563/6	Lab Control Sample	Total/NA	Water	300.0	
440-171019-1 MS	Outfall009_20161225_Comp	Total/NA	Water	300.0	
440-171019-1 MSD	Outfall009_20161225_Comp	Total/NA	Water	300.0	

Analysis Batch: 379867

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total/NA	Water	NO3NO2 Calc	

Specialty Organics

Prep Batch: 144639

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total/NA	Water	1613B	
440-171019-1 - RA	Outfall009_20161225_Comp	Total/NA	Water	1613B	
MB 320-144639/1-A	Method Blank	Total/NA	Water	1613B	
MB 320-144639/1-A - RA	Method Blank	Total/NA	Water	1613B	
LCS 320-144639/2-A	Lab Control Sample	Total/NA	Water	1613B	
LCSD 320-144639/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	

Analysis Batch: 145703

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total/NA	Water	1613B	144639
MB 320-144639/1-A	Method Blank	Total/NA	Water	1613B	144639
LCS 320-144639/2-A	Lab Control Sample	Total/NA	Water	1613B	144639
LCSD 320-144639/3-A	Lab Control Sample Dup	Total/NA	Water	1613B	144639

Analysis Batch: 146060

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1 - RA	Outfall009_20161225_Comp	Total/NA	Water	1613B	144639
MB 320-144639/1-A - RA	Method Blank	Total/NA	Water	1613B	144639

Metals

Prep Batch: 378381

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total/NA	Water	245.1	
MB 440-378381/1-A	Method Blank	Total/NA	Water	245.1	
LCS 440-378381/2-A	Lab Control Sample	Total/NA	Water	245.1	
440-171019-1 MS	Outfall009_20161225_Comp	Total/NA	Water	245.1	
440-171019-1 MSD	Outfall009_20161225_Comp	Total/NA	Water	245.1	

Analysis Batch: 378488

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total/NA	Water	245.1	378381
MB 440-378381/1-A	Method Blank	Total/NA	Water	245.1	378381
LCS 440-378381/2-A	Lab Control Sample	Total/NA	Water	245.1	378381
440-171019-1 MS	Outfall009_20161225_Comp	Total/NA	Water	245.1	378381
440-171019-1 MSD	Outfall009_20161225_Comp	Total/NA	Water	245.1	378381

Prep Batch: 379588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total Recoverable	Water	200.2	
MB 440-379588/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-379588/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-171019-1 MS	Outfall009_20161225_Comp	Total Recoverable	Water	200.2	
440-171019-1 MSD	Outfall009_20161225_Comp	Total Recoverable	Water	200.2	

Prep Batch: 379589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total Recoverable	Water	200.2	
MB 440-379589/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-379589/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-171019-1 MS	Outfall009_20161225_Comp	Total Recoverable	Water	200.2	
440-171019-1 MSD	Outfall009_20161225_Comp	Total Recoverable	Water	200.2	

Filtration Batch: 379729

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-2	Outfall009_20161225_Comp_F	Dissolved	Water	FILTRATION	
MB 440-379729/1-C	Method Blank	Dissolved	Water	FILTRATION	
MB 440-379729/1-F	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-379729/2-C	Lab Control Sample	Dissolved	Water	FILTRATION	
LCS 440-379729/2-F	Lab Control Sample	Dissolved	Water	FILTRATION	
440-171019-2 MS	Outfall009_20161225_Comp_F	Dissolved	Water	FILTRATION	
440-171019-2 MSD	Outfall009_20161225_Comp_F	Dissolved	Water	FILTRATION	

Prep Batch: 379901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-2	Outfall009_20161225_Comp_F	Dissolved	Water	245.1	379729
MB 440-379729/1-C	Method Blank	Dissolved	Water	245.1	379729
LCS 440-379729/2-C	Lab Control Sample	Dissolved	Water	245.1	379729
440-171019-2 MS	Outfall009_20161225_Comp_F	Dissolved	Water	245.1	379729
440-171019-2 MSD	Outfall009_20161225_Comp_F	Dissolved	Water	245.1	379729

Analysis Batch: 380064

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total Recoverable	Water	200.8	379588

Metals (Continued)

Analysis Batch: 380064 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 440-379588/1-A	Method Blank	Total Recoverable	Water	200.8	379588
LCS 440-379588/2-A	Lab Control Sample	Total Recoverable	Water	200.8	379588
440-171019-1 MS	Outfall009_20161225_Comp	Total Recoverable	Water	200.8	379588
440-171019-1 MSD	Outfall009_20161225_Comp	Total Recoverable	Water	200.8	379588

Prep Batch: 380130

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-2	Outfall009_20161225_Comp_F	Dissolved	Water	200.2	379729
MB 440-380130/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-380130/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-171019-2 MS	Outfall009_20161225_Comp_F	Dissolved	Water	200.2	379729
440-171019-2 MSD	Outfall009_20161225_Comp_F	Dissolved	Water	200.2	379729

Analysis Batch: 380149

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-2	Outfall009_20161225_Comp_F	Dissolved	Water	245.1	379901
MB 440-379729/1-C	Method Blank	Dissolved	Water	245.1	379901
LCS 440-379729/2-C	Lab Control Sample	Dissolved	Water	245.1	379901
440-171019-2 MS	Outfall009_20161225_Comp_F	Dissolved	Water	245.1	379901
440-171019-2 MSD	Outfall009_20161225_Comp_F	Dissolved	Water	245.1	379901

Analysis Batch: 380381

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-2	Outfall009_20161225_Comp_F	Dissolved	Water	200.8	380130
MB 440-380130/1-A	Method Blank	Total Recoverable	Water	200.8	380130
LCS 440-380130/2-A	Lab Control Sample	Total Recoverable	Water	200.8	380130
440-171019-2 MS	Outfall009_20161225_Comp_F	Dissolved	Water	200.8	380130
440-171019-2 MSD	Outfall009_20161225_Comp_F	Dissolved	Water	200.8	380130

Analysis Batch: 380576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total Recoverable	Water	200.7 Rev 4.4	379589
MB 440-379589/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	379589
LCS 440-379589/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	379589
440-171019-1 MS	Outfall009_20161225_Comp	Total Recoverable	Water	200.7 Rev 4.4	379589
440-171019-1 MSD	Outfall009_20161225_Comp	Total Recoverable	Water	200.7 Rev 4.4	379589

Prep Batch: 380661

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-2	Outfall009_20161225_Comp_F	Dissolved	Water	200.2	379729
MB 440-379729/1-F	Method Blank	Dissolved	Water	200.2	379729
LCS 440-379729/2-F	Lab Control Sample	Dissolved	Water	200.2	379729
440-171019-2 MS	Outfall009_20161225_Comp_F	Dissolved	Water	200.2	379729
440-171019-2 MSD	Outfall009_20161225_Comp_F	Dissolved	Water	200.2	379729

Analysis Batch: 381374

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-2	Outfall009_20161225_Comp_F	Dissolved	Water	200.7 Rev 4.4	380661
MB 440-379729/1-F	Method Blank	Dissolved	Water	200.7 Rev 4.4	380661
LCS 440-379729/2-F	Lab Control Sample	Dissolved	Water	200.7 Rev 4.4	380661
440-171019-2 MS	Outfall009_20161225_Comp_F	Dissolved	Water	200.7 Rev 4.4	380661

Metals (Continued)

Analysis Batch: 381374 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-2 MSD	Outfall009_20161225_Comp_F	Dissolved	Water	200.7 Rev 4.4	380661

Filtration Batch: 385307

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-2	Outfall009_20161225_Comp_F	Dissolved	Water	FILTRATION	
MB 440-385307/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 440-385307/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
440-171019-2 MS	Outfall009_20161225_Comp_F	Dissolved	Water	FILTRATION	
440-171019-2 MSD	Outfall009_20161225_Comp_F	Dissolved	Water	FILTRATION	

Prep Batch: 385470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-2	Outfall009_20161225_Comp_F	Dissolved	Water	200.2	385307
MB 440-385307/1-B	Method Blank	Dissolved	Water	200.2	385307
LCS 440-385307/2-B	Lab Control Sample	Dissolved	Water	200.2	385307
440-171019-2 MS	Outfall009_20161225_Comp_F	Dissolved	Water	200.2	385307
440-171019-2 MSD	Outfall009_20161225_Comp_F	Dissolved	Water	200.2	385307

Analysis Batch: 385812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-2	Outfall009_20161225_Comp_F	Dissolved	Water	200.8	385470
MB 440-385307/1-B	Method Blank	Dissolved	Water	200.8	385470
LCS 440-385307/2-B	Lab Control Sample	Dissolved	Water	200.8	385470
440-171019-2 MS	Outfall009_20161225_Comp_F	Dissolved	Water	200.8	385470
440-171019-2 MSD	Outfall009_20161225_Comp_F	Dissolved	Water	200.8	385470

General Chemistry

Analysis Batch: 378531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total/NA	Water	SM 2540C	
MB 440-378531/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 440-378531/2	Lab Control Sample	Total/NA	Water	SM 2540C	
440-171019-1 DU	Outfall009_20161225_Comp	Total/NA	Water	SM 2540C	

Prep Batch: 378690

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total/NA	Water	Distill/CN	
MB 440-378690/1-A	Method Blank	Total/NA	Water	Distill/CN	
LCS 440-378690/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
440-171019-1 MS	Outfall009_20161225_Comp	Total/NA	Water	Distill/CN	
440-171019-1 MSD	Outfall009_20161225_Comp	Total/NA	Water	Distill/CN	

Analysis Batch: 378936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total/NA	Water	SM 4500 CN E	378690
MB 440-378690/1-A	Method Blank	Total/NA	Water	SM 4500 CN E	378690
LCS 440-378690/2-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	378690
440-171019-1 MS	Outfall009_20161225_Comp	Total/NA	Water	SM 4500 CN E	378690
440-171019-1 MSD	Outfall009_20161225_Comp	Total/NA	Water	SM 4500 CN E	378690

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL

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.

Metals

Qualifier	Qualifier Description
J,DX	Estimated value; value < lowest standard (MQL), but >than MDL
QP	Holding time Immediate. Analyzed as close to receipt as possible

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
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
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)

Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL-SemiAnnual Outfall009

TestAmerica Job ID: 440-171019-1

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-17
Arizona	State Program	9	AZ0671	10-14-17
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 16-001r	01-23-17 *
Hawaii	State Program	9	N/A	01-29-17 *
Kansas	NELAP Secondary AB	7	E-10420	07-31-17
Nevada	State Program	9	CA015312016-2	07-31-17
New Mexico	State Program	6	N/A	01-29-17 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-17 *
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-17

Laboratory: TestAmerica Sacramento

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-055	12-18-17
Arizona	State Program	9	AZ0708	08-11-17
Arkansas DEQ	State Program	6	88-0691	06-17-17
California	State Program	9	2897	01-31-18
Colorado	State Program	8	CA00044	08-31-17
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-17
Hawaii	State Program	9	N/A	01-31-17 *
Illinois	NELAP	5	200060	03-17-17
Kansas	NELAP	7	E-10375	10-31-17
L-A-B	DoD ELAP		L2468	01-20-18
Louisiana	NELAP	6	30612	06-30-17
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-17
New Jersey	NELAP	2	CA005	06-30-17
New York	NELAP	2	11666	04-01-17
Oregon	NELAP	10	4040	01-28-18
Pennsylvania	NELAP	3	68-01272	03-31-17
Texas	NELAP	6	T104704399	07-31-17
US Fish & Wildlife	Federal		LE148388-0	10-31-17
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-17
Virginia	NELAP	3	460278	03-14-17
Washington	State Program	10	C581	05-05-17
West Virginia (DW)	State Program	3	9930C	12-31-17
Wyoming	State Program	8	8TMS-L	01-29-17 *

* Certification renewal pending - certification considered valid.

CHAIN OF CUSTODY FORM

Client Name/Address:	Project:	R	R	S/R	R	R	R	R	R	R	R	R	R	ANALYSIS REQUIRED
Haley & Aldrich, Inc. 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing SSFL NPDES Permit 2016 Semiannual Outfall [003-007, 009, 010] Outfall 009 Comp	Total Recoverable Metals: Cu, Pb, Hg, Ni, Ag, Sb, Tl, Cd, Se, Zn	TCDD (and all congeners)	Cl, SO_4, NO_3+NO_2-N, Perchlorate	TDS	Total Dissolved Metals: Cu, Pb, Hg, Ni, Ag, Sb, Tl, Cd, Se, Zn	Gross Alpha(900.0), Gross Beta(900.0), Tritium (H-3) (906.0), Sr-90 (905.0), Total Combined Radium 226 (903.0 or 903.1) & Radium 228 (904.0), Uranium (908.0), K-40, CS-137 (901.0 or 901.1)	Cyanide	Chronic Toxicity - Selenastrum	Total Recoverable Metals: Mercury (245.1)	Total Dissolved Metals: Mercury (245.1)			Comments
Test America Contact: Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055	Project Manager: Nancy Gardiner 619.285.7112, 858.337.4061(cell)													
Sampler: Dan Smith / Greg Wagner	Field Manager: Mark Dominick 818.350.7312, 818.599.0702 (cell)													

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD
Outfall 009	Outfall009_20161225_Comp	12/25/2016 0850	WA	~~500 mL Poly~~ 1 L Poly	3	HNO_3	95	Yes
			WA	1 L Glass Amber	2	None	110	No
			WA	500 mL Poly	6	None	140	Yes
			WA	500 mL Poly	1	None	155	No
			WA	500 mL Poly	3	NaOH	220	Yes
			WA	2.5 Gal Cube	3	None	225	Yes
			WA	1 L Glass Amber	3	None	230	Yes
			~~WA~~	~~1 Gal Cube~~	~~6~~	~~None~~	~~235~~	~~No~~
			WA	borosilicate vials	3	HNO_3	315	Yes
	Outfall009_20161225_Comp_F	12/25/2016 0850	WA	1 L Poly	3	None	205	Yes
			WA	borosilicate vials	3	None	320	Yes
	Outfall009_20161225_Comp_Extra	12/25/2016 0850	WA	1 L Glass Amber	2	None	110	No
			WA	500 mL Poly	2	None	145	No

Comments
48 hours Holding Time NO3 & NO2
Unfiltered and unpreserved analysis. Separate RAD onto another workorder
~~Only test if first or second rain events of the year~~
Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.
Filter and preserve w/in 24hrs of receipt at lab
Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures. X
Hold
Hold

OC 12/27/16 11:45

COC Page 2 of 2 list Composite Samples for Outfall 009 for this storm event.

These must be added to the same work order for COC Page 1 of 3 for Outfall 009 for the storm event.

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
	12/25/16 1040			12/25/16 1040
Relinquished By	Date/Time:	Company:	Received By	Date/Time:
	12/25/16	1210		12/25/16 1910
Relinquished By	Date/Time:	Company:	Received By	Date/Time:

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

Sample Integrity: (Check)
Intact: _____ On Ice: _____

Data Requirements: (Check)
No Level IV: _____ All Level IV: _____

1.7/1.2 2.6/2.1 IB77
2.1/1.6 2.2/1.7

440-171019 Chain of Custody

TestAmerica Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone (949) 261-1022 Fax (949) 260-3297

Chain of Custody Record

440-171019 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Patel, Urvashi		COC No: 440-105879.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: urvashi.patel@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 440-171019-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 1/23/2017			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
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	Z - other (specify)

Other:

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)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta	901.1_Cs/Fill_Geo_0 K-40 and Cesium-137	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	905_Sr-90/PrecSep_7 Strontium-90	906.0/LSC_Dist_Susp Tritium	A01R_U/ExtChrom_Actin Total Uranium	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
Outfall 009_20161225_Comp (440-171019-1)	12/25/16	08:50 Pacific		Water			X	X	X	X	X	X	X	1	Boeing SSFL; DO NOT FILTER; use prep date from preservation
Outfall 009_20161225_Comp (440-171019-1MS)	12/25/16	08:50 Pacific	MS	Water			X	X	X	X	X	X	X	1	Boeing SSFL; DO NOT FILTER; use prep date from preservation
Outfall 009_20161225_Comp (440-171019-1MSD)	12/25/16	08:50 Pacific	MSD	Water			X	X	X	X	X	X	X	1	Boeing SSFL; DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *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:	Time:	Method of Shipment:

Relinquished by:	Date/Time: DEC 27 2016	Company	Received by: Kristen Taylor	Date/Time: 12-28-16 1000	Company TAS-IRV
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

TestAmerica Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone (949) 261-1022 Fax (949) 260-3297

Chain of Custody Record

440-171019 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Patel, Urvashi	QC No: 440-105915.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: urvashi.patel@testamericainc.com	State of Origin: California
			Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):	Job #: 440-171019-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 1/23/2017		
City: Earth City	TAT Requested (days):		
State, Zip: MO, 63045			
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:		
Email:	WO #:		
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879		
Site:	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
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	Z - other (specify)

Other:

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)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0/Evaporation Gross Alpha/Beta	901.1_Cs/Fill_Geo_0 K-40 and Cesium-137	903.0/PrecSep_21 Radium-226	904.0/PrecSep_0 Radium-228	905_Sr90/PrecSep_7 Strontium-90	906.0/LSC_Dist_Susp Tritium	A01R_U/ExtChrom_Actin Total Uranium	Total Number of containers	Special Instructions/Note:
			Preservation Code:												
Outfall 009_20161225_Comp (440-171019-1)	12/25/16	08:50 Pacific		Water			X	X	X	X	X	X	X	1	Boeing SSFL; DO NOT FILTER; use prep date from preservation
Outfall 009_20161225_Comp (440-171019-1MS)	12/25/16	08:50 Pacific	MS	Water			X	X	X	X	X	X	X	1	Boeing SSFL; DO NOT FILTER; use prep date from preservation
Outfall 009_20161225_Comp (440-171019-1MSD)	12/25/16	08:50 Pacific	MSD	Water			X	X	X	X	X	X	X	1	Boeing SSFL; DO NOT FILTER; use prep date from preservation

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *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:	Time:	Method of Shipment:			
Relinquished by:	Date/Time: 12/28/16 @ 1700	Company: TAI	Received by: Kristen Taylor	Date/Time: 12-29-16 1000	Company: TASL	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	

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

TestAmerica Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone (949) 261-1022 Fax (949) 260-3297

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Patel, Urvashi	Carrier Tracking No(s):	COC No: 440-105883.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: urvashi.patel@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 440-171019-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 1/13/2017			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
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	Z - other (specify)

Other:

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)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1613B/1613B_Sox_Sep_P Standard List w/ Totals	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Outfall 009_20161225_Comp (440-171019-1)	12/25/16	08:50 Pacific		Water			X	2	See QAS, Boeing_w/u to zero, ug/L; Use Boeing glassware.

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
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:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		DEC 27 2016		Thy G. Tupper	12/28/16 0010	TAS
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.0°C, 1.2°C ice

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-171019-1

Login Number: 171019
List Number: 1
Creator: Escalante, Maria I

List Source: TestAmerica Irvine

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.	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: 440-171019-1

Login Number: 171019
List Number: 3
Creator: Edman, Connor M

List Source: TestAmerica Sacramento
List Creation: 12/28/16 05:31 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.	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	
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	

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL-SemiAnnual Outfall009

TestAmerica Job ID: 440-171019-1

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

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		TCDD	TCDD	TCDF	TCDF	PeCDD	PeCDD	PeCDF1	PeCDF1
Lab Sample ID	Client Sample ID	(20-175)	(25-164)	(22-152)	(24-169)	(21-227)	(25-181)	(21-192)	(24-185)
440-171019-1	Outfall009_20161225_Comp		67		67		78		74
440-171019-1 - RA	Outfall009_20161225_Comp				74				
MB 320-144639/1-A	Method Blank		68		68		74		71
MB 320-144639/1-A - RA	Method Blank				76				

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PeCDF2	PeCDF2	HxCDD1	HxCDD1	HxCDD2	HxCDD2	HxCDF1	HxCDF1
Lab Sample ID	Client Sample ID	(13-328)	(21-178)	(21-193)	(32-141)	(25-163)	(28-130)	(19-202)	(26-152)
440-171019-1	Outfall009_20161225_Comp		81		81		84		82
440-171019-1 - RA	Outfall009_20161225_Comp								
MB 320-144639/1-A	Method Blank		79		77		74		77
MB 320-144639/1-A - RA	Method Blank								

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		HxCDF2	HxCDF2	HxCDF4	HxCDF4	HxCDF3	HxCDF3	HpCDD	HpCDD
Lab Sample ID	Client Sample ID	(21-159)	(26-123)	(17-205)	(29-147)	(22-176)	(28-136)	(23-140)	(26-166)
440-171019-1	Outfall009_20161225_Comp		80		72		81	76	
440-171019-1 - RA	Outfall009_20161225_Comp								
MB 320-144639/1-A	Method Blank		73		68		76	68	
MB 320-144639/1-A - RA	Method Blank								

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		HpCDF1	HpCDF1	HpCDF2	HpCDF2	OCDD	OCDD		
Lab Sample ID	Client Sample ID	(21-158)	(28-143)	(20-186)	(26-138)	(13-199)	(17-157)		
440-171019-1	Outfall009_20161225_Comp		80		79		74		
440-171019-1 - RA	Outfall009_20161225_Comp								
MB 320-144639/1-A	Method Blank		73		73		65		
MB 320-144639/1-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
PeCDF1 = 13C-1,2,3,7,8-PeCDF
PeCDF2 = 13C-2,3,4,7,8-PeCDF
HxCDD1 = 13C-1,2,3,4,7,8-HxCDD
HxCDD2 = 13C-1,2,3,6,7,8-HxCDD
HxCDF1 = 13C-1,2,3,4,7,8-HxCDF
HxCDF2 = 13C-1,2,3,6,7,8-HxCDF
HxCDF4 = 13C-1,2,3,7,8,9-HxCDF
HxCDF3 = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF1 = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

Isotope Dilution Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL-SemiAnnual Outfall009

TestAmerica Job ID: 440-171019-1

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)	PeCDF1 (21-192)	PeCDF2 (13-328)	HxCDD1 (21-193)	HxCDD2 (25-163)	HxCDF1 (19-202)
LCS 320-144639/2-A	Lab Control Sample	60	58	66	64	68	68	65	69
LCSD 320-144639/3-A	Lab Control Sample Dup	64	64	71	66	75	72	71	71

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	HxCDF2 (21-159)	HxCDF4 (17-205)	HxCDF3 (22-176)	HpCDD (26-166)	HpCDF1 (21-158)	HpCDF2 (20-186)	OCDD (13-199)	
LCS 320-144639/2-A	Lab Control Sample	66	61	65	60	67	66	61	
LCSD 320-144639/3-A	Lab Control Sample Dup	68	63	70	67	71	69	65	

Surrogate Legend

TCDD = 13C-2,3,7,8-TCDD
TCDF = 13C-2,3,7,8-TCDF
PeCDD = 13C-1,2,3,7,8-PeCDD
PeCDF1 = 13C-1,2,3,7,8-PeCDF
PeCDF2 = 13C-2,3,4,7,8-PeCDF
HxCDD1 = 13C-1,2,3,4,7,8-HxCDD
HxCDD2 = 13C-1,2,3,6,7,8-HxCDD
HxCDF1 = 13C-1,2,3,4,7,8-HxCDF
HxCDF2 = 13C-1,2,3,6,7,8-HxCDF
HxCDF4 = 13C-1,2,3,7,8,9-HxCDF
HxCDF3 = 13C-2,3,4,6,7,8-HxCDF
HpCDD = 13C-1,2,3,4,6,7,8-HpCDD
HpCDF1 = 13C-1,2,3,4,6,7,8-HpCDF
HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
OCDD = 13C-OCDD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-171019-2
Client Project/Site: Boeing NPDES SSFL outfalls

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
1/30/2017 2:58:46 PM

Urvashi Patel, Manager of Project Management
(949)261-1022
urvashi.patel@testamericainc.com

LINKS

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I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.

Urvashi Patel
Manager of Project Management
1/30/2017 2:58:46 PM

Table of Contents

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL outfalls

TestAmerica Job ID: 440-171019-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-171019-1	Outfall009_20161225_Comp	Water	12/25/16 08:50	12/25/16 12:10

Job ID: 440-171019-2

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-171019-2

Comments
No additional comments.

Receipt
The samples were received on 12/25/2016 12:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 1.2º C, 1.6º C, 1.7º C and 2.1º C.

RAD
Method(s) 903.0, 9315: Radium-226 Prep Batch 160-285914:
The matrix spike duplicate (MSD) recoveries for radium-226 are outside the upper control limits of 138% (440-171019-B-1-C MSD: 143%; 490-119070-F-3-B MSD: 142%). Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits. The data have been qualified and reported. Outfall009_20161225_Comp (440-171019-1), Outfall009_20161225_Comp (440-171019-1[MS]), Outfall009_20161225_Comp (440-171019-1[MSD]), (LCS 160-285914/2-A), (MB 160-285914/1-A), (490-119070-F-3-A), (490-119070-G-3-A MS) and (490-119070-F-3-B MSD)

Method(s) ExtChrom: Uranium prep batch 160-287931: The following samples are orange in color and contain sediment and precipitate. The samples were weighed at a reduced aliquot to prevent matrix interference during the column chemistry.

Outfall009_20161225_Comp (440-171019-1), Outfall009_20161225_Comp (440-171019-1[MS]) and Outfall009_20161225_Comp (440-171019-1[MSD])

Method(s) PrecSep_0: Radium-228 Prep Batch 160-285926:
The following samples were prepared at a reduced aliquot due to sediment and excessive cloudiness.Outfall009_20161225_Comp (440-171019-1), Outfall009_20161225_Comp (440-171019-1[MS]) and Outfall009_20161225_Comp (440-171019-1[MSD]).

Method(s) PrecSep-21: Radium-226 Prep Batch 160-285914:
The following samples were prepared at a reduced aliquot due to sediment and excessive cloudiness.Outfall009_20161225_Comp (440-171019-1), Outfall009_20161225_Comp (440-171019-1[MS]) and Outfall009_20161225_Comp (440-171019-1[MSD]).

Method(s) PrecSep-7: Strontium-90 Prep Batch 160-286029:
Insufficient sample volume was available to perform a sample duplicate (DUP) for the following samples: Outfall009_20161225_Comp (440-171019-1), Outfall009_20161225_Comp (440-171019-1[MS]) and Outfall009_20161225_Comp (440-171019-1[MSD]). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method(s) PrecSep-7: Strontium-90 Prep Batch 160-286029:
The following samples were prepared at a reduced aliquot due to limited volume: Outfall009_20161225_Comp (440-171019-1), Outfall009_20161225_Comp (440-171019-1[MS]) and Outfall009_20161225_Comp (440-171019-1[MSD]).

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

Client Sample ID: Outfall009_20161225_Comp
Date Collected: 12/25/16 08:50
Date Received: 12/25/16 12:10

Lab Sample ID: 440-171019-1
Matrix: Water

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	**1.66**		0.902	0.921	3.00	1.20	pCi/L	01/18/17 09:28	01/24/17 07:03	1
Gross Beta	**2.79**		0.829	0.874	4.00	1.07	pCi/L	01/18/17 09:28	01/24/17 07:03	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-5.88	U	11.0	11.0	20.0	18.4	pCi/L	12/30/16 13:18	12/30/16 14:03	1
Potassium-40	-115	U	175	176		231	pCi/L	12/30/16 13:18	12/30/16 14:03	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.150	U	0.429	0.430	1.00	0.818	pCi/L	12/30/16 12:36	01/27/17 16:20	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.1*		*40 - 110*	*12/30/16 12:36*	*01/27/17 16:20*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**1.38**		0.630	0.643	1.00	0.899	pCi/L	12/30/16 13:16	01/27/17 13:18	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*72.1*		*40 - 110*	*12/30/16 13:16*	*01/27/17 13:18*	*1*
Y Carrier	*84.5*		*40 - 110*	*12/30/16 13:16*	*01/27/17 13:18*	*1*

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.455	U	0.350	0.352	3.00	0.551	pCi/L	01/03/17 13:58	01/16/17 14:37	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*82.0*		*40 - 110*	*01/03/17 13:58*	*01/16/17 14:37*	*1*
Y Carrier	*86.7*		*40 - 110*	*01/03/17 13:58*	*01/16/17 14:37*	*1*

Method: 906.0 - Tritium, Total (LSC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-143	U	191	191	500	363	pCi/L	01/24/17 13:35	01/24/17 18:16	1

Client Sample ID: Outfall009_20161225_Comp
Date Collected: 12/25/16 08:50
Date Received: 12/25/16 12:10

Lab Sample ID: 440-171019-1
Matrix: Water

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.284	U	0.292	0.293	1.00	0.375	pCi/L	01/17/17 07:57	01/26/17 12:46	1

Tracer	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*88.5*		*30 - 110*	*01/17/17 07:57*	*01/26/17 12:46*	*1*

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL outfalls

TestAmerica Job ID: 440-171019-2

Method	Method Description	Protocol	Laboratory
900.0	Gross Alpha and Gross Beta Radioactivity	EPA	TAL SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Radium-226 (GFPC)	EPA	TAL SL
904.0	Radium-228 (GFPC)	EPA	TAL SL
905	Strontium-90 (GFPC)	EPA	TAL SL
906.0	Tritium, Total (LSC)	EPA	TAL SL
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL

Protocol References:

DOE = U.S. Department of Energy

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL outfalls

TestAmerica Job ID: 440-171019-2

Client Sample ID: Outfall009_20161225_Comp

Date Collected: 12/25/16 08:50
Date Received: 12/25/16 12:10

Lab Sample ID: 440-171019-1

Matrix: Water

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	288150	01/18/17 09:28	MRB	TAL SL
Total/NA	Analysis	900.0		1			289072	01/24/17 07:03	RTM	TAL SL
Total/NA	Prep	Fill_Geo-0			1000 mL	1.0 g	285927	12/30/16 13:18	R1S	TAL SL
Total/NA	Analysis	901.1		1			285946	12/30/16 14:03	RTM	TAL SL
Total/NA	Prep	PrecSep-21			500.33 mL	1.0 g	285914	12/30/16 12:36	AS	TAL SL
Total/NA	Analysis	903.0		1			289539	01/27/17 16:20	ALD	TAL SL
Total/NA	Prep	PrecSep_0			500.33 mL	1.0 g	285926	12/30/16 13:16	AS	TAL SL
Total/NA	Analysis	904.0		1			289503	01/27/17 13:18	KLS	TAL SL
Total/NA	Prep	PrecSep-7			500.03 mL	1.0 g	286029	01/03/17 13:58	AS	TAL SL
Total/NA	Analysis	905		1			287881	01/16/17 14:37	ALD	TAL SL
Total/NA	Prep	LSC_Dist_Susp			100.2 mL	1.0 g	289070	01/24/17 13:35	JDL	TAL SL
Total/NA	Analysis	906.0		1			289152	01/24/17 18:16	ALD	TAL SL
Total/NA	Prep	ExtChrom			100.18 mL	1.0 mL	287931	01/17/17 07:57	SCB	TAL SL
Total/NA	Analysis	A-01-R		1			289414	01/26/17 12:46	ALD	TAL SL

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity

Lab Sample ID: MB 160-288150/1-A
Matrix: Water
Analysis Batch: 289072

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 288150

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Gross Alpha	-0.09246	U	0.519	0.519	3.00	1.04	pCi/L	01/18/17 09:28	01/24/17 07:03	1
Gross Beta	0.2178	U	0.590	0.590	4.00	1.02	pCi/L	01/18/17 09:28	01/24/17 07:03	1

Lab Sample ID: LCS 160-288150/2-A
Matrix: Water
Analysis Batch: 289072

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 288150

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Gross Alpha			49.9	44.67		6.55	3.00	1.85	pCi/L	90	73 - 133		

Lab Sample ID: LCSB 160-288150/3-A
Matrix: Water
Analysis Batch: 289072

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 288150

Analyte			Spike Added	LCSB Result	LCSB Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Gross Beta			91.3	90.84		9.62	4.00	0.987	pCi/L	100	75 - 125		

Lab Sample ID: 440-171019-1 MS
Matrix: Water
Analysis Batch: 289072

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA
Prep Batch: 288150

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Gross Alpha	1.66		49.9	43.17		6.04	3.00	1.44	pCi/L	83	60 - 140		

Lab Sample ID: 440-171019-1 MSBT
Matrix: Water
Analysis Batch: 289036

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA
Prep Batch: 288150

Analyte	Sample Result	Sample Qual	Spike Added	MSBT Result	MSBT Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Gross Beta	2.79		91.3	88.46		9.36	4.00	0.913	pCi/L	94	60 - 140		

Lab Sample ID: 440-171019-1 MSBTD
Matrix: Water
Analysis Batch: 289036

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA
Prep Batch: 288150

Analyte	Sample Result	Sample Qual	Spike Added	MSBTD Result	MSBTD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Beta	2.79		91.3	90.73		9.58	4.00	0.928	pCi/L	96	60 - 140	0.12	1

Method: 900.0 - Gross Alpha and Gross Beta Radioactivity (Continued)

Lab Sample ID: 440-171019-1 MSD
Matrix: Water
Analysis Batch: 289072

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA
Prep Batch: 288150

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Gross Alpha	1.66		49.9	41.56		5.87	3.00	1.53	pCi/L	80	60 - 140	0.13	1

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-285927/1-A
Matrix: Water
Analysis Batch: 285945

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 285927

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	0.0000	U	2.93	2.93	20.0	19.1	pCi/L	12/30/16 13:18	12/30/16 15:03	1
Potassium-40	13.77	U	97.1	97.1		177	pCi/L	12/30/16 13:18	12/30/16 15:03	1

Lab Sample ID: LCS 160-285927/2-A
Matrix: Water
Analysis Batch: 285886

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 285927

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	136000	133300		15400		435	pCi/L	98	90 - 111
Cesium-137	47200	45800		4590	20.0	130	pCi/L	97	90 - 111
Cobalt-60	40500	38700		3830		101	pCi/L	96	89 - 110

Lab Sample ID: 440-171019-1 DU
Matrix: Water
Analysis Batch: 285947

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA
Prep Batch: 285927

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Cesium-137	-5.88	U	0.8658	U	9.60	20.0	12.2	pCi/L	0.33	1
Potassium-40	-115	U	-28.09	U	139		193	pCi/L	0.28	1

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-285914/1-A
Matrix: Water
Analysis Batch: 289503

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 285914

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.06936	U	0.208	0.208	1.00	0.396	pCi/L	12/30/16 12:36	01/27/17 16:11	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.9*		*40 - 110*	*12/30/16 12:36*	*01/27/17 16:11*	*1*

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCS 160-285914/2-A
Matrix: Water
Analysis Batch: 289504

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 285914

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.1	14.02		1.75	1.00	0.375	pCi/L	126	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*90.6*		*40 - 110*

Lab Sample ID: 440-171019-1 MS
Matrix: Water
Analysis Batch: 289539

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA
Prep Batch: 285914

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	0.150	U	22.2	29.60		3.90	1.00	1.08	pCi/L	133	75 - 138		

Carrier	*MS %Yield*	*MS Qualifier*	*Limits*
Ba Carrier	*66.1*		*40 - 110*

Lab Sample ID: 440-171019-1 MSD
Matrix: Water
Analysis Batch: 289539

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA
Prep Batch: 285914

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.150	U	22.2	31.57	F1	4.12	1.00	1.10	pCi/L	142	75 - 138	0.25	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*64.4*		*40 - 110*

Lab Sample ID: 490-119070-F-3-B MSD
Matrix: Water
Analysis Batch: 289539

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 285914

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.304	U	11.1	15.86	F1	1.95	1.00	0.375	pCi/L	143	75 - 138	0.30	1

Carrier	*MSD %Yield*	*MSD Qualifier*	*Limits*
Ba Carrier	*86.3*		*40 - 110*

Lab Sample ID: 490-119070-G-3-A MS
Matrix: Water
Analysis Batch: 289539

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 285914

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	0.304	U	11.1	14.72		1.90	1.00	0.475	pCi/L	133	75 - 138		

Method: 903.0 - Radium-226 (GFPC) (Continued)

Lab Sample ID: 490-119070-G-3-A MS
Matrix: Water
Analysis Batch: 289539

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 285914

Carrier	MS %Yield	MS Qualifier	Limits
Ba Carrier	73.2		40 - 110

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-285926/1-A
Matrix: Water
Analysis Batch: 289503

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 285926

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2074	U	0.266	0.267	1.00	0.441	pCi/L	12/30/16 13:16	01/27/17 13:17	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	82.9		40 - 110	12/30/16 13:16	01/27/17 13:17	1
Y Carrier	84.5		40 - 110	12/30/16 13:16	01/27/17 13:17	1

Lab Sample ID: LCS 160-285926/2-A
Matrix: Water
Analysis Batch: 289503

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 285926

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			13.9	16.97		1.79	1.00	0.377	pCi/L	122	56 - 140		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	90.6		40 - 110
Y Carrier	86.4		40 - 110

Lab Sample ID: 440-171019-1 MS
Matrix: Water
Analysis Batch: 289503

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA
Prep Batch: 285926

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228	1.38		27.8	35.86		3.96	1.00	1.09	pCi/L	124	45 - 150		

Carrier	MS %Yield	MS Qualifier	Limits
Ba Carrier	66.1		40 - 110
Y Carrier	80.7		40 - 110

Lab Sample ID: 440-171019-1 MSD
Matrix: Water
Analysis Batch: 289503

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA
Prep Batch: 285926

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	1.38		27.8	39.07		4.30	1.00	1.14	pCi/L	135	45 - 150	0.39	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Ba Carrier	64.4		40 - 110
Y Carrier	78.5		40 - 110

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-286029/1-A
Matrix: Water
Analysis Batch: 287881

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 286029

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	1.475	U	1.59	1.60	3.00	2.61	pCi/L	01/03/17 13:58	01/16/17 14:36	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Sr Carrier	85.7		40 - 110	01/03/17 13:58	01/16/17 14:36	1
Y Carrier	98.3		40 - 110	01/03/17 13:58	01/16/17 14:36	1

Lab Sample ID: LCS 160-286029/2-A
Matrix: Water
Analysis Batch: 287881

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 286029

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90			85.2	90.78		9.04	3.00	2.44	pCi/L	107	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Sr Carrier	86.2		40 - 110
Y Carrier	100		40 - 110

Lab Sample ID: 440-171019-1 MS
Matrix: Water
Analysis Batch: 287881

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA
Prep Batch: 286029

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Strontium-90	0.455	U	17.1	16.76		1.70	3.00	0.436	pCi/L	98	19 - 150		

Carrier	MS %Yield	MS Qualifier	Limits
Sr Carrier	83.3		40 - 110
Y Carrier	102		40 - 110

Lab Sample ID: 440-171019-1 MSD
Matrix: Water
Analysis Batch: 287881

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA
Prep Batch: 286029

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Strontium-90	0.455	U	17.1	15.83		1.61	3.00	0.450	pCi/L	93	19 - 150	0.28	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Sr Carrier	82.4		40 - 110
Y Carrier	104		40 - 110

Method: 906.0 - Tritium, Total (LSC)

Lab Sample ID: MB 160-289070/1-A
Matrix: Water
Analysis Batch: 289152

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 289070

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Tritium	-156.3	U	182	182	500	344	pCi/L	01/24/17 13:35	01/24/17 17:35	1

Lab Sample ID: LCS 160-289070/2-A
Matrix: Water
Analysis Batch: 289152

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 289070

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium			2960	2770		441	500	351	pCi/L	94	74 - 114		

Lab Sample ID: 440-171019-1 MS
Matrix: Water
Analysis Batch: 289152

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA
Prep Batch: 289070

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Tritium	-143	U	2960	2716		435	500	348	pCi/L	92	67 - 130		

Lab Sample ID: 440-171019-1 MSD
Matrix: Water
Analysis Batch: 289152

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA
Prep Batch: 289070

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Tritium	-143	U	2960	2635		429	500	352	pCi/L	89	67 - 130	0.09	1

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-287931/1-A
Matrix: Water
Analysis Batch: 289411

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 287931

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Total Uranium	0.5285		0.364	0.367	1.00	0.357	pCi/L	01/17/17 07:57	01/26/17 12:46	1

Tracer	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*89.0*		*30 - 110*	*01/17/17 07:57*	*01/26/17 12:46*	*1*

Lab Sample ID: LCS 160-287931/2-A
Matrix: Water
Analysis Batch: 289413

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 287931

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Uranium-234			63.7	68.19		6.93	1.00	0.168	pCi/L	107	84 - 120		
Uranium-238			65.1	72.91		7.33	1.00	0.366	pCi/L	112	83 - 121		

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Lab Sample ID: LCS 160-287931/2-A
Matrix: Water
Analysis Batch: 289413

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 287931

Tracer	LCS %Yield	LCS Qualifier	Limits
Uranium-232	86.4		30 - 110

Lab Sample ID: 440-171019-1 MS
Matrix: Water
Analysis Batch: 289415

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA
Prep Batch: 287931

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Uranium-234	0.132	U	63.5	63.95		6.60	1.00	0.422	pCi/L	101	65 - 146
Uranium-238	0.0890	U	64.9	67.12		6.86	1.00	0.315	pCi/L	103	68 - 143

Tracer	MS %Yield	MS Qualifier	Limits
Uranium-232	82.0		30 - 110

Lab Sample ID: 440-171019-1 MSD
Matrix: Water
Analysis Batch: 289416

Client Sample ID: Outfall009_20161225_Comp
Prep Type: Total/NA
Prep Batch: 287931

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Uranium-234	0.132	U	63.6	64.22		6.60	1.00	0.415	pCi/L	101	65 - 146	0.02	1
Uranium-238	0.0890	U	65.0	62.64		6.46	1.00	0.168	pCi/L	96	68 - 143	0.34	1

Tracer	MSD %Yield	MSD Qualifier	Limits
Uranium-232	79.7		30 - 110

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Prep Batch: 285914

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total/NA	Water	PrecSep-21	
MB 160-285914/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-285914/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
440-171019-1 MS	Outfall009_20161225_Comp	Total/NA	Water	PrecSep-21	
440-171019-1 MSD	Outfall009_20161225_Comp	Total/NA	Water	PrecSep-21	
490-119070-F-3-B MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	
490-119070-G-3-A MS	Matrix Spike	Total/NA	Water	PrecSep-21	

Prep Batch: 285926

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total/NA	Water	PrecSep_0	
MB 160-285926/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-285926/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
440-171019-1 MS	Outfall009_20161225_Comp	Total/NA	Water	PrecSep_0	
440-171019-1 MSD	Outfall009_20161225_Comp	Total/NA	Water	PrecSep_0	

Prep Batch: 285927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total/NA	Water	Fill_Geo-0	
MB 160-285927/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	
LCS 160-285927/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
440-171019-1 DU	Outfall009_20161225_Comp	Total/NA	Water	Fill_Geo-0	

Prep Batch: 286029

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total/NA	Water	PrecSep-7	
MB 160-286029/1-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-286029/2-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
440-171019-1 MS	Outfall009_20161225_Comp	Total/NA	Water	PrecSep-7	
440-171019-1 MSD	Outfall009_20161225_Comp	Total/NA	Water	PrecSep-7	

Prep Batch: 287931

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total/NA	Water	ExtChrom	
MB 160-287931/1-A	Method Blank	Total/NA	Water	ExtChrom	
LCS 160-287931/2-A	Lab Control Sample	Total/NA	Water	ExtChrom	
440-171019-1 MS	Outfall009_20161225_Comp	Total/NA	Water	ExtChrom	
440-171019-1 MSD	Outfall009_20161225_Comp	Total/NA	Water	ExtChrom	

Prep Batch: 288150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total/NA	Water	Evaporation	
MB 160-288150/1-A	Method Blank	Total/NA	Water	Evaporation	
LCS 160-288150/2-A	Lab Control Sample	Total/NA	Water	Evaporation	
LCSB 160-288150/3-A	Lab Control Sample	Total/NA	Water	Evaporation	
440-171019-1 MS	Outfall009_20161225_Comp	Total/NA	Water	Evaporation	
440-171019-1 MSBT	Outfall009_20161225_Comp	Total/NA	Water	Evaporation	
440-171019-1 MSBTD	Outfall009_20161225_Comp	Total/NA	Water	Evaporation	
440-171019-1 MSD	Outfall009_20161225_Comp	Total/NA	Water	Evaporation	

Rad (Continued)

Prep Batch: 289070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171019-1	Outfall009_20161225_Comp	Total/NA	Water	LSC_Dist_Susp	
MB 160-289070/1-A	Method Blank	Total/NA	Water	LSC_Dist_Susp	
LCS 160-289070/2-A	Lab Control Sample	Total/NA	Water	LSC_Dist_Susp	
440-171019-1 MS	Outfall009_20161225_Comp	Total/NA	Water	LSC_Dist_Susp	
440-171019-1 MSD	Outfall009_20161225_Comp	Total/NA	Water	LSC_Dist_Susp	

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.
F1	MS and/or MSD Recovery is outside acceptance limits.

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
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
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)

Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL outfalls

TestAmerica Job ID: 440-171019-2

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-17
Arizona	State Program	9	AZ0671	10-14-17
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 16-001r	01-23-17 *
Hawaii	State Program	9	N/A	01-29-17 *
Kansas	NELAP Secondary AB	7	E-10420	07-31-17
Nevada	State Program	9	CA015312016-2	07-31-17
New Mexico	State Program	6	N/A	01-29-17 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-17 *
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-17

Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-17
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-17 *
Florida	NELAP	4	E87689	06-30-17
Illinois	NELAP	5	200023	11-30-17
Iowa	State Program	7	373	12-01-16 *
Kansas	NELAP	7	E-10236	10-31-17
Kentucky (DW)	State Program	4	90125	12-31-17
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-17
Louisiana (DW)	NELAP	6	LA170011	12-31-17
Maryland	State Program	3	310	09-30-17
Missouri	State Program	7	780	06-30-17
Nevada	State Program	9	MO000542017-1	07-31-17
New Jersey	NELAP	2	MO002	06-30-17
New York	NELAP	2	11616	03-31-17 *
North Dakota	State Program	8	R207	06-30-17
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-17
Pennsylvania	NELAP	3	68-00540	02-28-17 *
South Carolina	State Program	4	85002001	06-30-17
Texas	NELAP	6	T104704193-16-10	07-31-17
US Fish & Wildlife	Federal		LE058448-0	10-31-17
USDA	Federal		P330-14-0016	01-09-17 *
Utah	NELAP	8	MO000542016-8	07-31-17
Virginia	NELAP	3	460230	06-14-17
Washington	State Program	10	C592	08-30-17
West Virginia DEP	State Program	3	381	08-31-17 *

* Certification renewal pending - certification considered valid.

Test America

CHAIN OF CUSTODY FORM

Client Name/Address:	Project:	Analysis Requested
Haley & Aldrich, Inc. 5333 Mission Center Rd Suite 300 San Diego, CA 92108	Boeing SSFL NPDES Permit 2016 Semiannual Outfall [003-007, 009, 010] Outfall 009 Comp	
Test America Contact: Urvashi Patel 17461 Derian Ave Suite #100 Irvine CA 92614 Tel 949-260-3269 Cell 949-333-9055	Project Manager: Nancy Gardiner 619.285.7112, 858.337.4061(cell)	
Sampler: Dan Smith / Greg Wagner	Field Manager: Mark Dominick 818.350.7312, 818.599.0702 (cell)	

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont	Preservative	Bottle #	MS/MSD	R Total Recoverable Metals: Cu, Pb, Hg, Ni, Ag, Sb, Tl, Cd, Se, Zn	R TCDD (and all congeners)	S/R Cl, SO_4, NO_3+NO_2-N, Perchlorate	R TDS	R Total Dissolved Metals: Cu, Pb, Hg, Ni, Ag, Sb, Tl, Cd, Se, Zn	R Gross Alpha(900.0), Gross Beta(900.0), Tritium (H-3) (906.0), Sr-90 (905.0), Total Combined Radium 226 (903.0 or 903.1) & Radium 228 (904.0), Uranium (908.0), K-40, CS-137 (901.0 or 901.1)	R Cyanide	R Chronic Toxicity - Selenastrum	R Total Recoverable Metals: Mercury (245.1)	R Total Dissolved Metals: Mercury (245.1)	Comments
Outfall 009	Outfall009_20161225_Comp	12/25/2016 0850	WA	~~500 mL Poly~~	3	HNO_3	95	Yes	X										
			WA	1 L Glass Amber	2	None	110	No		X									
			WA	500 mL Poly	6	None	140	Yes			X								48 hours Holding Time NO3 & NO2
			WA	500 mL Poly	1	None	155	No				X							
			WA	500 mL Poly	3	NaOH	220	Yes							X				
			WA	2.5 Gal Cube	3	None	225	Yes						X					Unfiltered and unpreserved analysis. Separate RAD onto another workorder
			WA	1 L Glass Amber	3	None	230	Yes											
			~~WA~~	~~1 Gal Cube~~	~~6~~	~~None~~	~~235~~	~~No~~								X			~~Only test if first or second rain events of the year~~
			WA	borosilicate vials	3	HNO_3	315	Yes									X		Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.
	Outfall 009_20161225_Comp_F	12/25/2016 0850	WA	1 L Poly	3	None	205	Yes					X						Filter and preserve w/in 24hrs of receipt at lab
			WA	borosilicate vials	3	None	320	Yes										X	Sample receiving DO NOT OPEN BAG. Bag to be opened in Mercury Prep using clean procedures.
	Outfall009_20161225_Comp_Extra	12/25/2016 0850	WA	1 L Glass Amber	2	None	110	No		X									Hold
			WA	500 mL Poly	2	None	145	No			X								Hold

COC 12/27/16 11:45

COC Page 2 of 2 list Composite Samples for Outfall 009 for this storm event.

These must be added to the same work order for COC Page 1 of 3 for Outfall 009 for the storm event.

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
	12/25/16	1040		12/25/16 1040
Relinquished By	Date/Time:	Company:	Received By	Date/Time:
	12/25/16	1210		12/25/16 12:10
Relinquished By	Date/Time:	Company:	Received By	Date/Time:

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

Sample Integrity: (Check)
Intact: _____ On Ice: _____

Data Requirements: (Check)
No Level IV: _____ All Level IV: _____

1.7/1.2 2.6/2.1 IB77
2.1/1.6 2.2/1.7

440-171019 Chain of Custody

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-171019-2

Login Number: 171019
List Number: 1
Creator: Escalante, Maria I

List Source: TestAmerica Irvine

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.	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: 440-171019-2

Login Number: 171019
List Number: 2
Creator: Taylor, Kristene N

List Source: TestAmerica St. Louis
List Creation: 12/28/16 01:20 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.	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	1.5
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	
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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL outfalls

TestAmerica Job ID: 440-171019-2

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)
440-171019-1	Outfall009_20161225_Comp	72.1
440-171019-1 MS	Outfall009_20161225_Comp	66.1
440-171019-1 MSD	Outfall009_20161225_Comp	64.4
490-119070-F-3-B MSD	Matrix Spike Duplicate	86.3
490-119070-G-3-A MS	Matrix Spike	73.2
LCS 160-285914/2-A	Lab Control Sample	90.6
MB 160-285914/1-A	Method Blank	82.9

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)
440-171019-1	Outfall009_20161225_Comp	72.1	84.5
440-171019-1 MS	Outfall009_20161225_Comp	66.1	80.7
440-171019-1 MSD	Outfall009_20161225_Comp	64.4	78.5
LCS 160-285926/2-A	Lab Control Sample	90.6	86.4
MB 160-285926/1-A	Method Blank	82.9	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 (C) (40-110)	Y (40-110)
440-171019-1	Outfall009_20161225_Comp	82.0	86.7
440-171019-1 MS	Outfall009_20161225_Comp	83.3	102
440-171019-1 MSD	Outfall009_20161225_Comp	82.4	104
LCS 160-286029/2-A	Lab Control Sample	86.2	100
MB 160-286029/1-A	Method Blank	85.7	98.3

Tracer/Carrier Legend

Sr (C) = 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)
440-171019-1	Outfall009_20161225_Comp	88.5

Tracer/Carrier Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL outfalls

TestAmerica Job ID: 440-171019-2

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry) (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	U-232 (30-110)							
440-171019-1 MS	Outfall009_20161225_Comp	82.0							
440-171019-1 MSD	Outfall009_20161225_Comp	79.7							
LCS 160-287931/2-A	Lab Control Sample	86.4							
MB 160-287931/1-A	Method Blank	89.0							

Tracer/Carrier Legend

U-232 = Uranium-232

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-171028-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

January 20, 2017

TABLE OF CONTENTS

TABLES

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003H.01

Sample Delivery Group: 440-171028-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
Arroyo_Simi_20161224_Grab	440-171028-1	N/A	Water	12/24/2016 12:05:00 PM	525.2, 608, SM2340

II. SAMPLE MANAGEMENT

According to the case narrative, sample condition upon receipt form and the chain-of-custody (COC) provided by the laboratory for sample delivery group (SDG) 440-171028-1:

- The laboratory received the sample in this sample delivery group (SDG) on ice and within the temperature limits of less than 6 degrees Celsius (°C) and greater than 0°C.
- The laboratory received the sample containers intact and properly preserved, as applicable with the exception of the container used for the analysis of diazinon and chlorpyrifos. The laboratory noted that an unperserved container or a container with insufficient preservation was received for the analysis of these analytes. The laboratory preserved the sample to the appropriate pH at the laboratory as a re-extraction. Chlorpyrifos was qualified as an estimated nondetect (UJ), as the sample was not properly preserved upon sampling.
- Field and laboratory personnel signed and dated the COC. There were initials on the cross-outs on the COC but no dates.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

IV. METHOD SM2340B —HARDNESS

Marcia Hilchey of MEC^X reviewed the SDG on January 24, 2017

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Metals (DVP-5, Rev.2), EPA Method SM2430B,* the *National Functional Guidelines for Inorganic Data Review* (2014).

IV.1. HOLDING TIMES

The analytical holding time, six months for the metals used to calculate hardness, was met.

IV.2. TUNING AND CALIBRATION

Instrument tuning is not applicable to this analysis.

Calibration criteria were met. The initial calibration r values were ≥0.995 y-intercepts were below the CRQL, and %Ds were <30%. ICV and CCV recoveries were within NFG control limits of 90-110%.

IV.3. QUALITY CONTROL SAMPLES

IV.3.1. *METHOD BLANKS*

All method blank, initial calibration blank, and bracketing continuing calibration blanks were nondetects.

IV.3.2. *INTERFERENCE CHECK SAMPLES:*

ICSAB recoveries were within 80-120% or ±2x the reporting limit, whichever is greater. All of the interferents were present in the site samples at concentrations less than half that of the ICSA, therefore, the samples were not assessed for matrix interference.

IV.3.3. *LABORATORY CONTROL SAMPLES*

The recoveries for the metals utilized to calculate hardness were within the method control limits of 85-115%.

IV.3.4. *LABORATORY DUPLICATES:*

No laboratory duplicate analyses were performed on the sample in this SDG.

IV.3.5. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were performed on the sample in this SDG. Recoveries and RPDs for the metals utilized to calculate hardness were within the method control limits of 70-130% and ≤20%, respectively.

IV.4. SERIAL DILUTION:

No serial dilution analyses were performed on the sample in this SDG.

IV.5. INTERNAL STANDARDS PERFORMANCE

Internal standard performance is not applicable to this analysis.

IV.6. ANALYTE QUANTIFICATION AND REPORTED DETECTION LIMITS

Calculations were verified and the sample results reported on the sample result summary were verified against the raw data. No transcription errors or calculation errors were noted.

IV.7. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

IV.7.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

IV.7.2. *FIELD DUPLICATES*

There were no field duplicate samples identified for this SDG.

V. METHOD ANALYSES – 608 PESTICIDES AND PCBS

Elizabeth Wessling of MEC^X reviewed the SDG on January 25, 2017

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Organochlorine Pesticides/PCBs by GC (DVP-4, Rev. 1), EPA Method 608*, and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2014).

V.1. HOLDING TIMES

Extraction and analytical holding times were met. The water sample was extracted within seven days of collection. The sample was analyzed within 40 days of extraction.

V.2. CALIBRATION

The initial calibrations had %RSDs of ≤10% or r^2 of ≥0.990 on both analytical columns. ICVs and CCVs associated with the sample analyses had %Ds within the control limit of ≤15%. The breakdown totals for endrin and 4,4'-DDT were ≤15%. PCB calibration was not evaluated as Level IV data was not available.

V.3. QUALITY CONTROL SAMPLES

V.3.1. *METHOD BLANKS*

Target compounds were not detected in method blanks.

V.3.2. *LABORATORY CONTROL SAMPLES*

The recoveries and RPDs were within the laboratory control limits. Chlordane and toxaphene were not spiked in the pesticide LCS. PCB analysis utilized Aroclor 1016 and 1260 for the spiking mixture.

V.3.3. *SURROGATE RECOVERY*

Pesticide surrogate tetrachloro-m-xylene (TCMX) was recovered within the laboratory control limits of 10-150%. PCB surrogate recoveries were within the laboratory limits. No qualifications were required.

V.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

Matrix spike (MS)/MS duplicate (MSD) analyses were not performed on the sample from this SDG due to insufficient sample volume. Accuracy and precision were evaluated based upon LCS/LCSD results.

V.4. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

V.4.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

V.4.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG*.*

V.5. INTERNAL STANDARDS PERFORMANCE

The laboratory utilized an internal standard for the pesticide analysis. Although QC acceptance criteria were not established, the internal standard area count and retention time was reasonable based upon the area count and retention time established by the continuing calibration standard. No qualifications were applied.

V.6. COMPOUND IDENTIFICATION

Compound identification was verified. Review of the sample chromatograms and retention times indicated no problems with target compound identification. The laboratory analyzed for select pesticides and seven Aroclors by EPA Method 608. Pesticide raw data was evaluated with respect to compound identification. Raw data was not available for the PCB analysis.

V.7. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified. Pesticide raw data was evaluated with respect to compound quantitation. Raw data was not available for the PCB analysis. The reporting limits were supported by the low point of the initial calibrations and the laboratory MDLs. Reported nondetects are valid to the reporting limit.

VI. EPA METHODS 525.2— SEMIVOLATILE ORGANIC COMPOUNDS (SVOCS)

Elizabeth Wessling of MEC^X reviewed the SDG on January 25, 2017

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC^X Data Validation Procedure for Semivolatile Organics* (DVP-3, Rev. 1), *EPA Method 525.2*, and the *National Functional Guidelines for Superfund Organic Methods Data Review* (2014).

VI.1. HOLDING TIMES

The extraction holding time was not met. According to the case narrative for this SDG, the water sample was initially prepared from an unpreserved container, then had to be re-extracted from a properly preserved container. Therefore, the lab missed the 24-hour extraction holding time for diazinon by five (5) days. The nondetected result for diazinon was qualified as rejected (R). The re-extraction was within the 14 day holding time for chlorpyrifos in a preserved sample.

The sample result form indicates that the sample was prepared on 12/28/2016 and analyzed on 12/29/2016; however, the preparation log indicates a prep date of 12/30/2016, and the analysis log and raw data indicate an analysis date of 1/3/2017.

VI.2. GC/MS TUNING AND CALIBRATION

The DFTPP tunes met the method abundance criteria. The sample was analyzed within 12 hours of the DFTPP injection time.

Calibration criteria were met. The initial calibration average RRFs were ≥0.05 and %RSD ≤30% or r^2 ≥0.990. The ICV and CCV RRFs were ≥0.05 and recoveries were within the method control limits of 70-130%.

VI.3. QUALITY CONTROL SAMPLES

VI.3.1. *METHOD BLANKS*

Target compounds were not detected in the method blanks.

VI.3.2. *LABORATORY CONTROL SAMPLES*

The recoveries and RPDs were within the control limits of 70-130% and ≤30%, respectively.

VI.3.3. *SURROGATE RECOVERY*

Surrogate recoveries were within the laboratory control limits of 70-130%. The sample result form showed a surrogate recovery for triphenylphosphate above the control limits, but the raw data from the 1/3/2017 analysis actually showed acceptable recovery. No qualifications were required.

VI.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

Matrix spike (MS)/MS duplicate (MSD) analyses were performed on sample ArroyoSimi_20160817_Grab using the improperly preserved sample. There was no remaining sample volume for MS/MSD analysis. Accuracy and precision were evaluated based upon LCS/LCSD results.

VI.4. FIELD QC SAMPLES

MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:

VI.4.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

VI.4.2. *FIELD DUPLICATES*

Field duplicate samples were not identified in this SDG.

VI.5. INTERNAL STANDARDS PERFORMANCE

The internal standard area counts were not within the method control limits established by the continuing calibration standards of ±30% for areas and ±10 seconds for retention times; specifically three of the four internal standards were greater than the upper control limit. Chlorpyrifos was qualified as an estimated nondetect (UJ) for this outlier.

VI.6. COMPOUND IDENTIFICATION

Compound identification was verified. The laboratory analyzed for chlorpyrifos and diazinon by Method 525.2. Review of the sample chromatogram, retention times, and spectra indicated no problems with target compound identification.

VI.7. COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified. The reporting limits were supported by the low point of the initial calibration and the laboratory MDLs. Reported nondetects are valid to the reporting limit.

VI.8. SYSTEM PERFORMANCE

Review of the raw data indicated no problems with system performance.

Validated Sample Result Forms 4401710281

Analysis Method E525.2

Sample Name Arroyo_Simi_20161224_Grab **Matrix Type:** W **Result Type:** TRG

Sample Date: 12/24/2016 12:05:00 PM **Validation Level:** 8

Lab Sample Name: 440-171028-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Chlorpyrifos	N	2921-88-2	0.97	0.97	0.48	ug/L	UBUGR	UJ	*II, I
Diazinon	N	333-41-5	0.24	0.24	0.12	ug/L	UBUGR	R	H

Analysis Method E608

Sample Name Arroyo_Simi_20161224_Grab **Matrix Type:** W **Result Type:** TRG

Sample Date: 12/24/2016 12:05:00 PM **Validation Level:** 8

Lab Sample Name: 440-171028-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
4,4'-DDD	N	72-54-8	0.0047	0.0047	0.0038	ug/L	U	U	
4,4'-DDE	N	72-55-9	0.0047	0.0047	0.0028	ug/L	U	U	
4,4'-DDT	N	50-29-3	0.0094	0.0094	0.0038	ug/L	U	U	
Aroclor-1016 (PCB-1016)	T	12674-11-2	0.48	0.48	0.096	ug/L	U	U	
Aroclor-1221 (PCB-1221)	T	11104-28-2	0.48	0.48	0.096	ug/L	U	U	
Aroclor-1232 (PCB-1232)	T	11141-16-5	0.48	0.48	0.096	ug/L	U	U	
Aroclor-1242 (PCB-1242)	T	53469-21-9	0.48	0.48	0.096	ug/L	U	U	
Aroclor-1248 (PCB-1248)	T	12672-29-6	0.48	0.48	0.096	ug/L	U	U	
Aroclor-1254 (PCB-1254)	T	11097-69-1	0.48	0.48	0.096	ug/L	U	U	
Aroclor-1260 (PCB-1260)	T	11096-82-5	0.48	0.48	0.14	ug/L	U	U	
Chlordane	N	57-74-9	0.094	0.094	0.075	ug/L	U	U	
Dieldrin	N	60-57-1	0.0047	0.0047	0.0019	ug/L	U	U	
Toxaphene	N	8001-35-2	0.47	0.47	0.23	ug/L	U	U	

Analysis Method SM2340

Sample Name Arroyo_Simi_20161224_Grab **Matrix Type:** W **Result Type:** TRG

Sample Date: 12/24/2016 12:05:00 PM **Validation Level:** 8

Lab Sample Name: 440-171028-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Hardness as CaCO3	T	HARDNESS CACO3	330	0.33	0.17	mg/L			

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-171028-1
Client Project/Site: Boeing NPDES SSFL outfalls
Revision: 1

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
1/29/2017 5:15:58 PM

Urvashi Patel, Manager of Project Management
(949)261-1022
urvashi.patel@testamericainc.com

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.

Urvashi Patel
Manager of Project Management
1/29/2017 5:15:58 PM

Table of Contents

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL outfalls

TestAmerica Job ID: 440-171028-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-171028-1	Arroyo_Simi_20161224_Grab	Water	12/24/16 12:05	12/24/16 15:40

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL outfalls

TestAmerica Job ID: 440-171028-1

Job ID: 440-171028-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-171028-1

Comments
525-Unpreserved container was extracted in error and 525 had to be re-extracted with correct container. No extra container left for 525 and Pest. Client was notified via email.
Report revised to remove Ca, Mg from report as its only needed for Total Hardness Calc- per client request.

Receipt
The samples were received on 12/24/2016 3:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.5º C and 2.3º C.

GC/MS Semi VOA
Method(s) 525.2: Internal standard responses were outside of acceptance limits for the following sample: Arroyo_Simi_20161224_Grab (440-171028-1), (440-171028-B-1-A MS) and (440-171028-B-1-B MSD). The sample was used for MS/MSD and shows evidence of matrix interference.

Method(s) 525.2: Surrogate responses were outside of acceptance limits for the following sample: Arroyo_Simi_20161224_Grab (440-171028-1). The sample was used for MS/MSD and shows evidence of matrix interference.

Method(s) 525.2: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 440-378521 and analytical batch 440-378792 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) recoveries were within acceptance limits.

Method(s) 525.2: Internal standard (ISTD) responses for the following sample were outside the lower control limits: Arroyo_Simi_20161224_Grab (440-171028-1). The sample was re-extracted and re-analyzed with concurring results, and the second set of data has been reported.

Method(s) 525.2: The following sample was extracted outside of the 24hr holding time. Arroyo_Simi_20161224_Grab (440-171028-1).

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

GC Semi VOA
Method(s) 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 440-379084 and analytical batch 440-379439. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

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

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

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

Organic Prep
Method(s) 525.2: The method 525 calls for samples to be preserved with Sodium Sulfate, 6N HCL. The samples were received unpreserved.

Arroyo_Simi_20161224_Grab (440-171028-1), Arroyo_Simi_20161224_Grab (440-171028-1[MS]) and Arroyo_Simi_20161224_Grab (440-171028-1[MSD])

Method(s) 525.2: 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: Arroyo_Simi_20161224_Grab (440-171028-1), Arroyo_Simi_20161224_Grab (440-171028-1[MS]) and Arroyo_Simi_20161224_Grab (440-171028-1[MSD]). The sample was preserved to the appropriate pH in the laboratory.

Job ID: 440-171028-1 (Continued)

Laboratory: TestAmerica Irvine (Continued)

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

Client Sample ID: Arroyo_Simi_20161224_Grab
Date Collected: 12/24/16 12:05
Date Received: 12/24/16 15:40

Lab Sample ID: 440-171028-1
Matrix: Water

Method: 525.2 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorpyrifos	ND	BU GR	0.97	0.48	ug/L		12/30/16 07:42	01/03/17 14:25	1
Diazinon	ND	BU GR	0.24	0.12	ug/L		12/30/16 07:42	01/03/17 14:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,3-Dimethyl-2-nitrobenzene	*94*	*GR*	*70 - 130*	*12/30/16 07:42*	*01/03/17 14:25*	*1*
Perylene-d12	*91*	*GR*	*70 - 130*	*12/30/16 07:42*	*01/03/17 14:25*	*1*
Triphenylphosphate	*110*	*GR*	*70 - 130*	*12/30/16 07:42*	*01/03/17 14:25*	*1*

Method: 608 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.094	0.075	ug/L		12/30/16 05:58	01/03/17 15:33	1
Dieldrin	ND		0.0047	0.0019	ug/L		12/30/16 05:58	01/03/17 15:33	1
Toxaphene	ND		0.47	0.23	ug/L		12/30/16 05:58	01/03/17 15:33	1
4,4'-DDD	ND		0.0047	0.0038	ug/L		12/30/16 05:58	01/03/17 15:33	1
4,4'-DDE	ND		0.0047	0.0028	ug/L		12/30/16 05:58	01/03/17 15:33	1
4,4'-DDT	ND		0.0094	0.0038	ug/L		12/30/16 05:58	01/03/17 15:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*60*		*10 - 150*	*12/30/16 05:58*	*01/03/17 15:33*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness, as CaCO3	**330**		0.33	0.17	mg/L			01/15/17 11:47	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL outfalls

TestAmerica Job ID: 440-171028-1

Method	Method Description	Protocol	Laboratory
525.2	Semivolatile Organic Compounds (GC/MS)	EPA	TAL IRV
608	Organochlorine Pesticides in Water	40CFR136A	TAL IRV
200.7 Rev 4.4	Metals (ICP)	EPA	TAL IRV
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL IRV
608_LL-PCB-Lancaster Labs	General Sub Contract Method	NONE	SC0103

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
NONE = NONE
SM = "Standard Methods For The Examination Of Water And Wastewater",

Laboratory References:

SC0103 = Lancaster Laboratories, 2425 New Holland Pike, Lancaster, PA 17601
TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL outfalls

TestAmerica Job ID: 440-171028-1

Client Sample ID: Arroyo_Simi_20161224_Grab
Date Collected: 12/24/16 12:05
Date Received: 12/24/16 15:40

Lab Sample ID: 440-171028-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	525.2			1035 mL	1 mL	379111	12/30/16 07:42	FTD	TAL IRV
Total/NA	Analysis	525.2		1			379480	01/03/17 14:25	MF	TAL IRV
Total/NA	Prep	608			1065 mL	2 mL	379084	12/30/16 05:58	L2A	TAL IRV
Total/NA	Analysis	608		1			379439	01/03/17 15:33	KS	TAL IRV
Total Recoverable	Analysis	SM 2340B		1			379022	01/15/17 11:47	B1H	TAL IRV

Laboratory References:

SC0103 = Lancaster Laboratories, 2425 New Holland Pike, Lancaster, PA 17601

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 525.2 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-379111/1-A
Matrix: Water
Analysis Batch: 379480

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 379111

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorpyrifos	ND		1.0	0.50	ug/L		12/30/16 07:42	01/03/17 12:34	1
Diazinon	ND		0.25	0.12	ug/L		12/30/16 07:42	01/03/17 12:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,3-Dimethyl-2-nitrobenzene	*98*		*70 - 130*	*12/30/16 07:42*	*01/03/17 12:34*	*1*
Perylene-d12	*94*		*70 - 130*	*12/30/16 07:42*	*01/03/17 12:34*	*1*
Triphenylphosphate	*100*		*70 - 130*	*12/30/16 07:42*	*01/03/17 12:34*	*1*

Lab Sample ID: LCS 440-379111/2-A
Matrix: Water
Analysis Batch: 379480

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 379111

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chlorpyrifos			5.00	4.92		ug/L		98	70 - 130		
Diazinon			5.00	4.96		ug/L		99	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,3-Dimethyl-2-nitrobenzene	*96*		*70 - 130*
Perylene-d12	*94*		*70 - 130*
Triphenylphosphate	*101*		*70 - 130*

Lab Sample ID: LCSD 440-379111/3-A
Matrix: Water
Analysis Batch: 379480

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 379111

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chlorpyrifos			5.00	4.75		ug/L		95	70 - 130	4	30
Diazinon			5.00	5.11		ug/L		102	70 - 130	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,3-Dimethyl-2-nitrobenzene	*95*		*70 - 130*
Perylene-d12	*92*		*70 - 130*
Triphenylphosphate	*107*		*70 - 130*

Method: 608 - Organochlorine Pesticides in Water

Lab Sample ID: MB 440-379084/1-A
Matrix: Water
Analysis Batch: 379439

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 379084

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.10	0.080	ug/L		12/30/16 05:58	01/03/17 14:38	1
Dieldrin	ND		0.0050	0.0020	ug/L		12/30/16 05:58	01/03/17 14:38	1
Toxaphene	ND		0.50	0.25	ug/L		12/30/16 05:58	01/03/17 14:38	1
4,4'-DDD	ND		0.0050	0.0040	ug/L		12/30/16 05:58	01/03/17 14:38	1
4,4'-DDE	ND		0.0050	0.0030	ug/L		12/30/16 05:58	01/03/17 14:38	1
4,4'-DDT	ND		0.010	0.0040	ug/L		12/30/16 05:58	01/03/17 14:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	55		10 - 150	12/30/16 05:58	01/03/17 14:38	1

Lab Sample ID: LCS 440-379084/2-A
Matrix: Water
Analysis Batch: 379439

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 379084

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dieldrin	0.200	0.185		ug/L		92	36 - 146
4,4'-DDD	0.200	0.184		ug/L		92	31 - 141
4,4'-DDE	0.200	0.192		ug/L		96	30 - 145
4,4'-DDT	0.200	0.174		ug/L		87	25 - 150

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	75		10 - 150

Lab Sample ID: LCSD 440-379084/3-A
Matrix: Water
Analysis Batch: 379439

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 379084

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dieldrin	0.200	0.194		ug/L		97	36 - 146	3	35
4,4'-DDD	0.200	0.195		ug/L		97	31 - 141	6	35
4,4'-DDE	0.200	0.201		ug/L		101	30 - 145	5	35
4,4'-DDT	0.200	0.186		ug/L		93	25 - 150	7	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	80		10 - 150

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 440-380373/1-A
Matrix: Water
Analysis Batch: 381010

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 380373

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		0.10	0.050	mg/L		01/06/17 13:41	01/10/17 10:06	1
Magnesium	ND		0.020	0.010	mg/L		01/06/17 13:41	01/10/17 10:06	1

Lab Sample ID: LCS 440-380373/2-A
Matrix: Water
Analysis Batch: 381010

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 380373

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	0.500	0.523		mg/L		105	85 - 115
Magnesium	0.500	0.517		mg/L		103	85 - 115

Lab Sample ID: 440-171028-1MS
Matrix: Water
Analysis Batch: 381010

Client Sample ID: Arroyo_Simi_20161224_Grab
Prep Type: Total Recoverable
Prep Batch: 380373

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	93		0.500	91.6	BB	mg/L		-316	70 - 130
Magnesium	23		0.500	23.8	BB	mg/L		102	70 - 130

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 440-171028-1MSD
Matrix: Water
Analysis Batch: 381010

Client Sample ID: Arroyo_Simi_20161224_Grab
Prep Type: Total Recoverable
Prep Batch: 380373

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	93		0.500	92.4	BB	mg/L		-172	70 - 130	1	20
Magnesium	23		0.500	23.5	BB	mg/L		57	70 - 130	1	20

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL outfalls

TestAmerica Job ID: 440-171028-1

GC/MS Semi VOA

Prep Batch: 379111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171028-1	Arroyo_Simi_20161224_Grab	Total/NA	Water	525.2	
MB 440-379111/1-A	Method Blank	Total/NA	Water	525.2	
LCS 440-379111/2-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 440-379111/3-A	Lab Control Sample Dup	Total/NA	Water	525.2	

Analysis Batch: 379480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171028-1	Arroyo_Simi_20161224_Grab	Total/NA	Water	525.2	379111
MB 440-379111/1-A	Method Blank	Total/NA	Water	525.2	379111
LCS 440-379111/2-A	Lab Control Sample	Total/NA	Water	525.2	379111
LCSD 440-379111/3-A	Lab Control Sample Dup	Total/NA	Water	525.2	379111

GC Semi VOA

Prep Batch: 379084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171028-1	Arroyo_Simi_20161224_Grab	Total/NA	Water	608	
MB 440-379084/1-A	Method Blank	Total/NA	Water	608	
LCS 440-379084/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 440-379084/3-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 379439

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171028-1	Arroyo_Simi_20161224_Grab	Total/NA	Water	608	379084
MB 440-379084/1-A	Method Blank	Total/NA	Water	608	379084
LCS 440-379084/2-A	Lab Control Sample	Total/NA	Water	608	379084
LCSD 440-379084/3-A	Lab Control Sample Dup	Total/NA	Water	608	379084

Metals

Analysis Batch: 379022

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171028-1	Arroyo_Simi_20161224_Grab	Total Recoverable	Water	SM 2340B	

Prep Batch: 380373

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 440-380373/1-A	Method Blank	Total Recoverable	Water	200.2	
LCS 440-380373/2-A	Lab Control Sample	Total Recoverable	Water	200.2	
440-171028-1MS	Arroyo_Simi_20161224_Grab	Total Recoverable	Water	200.2	
440-171028-1MSD	Arroyo_Simi_20161224_Grab	Total Recoverable	Water	200.2	

Analysis Batch: 381010

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 440-380373/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	380373
LCS 440-380373/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	380373
440-171028-1MS	Arroyo_Simi_20161224_Grab	Total Recoverable	Water	200.7 Rev 4.4	380373
440-171028-1MSD	Arroyo_Simi_20161224_Grab	Total Recoverable	Water	200.7 Rev 4.4	380373

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
GR	Internal Standard out of range
BU	Sample was prepped beyond the specified holding time

Metals

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration

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
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
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)

Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL outfalls

TestAmerica Job ID: 440-171028-1

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-17
Arizona	State Program	9	AZ0671	10-14-17
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 16-001r	01-23-17 *
Hawaii	State Program	9	N/A	01-29-17 *
Kansas	NELAP Secondary AB	7	E-10420	07-31-17
Nevada	State Program	9	CA015312016-2	07-31-17
New Mexico	State Program	6	N/A	01-29-17 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-17 *
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-17

* Certification renewal pending - certification considered valid.

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2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Test America
17461 Derian Ave
Suite #100
Irvine CA 92614

Report Date: January 12, 2017

Project: Boeing NPDES SSFL Outfalls

Submittal Date: 12/28/2016
Group Number: 1749139
SDG: SSF01
PO Number: 440-171028-1
State of Sample Origin: CA

Client Sample Description	Lancaster Labs (LL) #
Arroyc_Simi_20161224_Grab (440-171028-1MSD) Water	8766034

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To Test America Attn: Urvashi Patel

Respectfully Submitted,

Kay Hower

(510) 672-3979

Sample Description: Arroyc_Simi_20161224_Grab (440-171028-1MSD) Water
Boeing NPDES SSFL Outfalls

LL Sample # WW 8766034
LL Group # 1749139
Account # 41440

Project Name: Boeing NPDES SSFL Outfalls

Collected: 12/24/2016 12:05

Submitted: 12/28/2016 09:45
Reported: 01/12/2017 14:39

Test America
17461 Derian Ave
Suite #100
Irvine CA 92614

ARROY SDG#: SSF01-01

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**EPA 608**		ug/l	ug/l	ug/l	
06030	PCB-1016	12674-11-2	N.D.	0.096	0.48	1
06030	PCB-1221	11104-28-2	N.D.	0.096	0.48	1
06030	PCB-1232	11141-16-5	N.D.	0.096	0.48	1
06030	PCB-1242	53469-21-9	N.D.	0.096	0.48	1
06030	PCB-1248	12672-29-6	N.D.	0.096	0.48	1
06030	PCB-1254	11097-69-1	N.D.	0.096	0.48	1
06030	PCB-1260	11096-82-5	N.D.	0.14	0.48	1

Sample Comments

CA ELAP Lab Certification No. 2792

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06030	PCBs in Water by 608	EPA 608	1	163650006A	01/02/2017 19:38	Jessica L Miller	1
11960	Method 608 PCB Water Ext.	EPA 608	1	163650006A	12/30/2016 15:30	Benjamin J Rosenberger	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Test America
Reported: 01/12/2017 14:39

Group Number: 1749139

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: 163650006A	Sample number(s): 8766034		
PCB-1016	N.D.	0.10	0.50
PCB-1221	N.D.	0.10	0.50
PCB-1232	N.D.	0.10	0.50
PCB-1242	N.D.	0.10	0.50
PCB-1248	N.D.	0.10	0.50
PCB-1254	N.D.	0.10	0.50
PCB-1260	N.D.	0.15	0.50

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 163650006A	Sample number(s): 8766034								
PCB-1016	5.04	3.93	5.04	4.05	78	80	60-117	3	30
PCB-1260	5.02	4.76	5.02	4.95	95	99	57-134	4	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PCBs in Water by 608
Batch number: 163650006A

	Tetrachloro-m-xylene	Decachlorobiphenyl
8766034	79	52
Blank	80	95
LCS	86	98
LCSD	85	101
Limits:	33-137	10-148

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

TestAmerica Irvine
17461 Derian Ave Suite 100
Irvine, CA 92614-5817
Phone (949) 261-1022 Fax (949) 260-3297

41446 | 1749139 | 8766034

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Patel, Urvashi	Carrier Tracking No(s):	COC No: 440-105877.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: urvashi.patel@testamericainc.com	State of Origin: California	Page: Page 1 of 1
Company: Eurofins Lancaster Laboratories Env LLC		Accreditations Required (See note):		Job #: 440-171028-1
Address: 2425 New Holland Pike, ,	Due Date Requested: 1/10/2017			
City: Lancaster	TAT Requested (days):			
State, Zip: PA, 17601				
Phone:	PO #:			
Email:	WO #:			
Project Name: Boeing NPDES SSFL outfalls	Project #: 44009879			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
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	Z - other (specify)

Other:

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)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (608_LL-PCB- Lancaster Labs)/ 608_LL-PCB-Lancaster Labs	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Arroyc_Simi_20161224_Grab (440-171028-1MSD)	12/24/16	12:05 Pacific	MSD	Water			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out 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 TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
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:	Time:	Method of Shipment:

Relinquished by:	Date/Time: DEC 27 2016	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 12-28-16 @ 945	Company ECCE

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.: N/A	Cooler Temperature(s) °C and Other Remarks: 0.9°

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Sample Administration Receipt Documentation Log

Doc Log ID: 171795

Group Number(s): 1749139

Client: Test America

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/28/2016 9:45
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	CA		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	0
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	Yes		

Unpacked by Joseph Huber (7831) at 11:34 on 12/28/2016

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	32170023	0.9	IR	Wet	Y	Loose	N

Container Quantity Discrepancy Details

Sample ID on COC	Container Qty. Received	Container Qty. on COC	Comments
440-171028-1MSD	2	1	Sample is collected at same time but has the ID of 440-171028B-2

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	none detected
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…
W - The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Test America

CHAIN OF CUSTODY FORM

EDF-JOUX

Client Name/Address:
Haley & Aldrich
9040 Friars Road Suite 220
San Diego, CA 92108-5860

Test America Contact: Urvashi Patel
17461 Derian Ave Suite #100
Irvine CA 92614
Tel 949-260-3269
Cell 949-333-9055

Sampler: Dan Smith

Project:
Boeing-SSFL NPDES
Permit 2015
Quarterly Arroyo Simi-Frontier Park
Dry Weather

Project Manager: Nancy Gardiner
619.285.7132, 858.337.4061(cell)

Field Manager: Mark Dominick
818.350.7312, 818.599.0702 (cell)

ANALYSIS REQUIRED

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	Hardiness as CaCO3, Recoverable	Chlorpyrifos, Diazinon (525.2)	Pesticides Chlordane, 4,4-DDD, 4,4-DDE, 4,4-DDT, Dieldrin, Toxaphene + PCBs	Comments
Arroyo Simi	Arroyc_Simi_20161224_Grab	1205 1215 12/24/2016 BC 1305	WS	250 mL Poly	3	HNO_3	100	Yes	X			
			WS	1L Glass Amber	6	HCl	275	Yes		X		Extract within 24-Hours of sampling.
			WS	1L Glass Amber	6	None	285	Yes			X	
	Arroyo_Simi_20161224_Grab_Extra	1205 1215 12/24/2016 BC 1305	WS	1L Glass Amber	2	HCl	275	No		X		Hold
			WS	1L Glass Amber	2	None	285	No			X	Hold

Field Readings | Meter serial #

Field Readings: (Include units)
Time of Readings: 1205

pH 7.34 pH unit
Temp 11.37 °C

Field readings QC
Checked by: MD
Date/Time: 1215

440-171028 Chain of Custody

Relinquished By	Date/Time:	Company:	Received By	Date/Time:
	12/24/16 1300	JHA		12/24/16 1300
	12/24/16	1540		12/24/16 15:40

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

Sample Integrity: (Check)
Intact: ____ On Ice: ____

Data Requirements: (Check)
No Level IV: ____ All Level IV: ____

2.0 1.5 IR77
2.0 1.3 IR77

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-171028-1

Login Number: 171028
List Number: 1
Creator: Skinner, Alma D

List Source: TestAmerica Irvine

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.	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	

DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: 440-171052-1

Prepared for

Haley & Aldrich, Inc.

600 South Meyer Avenue, Suite 100

Tucson, Arizona 85701

January 24, 2017

TABLE OF CONTENTS

TABLES

I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES

Contract: 40458-078 and 40458-083

MEC^X Project No.: 1272.003H.01

Sample Delivery Group: 440-171052-1

Project Manager: Katherine Miller

Matrix: Water

QC Level: IV

No. of Samples: 1

No. of Reanalyses/Dilutions: 0

Laboratory: TestAmerica-Irvine

TABLE 1 - SAMPLE IDENTIFICATION

Sample Name	Lab Sample Name	Sub Lab Sample ID	Matrix	Collection	Method
OUTFALL009 _20161224_GRAB	440-171052-1	N/A	Water	12/24/2016 9:20:00 AM	E1664

II. SAMPLE MANAGEMENT

According to the case narrative, sample condition upon receipt form and the chain-of-custody (COC) provided by the laboratory for sample delivery group (SDG) 440-171052-1:

- The laboratory received the sample in this sample delivery group (SDG) on ice and within the temperature limits of less than 6 degrees Celsius (°C) and greater than 0°C.
- The laboratory received the sample containers intact and properly preserved, as applicable.
- Field and laboratory personnel signed and dated the COC.
- According to the laboratory's sample receipt checklist, custody seals were intact.

MEC^X noted anomalies regarding sample management identified below.

- Minor corrections to the COC were not initialed or dated.

TABLE 2 - DATA QUALIFIER REFERENCE

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For dioxins or PCB congeners, the associated value is the quantitation limit or the estimated detection limit.	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. For perchlorate, the associated value is the sample detection limit or the quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analyte has been "tentatively identified" or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.	The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

TABLE 3 - REASON CODE REFERENCE

Reason Code	Organic	Inorganic
H	Holding time was exceeded.	Holding time was exceeded.
S	Surrogate recovery was outside control limits.	The sequence or number of standards used for the calibration was incorrect.
C	Calibration percent relative standard deviation (%RSD) or percent deviation (%D) were noncompliant, or coefficient of determination (r^2) was <0.990.	Correlation coefficient (r) was <0.995.
R	Calibration relative response factor (RRF) was <0.05.	Percent recovery (%R) for calibration was outside control limits.
B	The analyte was detected in an associated blank as well as in the sample.	The analyte was detected in an associated blank as well as in the sample.
L	Laboratory control sample (LCS) or /LCS duplicate (LCSD) %R was outside the control limits.	LCS or LCSD %R was outside the control limits.
L1	LCS/LCSD relative percent difference (RPD) was outside the control limit.	LCS/LCSD RPD was outside the control limit.
Q	Matrix spike/matrix spike duplicate (MS/MSD) %R was outside control limits.	MS or MSD %R was outside the control limit.
Q1	MS/MSD RPD was outside the control limit.	MS/MSD RPD was outside the control limit.
E	Result was reported as an estimated maximum possible concentration (EMPC).	Laboratory duplicate RPD was outside the control limit.
I	Internal standard recovery was outside control limits.	Inductively coupled plasma (ICP) interference check standard (ICSA/ICSAB) result was outside control limits.
I1	Not applicable.	ICP mass spectrometer (ICPMS) internal standard recovery was outside control limits.
A	Not applicable.	Serial dilution %D was outside control limits.
M	Tuning (BFB or DFTPP) was not compliant.	ICPMS tune was not compliant.
T	The analyte was detected in an associated trip blank as well as in the sample.	Not applicable.

Reason Code	Organic	Inorganic
+	False positive – reported compound was not present.	False positive – reported compound was not present.
-	False negative – compound was present but not reported.	False negative – compound was present but not reported.
F	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.	The analyte was detected in an associated field blank (FB) or equipment blank (EB) as well as in the sample.
F1	Field duplicate RPD was outside the control limit.	Field duplicate RPD was outside the control limit.
$	The reviewer corrected the reported result and/or other information.	The reviewer corrected the reported result and/or other information.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis was not used because another more technically sound analysis was available.	The analysis was not used because another more technically sound analysis was available.
P	Instrument performance not compliant.	Post digestion spike recovery was outside of control limits.
DNQ	The reported result is above the method detection limit but is less than the reporting limit.	The reported result is above the method detection limit but is less than the reporting limit.
*II, *III	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Other problems identified in the data are described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

IV. VARIOUS METHODS — GENERAL MINERALS

Marcia Hilchey of MEC[X] reviewed the SDG on January 24, 2017

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC[X] Data Validation Procedure for General Minerals (DVP-6, Rev. 1), EPA Method 1664A*, and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

IV.1. HOLDING TIMES

The analytical holding time for n-hexane extractable material (HEM; oil and grease), 28 days from collection, was met.

IV.2. CALIBRATION

Calibration criteria were met. The analytical balance calibration was verified before and after the analytical batch, as per the method requirements.

IV.3. QUALITY CONTROL SAMPLES

IV.3.1. *METHOD BLANKS*

The method blank was nondetect for HEM (Oil and Grease).

IV.3.2. *LABORATORY CONTROL SAMPLES*

Laboratory control sample/laboratory control sample duplicate recoveries were within the method control limits of 78-114% and the RPD was ≤11%.

IV.3.3. *LABORATORY DUPLICATES*

Laboratory duplicate analyses were not performed on the sample from this SDG.

IV.3.4. *MATRIX SPIKE/MATRIX SPIKE DUPLICATE*

MS/MSD analyses were not performed on the sample in the SDG, as there was insufficient sample volume available and the COC did not request a MS/MSD. MEC[X] evaluated method accuracy and precision based on LCS/LCSD results.

IV.3.5. *SAMPLE RESULT VERIFICATION*

Calculations were verified and the sample result reported on the sample results summary was verified against the raw data. No transcription errors or calculation errors were noted. Reported nondetects are valid to the MDL.

IV.4. FIELD QC SAMPLES

MEC[X] evaluated field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC[X] used the remaining detects to evaluate the associated site sample. Findings associated with field QC samples are summarized below.

IV.4.1. *FIELD BLANKS AND EQUIPMENT BLANKS*

Field blank or equipment blank samples were not identified for this SDG.

IV.4.2. *FIELD DUPLICATES*

There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms 4401710521

Analysis Method E1664

Sample Name Outfall009 _20161224_Grab **Matrix Type:** WM **Result Type:** TRG

Sample Date: 12/24/2016 9:20:00 AM **Validation Level:** 8

Lab Sample Name: 440-171052-1

Analyte	Fraction	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Oil and Grease (HEM), Total	N	HEMOILGREASE	5.1	5.1	1.4	mg/L	U	U	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-171052-1
Client Project/Site: Boeing NPDES SSFL outfalls
Revision: 1

For:
Haley & Aldrich, Inc.
400 E Van Buren St.
Suite 545
Phoenix, Arizona 85004

Attn: Katherine Miller

Authorized for release by:
1/12/2017 8:29:56 AM

Urvashi Patel, Manager of Project Management
(949)261-1022
urvashi.patel@testamericainc.com

I certify under penalty of perjury that the information contained in this report and all attachments was produced in accordance with the indicated methods and laboratory standard operating procedures, except as noted, and are complete and accurate to the best of my knowledge and belief. Subcontract laboratory reports that are attached have been evaluated for completeness and quality control acceptability.

Urvashi Patel
Manager of Project Management
1/12/2017 8:29:56 AM

Table of Contents

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL outfalls

TestAmerica Job ID: 440-171052-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-171052-1	Outfall009 _20161224_Grab	Water	12/24/16 09:20	12/24/16 15:40

Job ID: 440-171052-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-171052-1

Comments
Revision created to fix sample ID per client request on 1-12-17.

Receipt
The samples were received on 12/24/2016 3:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.5º C.

Organic Prep
Method(s) 1664A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-380702 and analytical batch 440-380978. the laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

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

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL outfalls

TestAmerica Job ID: 440-171052-1

Client Sample ID: Outfall009 _20161224_Grab
Lab Sample ID: 440-171052-1
Date Collected: 12/24/16 09:20
Matrix: Water
Date Received: 12/24/16 15:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.1	1.4	mg/L		01/09/17 10:02	01/10/17 09:59	1

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL outfalls

TestAmerica Job ID: 440-171052-1

Method	Method Description	Protocol	Laboratory
1664A	HEM and SGT-HEM	1664A	TAL IRV

Protocol References:

1664A = EPA-821-98-002

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL outfalls

TestAmerica Job ID: 440-171052-1

Client Sample ID: Outfall009 _20161224_Grab
Date Collected: 12/24/16 09:20
Date Received: 12/24/16 15:40

Lab Sample ID: 440-171052-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1664A			985 mL	1000 mL	380702	01/09/17 10:02	L1A	TAL IRV
Total/NA	Analysis	1664A		1			380978	01/10/17 09:59	L1A	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 440-380702/1-A
Matrix: Water
Analysis Batch: 380978

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 380702

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5.0	1.4	mg/L		01/09/17 10:02	01/10/17 09:59	1

Lab Sample ID: LCS 440-380702/2-A
Matrix: Water
Analysis Batch: 380978

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 380702

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HEM (Oil & Grease)			40.0	35.7		mg/L		89	78 - 114		

Lab Sample ID: LCSD 440-380702/3-A
Matrix: Water
Analysis Batch: 380978

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 380702

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM (Oil & Grease)			40.0	34.0		mg/L		85	78 - 114	5	11

QC Association Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL outfalls

TestAmerica Job ID: 440-171052-1

General Chemistry

Prep Batch: 380702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171052-1	Outfall009 _20161224_Grab	Total/NA	Water	1664A	
MB 440-380702/1-A	Method Blank	Total/NA	Water	1664A	
LCS 440-380702/2-A	Lab Control Sample	Total/NA	Water	1664A	
LCSD 440-380702/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	

Analysis Batch: 380978

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-171052-1	Outfall009 _20161224_Grab	Total/NA	Water	1664A	380702
MB 440-380702/1-A	Method Blank	Total/NA	Water	1664A	380702
LCS 440-380702/2-A	Lab Control Sample	Total/NA	Water	1664A	380702
LCSD 440-380702/3-A	Lab Control Sample Dup	Total/NA	Water	1664A	380702

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
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
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)

Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Boeing NPDES SSFL outfalls

TestAmerica Job ID: 440-171052-1

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-17
Arizona	State Program	9	AZ0671	10-14-17
California	LA Cty Sanitation Districts	9	10256	01-31-17 *
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 16-001r	01-23-17 *
Hawaii	State Program	9	N/A	01-29-17 *
Kansas	NELAP Secondary AB	7	E-10420	07-31-17
Nevada	State Program	9	CA015312016-2	07-31-17
New Mexico	State Program	6	N/A	01-29-17 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-17 *
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-17

* Certification renewal pending - certification considered valid.

Test America

CHAIN OF CUSTODY FORM

EDB PJOUX

Client Name/Address:
Haley & Aldrich, Inc
5333 Mission Center Rd Suite 300
San Diego, CA 92108

Test America Contact: Urvashi Patel
17461 Derian Ave Suite 100
Irvine CA 92614
Tel 949-260-3269
Cell 949-333-9055

Project:
Boeing-SSFL NPDES
Permit 2016
Semiannual Outfall [003-007, 009, 010]
Outfall 009
Grab

Project Manager: Nancy Gardiner
619.285.7112, 858.337.4061(cell)

Field Manager: Mark Dominick
818.350.7312, 818.599.0702 (cell)

Sampler: Dan Smith

ANALYSIS REQUIRED

Sample Description	Sample I.D.	Sampling Date/Time	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	MS/MSD	R: Oil & Grease (1664-HEM)	Comments
Outfall 009	Outfall 009_20161224_Grab	12/24/2016 0920	WM	1 L Glass Amber	2	HCl	15	No	X	
	Outfall009_20161224_Grab_Extra	12/24/2016 0920	WM	1 L Glass Amber	2	HCl	15	No	X	Hold

Field Readings | Meter serial #

Field Readings: (Include units)
Time of Readings: 0925
pH 7.23 pH unit
Temp 8.15 °C

Field readings QC
Checked by: MD
Date/Time: 12-24-16/0925

00 12/27/16 13:40

440-171052 Chain of Custody

These Samples ar the Grab Portion of Outfall 009 for this storm event. Composite samples will follow and are to be added to this work order.

Relinquished By	Date/Time:	Compar:	Received By	Date/Time:
	12/24/16 1300			12/24/16 1300
	12/24/16	TGS 1540 12/27/16		12/24/16 15:40
	Date/Time:	Compar:	Received By	Date/Time:

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

Sample Integrity: (Check)
Intact: ____ On Ice: ____

Data Requirements: (Check)
No Level IV: ____ All Level IV: ____

3.0/2.5 1277

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 440-171052-1

Login Number: 171052
List Number: 1
Creator: Escalante, Maria I

List Source: TestAmerica Irvine

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.	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	

APPENDIX E

Fourth Quarter 2016 Reasonable Potential Analysis (RPA) Tables

REASONABLE POTENTIAL ANALYSIS SUMMARY
NOTES THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

Notes:

1. The following Reasonable Potential Analysis (RPA) provides the analytical results as performed by the procedures outlined in *Reasonable Potential Analysis Methodology Technical Memo* (MWH and Flow Science, 2006).

2. The monitoring data set utilized to conduct the RPA consists of all applicable and relevant data from the present reporting quarter.

3. As directed by the CTR and the Regional Water Control Board 2,3,7,8-TCDD (Dioxin) values are to be expressed in NPDES permitting and this RPA as TCDD Total Equivalence units (TEQs). A TCDD TEQ is determined by multiplying each of the seventeen dioxin and furan congeners by their respective toxicity equivalency factor (TEF) and bioaccumulation equivalency factor (BEF), and summing the results of those products. For the purposes of this RPA, the resulting TCDD TEQ does not include those congener concentrations that are reported as DNQ, as specified on Page 26, of the NPDES Permit Effective April 1, 2015.

4. Data reported with qualifiers (e.g., J [DNQ] or R) were not included in this RPA as Boeing believes qualified data are not "appropriate, valid, relevant, (nor) representative"[1] of storm water constituents and are therefore not utilized in its RPA.

5. All of the following abbreviations and/or notes may not occur on every table.

Definition of Acronyms, Abbreviations, and Terminology Used

>=	Greater than or equal to
*	Freshwater aquatic life criteria for metals are expressed as a function of total hardness (mg/L) in the water body. The equations are provided in the CTR, (US EPA, 2011). Values displayed correspond to a total hardness of 100 mg/l.
µg/L	Concentration units, micrograms per liter
All Data Qualified	All available monitoring data are qualified and no statistical analysis is performed.
Annual	The 2015 NPDES Permit requires annual monitoring.
Available Data < DL	All available monitoring data that are not qualified are below detection limits.
B	Background
C	Concentration
CCC	Criterion Continuous Concentration
CMC	Criterion Maximum Concentration
CTR	California Toxics Rule
CV	Coefficient of Variation
DL	Detection Limit
EPA TSD	EPA's Technical Support Document for Water Quality Based Toxics Control, (see references).
Fibers/L	Units for asbestos concentration, fibers per liter
HH O	Human Health criteria for consumption of Organisms only

[1] SIP, p. 5.

REASONABLE POTENTIAL ANALYSIS SUMMARY
NOTES THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

Definition of Acronyms, Abbreviations, and Terminology Used (Continued)

HH W&O	Human Health criteria for consumption of Water and Organisms
MEC	Maximum Observed Effluent Concentration
mg/L	Concentration units, milligrams per liter
Min	Minimum
MPN/100ml	Most probable number per 100 milliliters
NA	Not Applicable
Narrative	Water quality criteria are expressed as a narrative objective rather than a numeric objective, and therefore are not part of the statistical RPA calculations.
None	No available CTR or Basin Plan criteria.
pH Dependent	CTR Criteria are based on pH.
Discharge	The 2015 NPDES Permit requires monitoring once per discharge event.
Qualified Data	Data qualifier definitions are: (a) J- The reported result is an estimate. The value is less than the minimum calibration level but greater than the estimated detection limit (EDL), (b) U/UJ- The analyte was not detected in the sample at the detection limit /estimated detection limit (EDL), (c) B - Analyte found in sample and associated blank, and (d) DNQ- Detected Not Quantified.
Reserved	EPA has reserved the CTR criteria.
RPA	Reasonable Potential Analysis
SIP	The State Water Resources Control Board "Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California," (see references).
Tot	Total

Priority Pollutant RPA Column Explanation

CTR	Provides CTR constituent reference number.
Constituent	Provides CTR constituent common name.
Units	Provides the data set's concentration units as referenced by 2015 NPDES Permit.
MEC	Provides the outfall monitoring group's maximum value from the applicable data set.
CV	Equal to the standard deviation divided by the average of the applicable data set. If the number of samples is less than 10, the CV is assumed to be 0.6.
Step 1 identifies all applicable water quality criteria.	
CTR Criteria	Concentration criteria as listed in the CTR.
CMC = Acute	The Freshwater CMC is listed as the acute concentration criterion.
CCC = Chronic	The Freshwater CCC is listed as the chronic concentration criterion.
HH W&O (Not App)	The HH W&O is deemed not applicable based on past Regional Board RPAs.
HH O = HH	The HH O is listed as the CTR human health concentration criterion.
Basin Plan Criteria	Applicable Basin Plan Criteria are listed for the Los Angeles River and/or Calleguas Creek watersheds.
C = Lowest Criteria	The comparison concentration (C) is equal to the lowest criterion for a constituent based on the CMC, CCC, HH O, and Basin Plan Criteria listed.
Step 2 defines the applicable data set.	
Is Effluent Data Available	If all data is qualified, then NO. If not, then YES.

REASONABLE POTENTIAL ANALYSIS SUMMARY
NOTES THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

Priority Pollutant RPA Column Explanation (Continued)

Step 3 determines the maximum observed effluent concentration.	
Was Constituent Detected in Effluent Data	If the constituent was detected, then YES. If all monitoring data are non-detect or qualified then NO.
Are all Detection Limits >C	If constituent was detected in effluent data then not applicable (NA). If constituent was not detected and all analysis detection limits are greater than the comparison concentration, then YES, if not then NO.
If DL > C, MEC = Min (DL)	If the previous cell answer was yes, then the MEC is equal to the minimum detection limit. If not, then NA.
Step 4 compares the MEC to the lowest applicable water quality criteria.	
MEC >= C	If the MEC is greater than or equal to the comparison concentration then YES, if not then NO.

Note: Steps 5 and 6 of the Priority Pollutant RPA do not apply to Boeing SSFL because the Regional Board gives no consideration for receiving water background constituent concentrations. Furthermore, Boeing SSFL defers the application of best professional judgment in Step 7 and final determination of reasonable potential in Step 8 to the Regional Board Staff.

Non-priority Pollutant RPA Column Explanation

Constituent	Provides the Non Priority Pollutant constituent common name
Monitoring	Provides the 2015 NPDES Permit directed monitoring frequency
Units	Provides the data set's concentration units
Number of Samples	Provides the number of available samples that are not qualified
MEC	Provides the outfall monitoring group's maximum value from the applicable data set
CV	Equal to the standard deviation divided by the average of the applicable data set. If the number of samples is less than 10, the CV is assumed to be 0.6.
Multiplier	Utilizes the EPA's TSD calculation to determine multiplier for which the maximum effluent concentration is calculated. (MWH and Flow Science, 2006, or EPA TSD, 1991)
Projected Maximum Effluent Concentration	Utilizes the product of the multiplier and the MEC as an estimate for the projected maximum effluent concentration.
Dilution Ratio	The Regional Board allocates no dilution ratio to Boeing SSFL (NA).
Background Concentration	The Regional Board allocates no background concentration to Boeing SSFL (NA).
Projected Maximum Receiving Water Concentration	The Regional Board estimates the projected maximum receiving water concentration as equal to the projected maximum effluent concentration.
Step 1, Determine Water Quality Objectives	The water quality objective is based on appropriate Basin Plan criteria as noted in the Reasonable Potential Analysis Methodology Technical Memo.
BU – Beneficial Use Protection, NC – Human Non-carcinogen, AP-Aquatic Life Protection, TMDL – Total Maximum Daily Load	This is the Regional Board's Basis for determining if reasonable potential should be evaluated for a non-priority pollutant.

Note: Boeing SSFL has completed appropriate statistical calculations, but defers the application of best professional judgment and the final determination of reasonable potential to the Regional Board Staff.

REASONABLE POTENTIAL ANALYSIS SUMMARY
NOTES THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

References:

1. Los Angeles Regional Water Quality Control Board, "Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, (Basin Plan)." June 13, 1994.

2. MWH and Flow Science, "Reasonable Potential Analysis Methodology Technical Memo- Version 1, Final, Santa Susan Field Laboratory, Ventura County, California." April 28, 2006.

3. State Water Resources Control Board, "Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, (SIP)" Resolution No. 2005-0019, February 24, 2005.

4. US EPA, *40CFR part 131, Water Quality Standards; Establishment of numeric Criteria for Priority Toxic Pollutants for the State of California*,(CTR) Federal Registry, 2011, pp. 496 - 507.

5. US EPA, "Technical Support Document for Water Quality-based Toxics Control." EPA/505/2-90-001, PB-91-127415, March 1991.

TABLE E-1
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALLS 003-007, 009 AND 010)

FOURTH QUARTER 2016 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

						Step 1: Water Quality Criteria, Determine C						Step 2	Step 3			Step 4
						CTR CRITERIA				Basin Plan	C = Lowest Criteria	Is Effluent Data Available	Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	MEC >= C
						Freshwater		Human Health								
Outfall	CTR	Constituent	Units	MEC	CV	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH							
3-7, 9, 10	1	Antimony	ug/L	All Data Qualified	0.6	NONE	NONE	14	4,300	6	6	No	No	No	NA	No
3-7, 9, 10	2	Arsenic	ug/L	Not Analyzed	0.6	340	150	NONE	NONE	50	50	No	NA	NA	NA	NA
3-7, 9, 10	3	Beryllium	ug/L	Not Analyzed	0.6	NONE	NONE	Narrative	Narrative	4	4	No	NA	NA	NA	NA
3-7, 9, 10	4	Cadmium	ug/L	Available Data <DL	0.6	4.3	2.2	Narrative	Narrative	5	2.2	Yes	No	No	NA	No
3-7, 9, 10	5a	Chromium	ug/L	Not Analyzed	0.6	550	180	Narrative	Narrative	50	50	No	NA	NA	NA	NA
3-7, 9, 10	5b	Chromium VI	ug/L	Not Analyzed	0.6	16	11	Narrative	Narrative	NONE	11	No	NA	NA	NA	NA
3-7, 9, 10	6	Copper	ug/L	6.5	0.6	13	9	1,300	NONE	NONE	9	Yes	Yes	NA	NA	No
3-7, 9, 10	7	Lead	ug/L	5.2	0.6	65	2.5	Narrative	Narrative	NONE	2.5	Yes	Yes	NA	NA	No
3-7, 9, 10	8	Mercury	ug/L	Available Data <DL	0.6	Reserved	Reserved	0.05	0.051	2	0.051	Yes	No	Yes	0.051	No
3-7, 9, 10	9	Nickel	ug/L	Available Data <DL	0.6	470	52	610	4,600	100	52	Yes	No	No	NA	No
3-7, 9, 10	10	Selenium	ug/L	Available Data <DL	0.6	Reserved	5	Narrative	Narrative	50	5	Yes	No	No	NA	No
3-7, 9, 10	11	Silver	ug/L	Available Data <DL	0.6	3.4	NONE	NONE	NONE	NONE	3.4	Yes	No	No	NA	No
3-7, 9, 10	12	Thallium	ug/L	Available Data <DL	0.6	NONE	NONE	1.7	6.3	2	2	Yes	No	No	NA	No
3-7, 9, 10	13	Zinc	ug/L	All Data Qualified	0.6	120	120	NONE	NONE	NONE	120	No	No	No	NA	No
3-7, 9, 10	14	Total Cyanide	ug/L	Available Data <DL	0.6	22	5.2	700	220,000	200	5.2	Yes	No	No	NA	No
3-7, 9, 10	15	Asbestos	Fibers/L	Not Analyzed	0.6	NONE	NONE	7,000,000	NONE	7,000,000	7000000	No	NA	NA	NA	NA
3-7, 9, 10	16	TCDD TEQ_NoDNQ	ug/L	2.30E-10	0.6	NONE	NONE	1.30E-08	1.40E-08	3.00E-08	1.40E-08	Yes	Yes	NA	NA	No
3-7, 9, 10	17	Acrolein	ug/L	Not Analyzed	0.6	NONE	NONE	320	780	NONE	780	No	NA	NA	NA	NA
3-7, 9, 10	18	Acrylonitrile	ug/L	Not Analyzed	0.6	NONE	NONE	0.059	0.66	NONE	0.66	No	NA	NA	NA	NA
3-7, 9, 10	19	Benzene	ug/L	Not Analyzed	0.6	NONE	NONE	1.2	71	1	1	No	NA	NA	NA	NA
3-7, 9, 10	20	Bromoform	ug/L	Not Analyzed	0.6	NONE	NONE	4.3	360	NONE	360	No	NA	NA	NA	NA
3-7, 9, 10	21	Carbon Tetrachloride	ug/L	Not Analyzed	0.6	NONE	NONE	0.25	4.4	0.5	0.5	No	NA	NA	NA	NA
3-7, 9, 10	22	Chlorobenzene	ug/L	Not Analyzed	0.6	NONE	NONE	680	21,000	70	70	No	NA	NA	NA	NA
3-7, 9, 10	23	Dibromochloromethane	ug/L	Not Analyzed	0.6	NONE	NONE	0.401	34	NONE	34	No	NA	NA	NA	NA
3-7, 9, 10	24	Chloroethane	ug/L	Not Analyzed	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	25	2-Chloroethylvinylether	ug/L	Not Analyzed	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	26	Chloroform	ug/L	Not Analyzed	0.6	NONE	NONE	Reserved	Reserved	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	27	Bromodichloromethane	ug/L	Not Analyzed	0.6	NONE	NONE	0.56	46	NONE	46	No	NA	NA	NA	NA
3-7, 9, 10	28	1,1-Dichloroethane	ug/L	Not Analyzed	0.6	NONE	NONE	NONE	NONE	5	5	No	NA	NA	NA	NA
3-7, 9, 10	29	1,2-Dichloroethane	ug/L	Not Analyzed	0.6	NONE	NONE	0.38	99	0.5	0.5	No	NA	NA	NA	NA
3-7, 9, 10	30	1,1-Dichloroethene	ug/L	Not Analyzed	0.6	NONE	NONE	0.057	3.2	6	3.2	No	NA	NA	NA	NA
3-7, 9, 10	31	1,2-Dichloropropane	ug/L	Not Analyzed	0.6	NONE	NONE	0.52	39	5	5	No	NA	NA	NA	NA
3-7, 9, 10	32	cis-1,3-Dichloropropene	ug/L	Not Analyzed	0.6	NONE	NONE	10	1,700	0.5	0.5	No	NA	NA	NA	NA
3-7, 9, 10	32a	trans-1,3-Dichloropropene	ug/L	Not Analyzed	0.6	NONE	NONE	10	1,700	0.5	0.5	No	NA	NA	NA	NA
3-7, 9, 10	33	Ethylbenzene	ug/L	Not Analyzed	0.6	NONE	NONE	3,100	29,000	700	700	No	NA	NA	NA	NA
3-7, 9, 10	34	Bromomethane	ug/L	Not Analyzed	0.6	NONE	NONE	48	4,000	NONE	4000	No	NA	NA	NA	NA
3-7, 9, 10	35	Chloromethane	ug/L	Not Analyzed	0.6	NONE	NONE	Narrative	Narrative	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	36	Methylene chloride	ug/L	Not Analyzed	0.6	NONE	NONE	4.7	1,600	NONE	1600	No	NA	NA	NA	NA
3-7, 9, 10	37	1,1,2,2-Tetrachloroethane	ug/L	Not Analyzed	0.6	NONE	NONE	0.17	11	1	1	No	NA	NA	NA	NA
3-7, 9, 10	38	Tetrachloroethene	ug/L	Not Analyzed	0.6	NONE	NONE	0.8	8.85	5	5	No	NA	NA	NA	NA
3-7, 9, 10	39	Toluene	ug/L	Not Analyzed	0.6	NONE	NONE	6,800	200,000	150	150	No	NA	NA	NA	NA
3-7, 9, 10	40	trans-1,2-Dichloroethene	ug/L	Not Analyzed	0.6	NONE	NONE	700	140,000	10	10	No	NA	NA	NA	NA
3-7, 9, 10	41	1,1,1-Trichloroethane	ug/L	Not Analyzed	0.6	NONE	NONE	Narrative	Narrative	200	200	No	NA	NA	NA	NA
3-7, 9, 10	42	1,1,2-trichloroethane	ug/L	Not Analyzed	0.6	NONE	NONE	0.6	42	5	5	No	NA	NA	NA	NA
3-7, 9, 10	43	Trichloroethene	ug/L	Not Analyzed	0.6	NONE	NONE	2.7	81	5	5	No	NA	NA	NA	NA
3-7, 9, 10	44	Vinyl chloride	ug/L	Not Analyzed	0.6	NONE	NONE	2	525	0.5	0.5	No	NA	NA	NA	NA

See attached RPA Summary for abbreviations, definitions and other explanations for the data presented.

TABLE E-1
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALLS 003-007, 009 AND 010)

FOURTH QUARTER 2016 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

						Step 1: Water Quality Criteria, Determine C						Step 2	Step 3			Step 4
						CTR CRITERIA				Basin Plan	C = Lowest Criteria	Is Effluent Data Available	Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	MEC >= C
						Freshwater		Human Health								
Outfall	CTR	Constituent	Units	MEC	CV	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH							
3-7, 9, 10	45	2-chlorophenol	ug/L	Not Analyzed	0.6	NONE	NONE	120	400	NONE	400	No	NA	NA	NA	NA
3-7, 9, 10	46	2,4-Dichlorophenol	ug/L	Not Analyzed	0.6	NONE	NONE	93	790	NONE	790	No	NA	NA	NA	NA
3-7, 9, 10	47	2,4-dimethylphenol	ug/L	Not Analyzed	0.6	NONE	NONE	540	2,300	NONE	2300	No	NA	NA	NA	NA
3-7, 9, 10	48	2-Methyl-4,6-dinitrophenol	ug/L	Not Analyzed	0.6	NONE	NONE	13.4	765	NONE	765	No	NA	NA	NA	NA
3-7, 9, 10	49	2,4-dinitrophenol	ug/L	Not Analyzed	0.6	NONE	NONE	70	14,000	NONE	14000	No	NA	NA	NA	NA
3-7, 9, 10	50	2-nitrophenol	ug/L	Not Analyzed	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	51	4-nitrophenol	ug/L	Not Analyzed	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	52	4-Chloro-3-methylphenol	ug/L	Not Analyzed	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	53	Pentachlorophenol	ug/L	Not Analyzed	0.6	pH dependent	pH dependent	0.28	8.2	1	1	No	NA	NA	NA	NA
3-7, 9, 10	54	Phenol	ug/L	Not Analyzed	0.6	NONE	NONE	21,000	4,600,000	NONE	4600000	No	NA	NA	NA	NA
3-7, 9, 10	55	2,4,6-Trichlorophenol	ug/L	Not Analyzed	0.6	NONE	NONE	2.1	6.5	NONE	6.5	No	NA	NA	NA	NA
3-7, 9, 10	56	Acenaphthene	ug/L	Not Analyzed	0.6	NONE	NONE	1,200	2,700	NONE	2700	No	NA	NA	NA	NA
3-7, 9, 10	57	Acenaphthylene	ug/L	Not Analyzed	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	58	Anthracene	ug/L	Not Analyzed	0.6	NONE	NONE	9,600	110,000	NONE	110000	No	NA	NA	NA	NA
3-7, 9, 10	59	Benzidine	ug/L	Not Analyzed	0.6	NONE	NONE	0.00012	0.00054	NONE	0.00054	No	NA	NA	NA	NA
3-7, 9, 10	60	Benzo(a)Anthracene	ug/L	Not Analyzed	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
3-7, 9, 10	61	Benzo(a)Pyrene	ug/L	Not Analyzed	0.6	NONE	NONE	0.0044	0.049	0.2	0.049	No	NA	NA	NA	NA
3-7, 9, 10	62	Benzo(b)Fluoranthene	ug/L	Not Analyzed	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
3-7, 9, 10	63	Benzo(g,h,i)Perylene	ug/L	Not Analyzed	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	64	Benzo(k)Fluoranthene	ug/L	Not Analyzed	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
3-7, 9, 10	65	Bis(2-Chloroethoxy) methane	ug/L	Not Analyzed	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	66	bis (2-Chloroethyl) ether	ug/L	Not Analyzed	0.6	NONE	NONE	0.031	1.4	NONE	1.4	No	NA	NA	NA	NA
3-7, 9, 10	67	Bis(2-Chloroisopropyl) Ether	ug/L	Not Analyzed	0.6	NONE	NONE	1,400	170,000	NONE	170000	No	NA	NA	NA	NA
3-7, 9, 10	68	bis (2-ethylhexyl) Phthalate	ug/L	Not Analyzed	0.6	NONE	NONE	1.8	5.9	4	4	No	NA	NA	NA	NA
3-7, 9, 10	69	4-Bromophenylphenylether	ug/L	Not Analyzed	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	70	Butylbenzylphthalate	ug/L	Not Analyzed	0.6	NONE	NONE	3,000	5,200	NONE	5200	No	NA	NA	NA	NA
3-7, 9, 10	71	2-Chloronaphthalene	ug/L	Not Analyzed	0.6	NONE	NONE	1,700	4,300	NONE	4300	No	NA	NA	NA	NA
3-7, 9, 10	72	4-Chlorophenylphenylether	ug/L	Not Analyzed	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	73	Chrysene	ug/L	Not Analyzed	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
3-7, 9, 10	74	Dibenzo(a,h)Anthracene	ug/L	Not Analyzed	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
3-7, 9, 10	75	1,2-Dichlorobenzene	ug/L	Not Analyzed	0.6	NONE	NONE	2,700	17,000	600	600	No	NA	NA	NA	NA
3-7, 9, 10	76	1,3-Dichlorobenzene	ug/L	Not Analyzed	0.6	NONE	NONE	400	2,600	NONE	2600	No	NA	NA	NA	NA
3-7, 9, 10	77	1,4-Dichlorobenzene	ug/L	Not Analyzed	0.6	NONE	NONE	400	2,600	5	5	No	NA	NA	NA	NA
3-7, 9, 10	78	3,3'-Dichlorobenzidine	ug/L	Not Analyzed	0.6	NONE	NONE	0.04	0.077	NONE	0.077	No	NA	NA	NA	NA
3-7, 9, 10	79	Diethylphthalate	ug/L	Not Analyzed	0.6	NONE	NONE	23,000	120,000	NONE	120000	No	NA	NA	NA	NA
3-7, 9, 10	80	Dimethylphthalate	ug/L	Not Analyzed	0.6	NONE	NONE	313,000	2,900,000	NONE	2900000	No	NA	NA	NA	NA
3-7, 9, 10	81	Di-n-butylphthalate	ug/L	Not Analyzed	0.6	NONE	NONE	2,700	12,000	NONE	12000	No	NA	NA	NA	NA
3-7, 9, 10	82	2,4-Dinitrotoluene	ug/L	Not Analyzed	0.6	NONE	NONE	0.11	9.1	NONE	9.1	No	NA	NA	NA	NA
3-7, 9, 10	83	2,6-Dinitrotoluene	ug/L	Not Analyzed	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	84	Di-n-octylphthalate	ug/L	Not Analyzed	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	85	1,2-Diphenylhydrazine	ug/L	Not Analyzed	0.6	NONE	NONE	0.04	0.54	NONE	0.54	No	NA	NA	NA	NA
3-7, 9, 10	86	Fluoranthene	ug/L	Not Analyzed	0.6	NONE	NONE	300	370	NONE	370	No	NA	NA	NA	NA
3-7, 9, 10	87	Fluorene	ug/L	Not Analyzed	0.6	NONE	NONE	1,300	14,000	NONE	14000	No	NA	NA	NA	NA
3-7, 9, 10	88	Hexachlorobenzene	ug/L	Not Analyzed	0.6	NONE	NONE	0.00075	0.00077	1	0.00077	No	NA	NA	NA	NA
3-7, 9, 10	89	Hexachlorobutadiene	ug/L	Not Analyzed	0.6	NONE	NONE	0.44	50	NONE	50	No	NA	NA	NA	NA
3-7, 9, 10	90	Hexachlorocyclopentadiene	ug/L	Not Analyzed	0.6	NONE	NONE	240	17,000	50	50	No	NA	NA	NA	NA

See attached RPA Summary for abbreviations, definitions and other explanations for the data presented.

TABLE E-1
REASONABLE POTENTIAL ANALYSIS - PRIORITY POLLUTANTS (OUTFALLS 003-007, 009 AND 010)

FOURTH QUARTER 2016 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

						Step 1: Water Quality Criteria, Determine C						Step 2	Step 3			Step 4
						CTR CRITERIA										
						Freshwater		Human Health		Basin Plan	C = Lowest Criteria	Is Effluent Data Available	Was Constituent Detected in Effluent Data	Are all Detection Limits > C	If DL > C, MEC = Min (DL)	MEC >= C
Outfall	CTR	Constituent	Units	MEC	CV	CMC = Acute	CCC = Chronic	HH W&O (Not App)	HH O = HH							
3-7, 9, 10	91	Hexachloroethane	ug/L	Not Analyzed	0.6	NONE	NONE	1.9	8.9	NONE	8.9	No	NA	NA	NA	NA
3-7, 9, 10	92	Indeno(1,2,3-cd)Pyrene	ug/L	Not Analyzed	0.6	NONE	NONE	0.0044	0.049	NONE	0.049	No	NA	NA	NA	NA
3-7, 9, 10	93	Isophorone	ug/L	Not Analyzed	0.6	NONE	NONE	8.4	600	NONE	600	No	NA	NA	NA	NA
3-7, 9, 10	94	Naphthalene	ug/L	Not Analyzed	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	95	Nitrobenzene	ug/L	Not Analyzed	0.6	NONE	NONE	17	1,900	NONE	1900	No	NA	NA	NA	NA
3-7, 9, 10	96	N-Nitrosodimethylamine	ug/L	Not Analyzed	0.6	NONE	NONE	0.00069	8.1	NONE	8.1	No	NA	NA	NA	NA
3-7, 9, 10	97	n-Nitroso-di-n-propylamine	ug/L	Not Analyzed	0.6	NONE	NONE	0.005	1.4	NONE	1.4	No	NA	NA	NA	NA
3-7, 9, 10	98	N-Nitrosodiphenylamine	ug/L	Not Analyzed	0.6	NONE	NONE	5	16	NONE	16	No	NA	NA	NA	NA
3-7, 9, 10	99	Phenanthrene	ug/L	Not Analyzed	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	100	Pyrene	ug/L	Not Analyzed	0.6	NONE	NONE	960	11,000	NONE	11000	No	NA	NA	NA	NA
3-7, 9, 10	101	1,2,4-Trichlorobenzene	ug/L	Not Analyzed	0.6	NONE	NONE	NONE	NONE	70	70	No	NA	NA	NA	NA
3-7, 9, 10	102	Aldrin	ug/L	Not Analyzed	0.6	3	NONE	0.00013	0.00014	NONE	0.00014	No	NA	NA	NA	NA
3-7, 9, 10	103	alpha-BHC	ug/L	Not Analyzed	0.6	NONE	NONE	0.0039	0.013	NONE	0.013	No	NA	NA	NA	NA
3-7, 9, 10	104	beta-BHC	ug/L	Not Analyzed	0.6	NONE	NONE	0.014	0.046	NONE	0.046	No	NA	NA	NA	NA
3-7, 9, 10	105	Lindane (gamma-BHC)	ug/L	Not Analyzed	0.6	0.95	NONE	0.019	0.063	0.2	0.063	No	NA	NA	NA	NA
3-7, 9, 10	106	delta-BHC	ug/L	Not Analyzed	0.6	NONE	NONE	NONE	NONE	NONE	NONE	No	NA	NA	NA	NA
3-7, 9, 10	107	Chlordane	ug/L	Not Analyzed	0.6	2.4	0.0043	0.00057	0.00059	0.1	0.00059	No	NA	NA	NA	NA
3-7, 9, 10	108	4,4'-DDT	ug/L	Not Analyzed	0.6	1.1	0.001	0.00059	0.00059	NONE	0.00059	No	NA	NA	NA	NA
3-7, 9, 10	109	4,4'-DDE	ug/L	Not Analyzed	0.6	NONE	NONE	0.00059	0.00059	NONE	0.00059	No	NA	NA	NA	NA
3-7, 9, 10	110	4,4'-DDD	ug/L	Not Analyzed	0.6	NONE	NONE	0.00083	0.00084	NONE	0.00084	No	NA	NA	NA	NA
3-7, 9, 10	111	Dieldrin	ug/L	Not Analyzed	0.6	0.24	0.056	0.00014	0.00014	NONE	0.00014	No	NA	NA	NA	NA
3-7, 9, 10	112	Endosulfan I	ug/L	Not Analyzed	0.6	0.22	0.056	110	240	NONE	0.056	No	NA	NA	NA	NA
3-7, 9, 10	113	Endosulfan II	ug/L	Not Analyzed	0.6	0.22	0.056	110	240	NONE	0.056	No	NA	NA	NA	NA
3-7, 9, 10	114	Endosulfan Sulfate	ug/L	Not Analyzed	0.6	NONE	NONE	110	240	NONE	240	No	NA	NA	NA	NA
3-7, 9, 10	115	Endrin	ug/L	Not Analyzed	0.6	0.086	0.036	0.76	0.81	2	0.036	No	NA	NA	NA	NA
3-7, 9, 10	116	Endrin Aldehyde	ug/L	Not Analyzed	0.6	NONE	NONE	0.76	0.81	NONE	0.81	No	NA	NA	NA	NA
3-7, 9, 10	117	Heptachlor	ug/L	Not Analyzed	0.6	0.52	0.0038	0.00021	0.00021	0.01	0.00021	No	NA	NA	NA	NA
3-7, 9, 10	118	Heptachlor Epoxide	ug/L	Not Analyzed	0.6	0.52	0.0038	0.0001	0.00011	0.01	0.00011	No	NA	NA	NA	NA
3-7, 9, 10	119	Aroclor-1016	ug/L	Not Analyzed	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
3-7, 9, 10	120	Aroclor-1221	ug/L	Not Analyzed	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
3-7, 9, 10	121	Aroclor-1232	ug/L	Not Analyzed	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
3-7, 9, 10	122	Aroclor-1242	ug/L	Not Analyzed	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
3-7, 9, 10	123	Aroclor-1248	ug/L	Not Analyzed	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
3-7, 9, 10	124	Aroclor-1254	ug/L	Not Analyzed	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
3-7, 9, 10	125	Aroclor-1260	ug/L	Not Analyzed	0.6	NONE	0.014	0.00017	0.00017	0.5	0.00017	No	NA	NA	NA	NA
3-7, 9, 10	126	Toxaphene	ug/L	Not Analyzed	0.6	0.73	0.0002	0.00073	0.00075	3	0.0002	No	NA	NA	NA	NA
3-7, 9, 10	127	E. Coli	MPN/100ml	Not Analyzed	0.6	NA	NA	NA	NA	235	235	No	NA	NA	NA	NA

See attached RPA Summary for abbreviations, definitions and other explanations for the data presented.

TABLE E-2
REASONABLE POTENTIAL ANALYSIS - NONPRIORITY POLLUTANTS (OUTFALLS 003-007,009 AND 010)

FOURTH QUARTER 2016 REPORTING SUMMARY
THE BOEING COMPANY
SANTA SUSANA FIELD LABORATORY
NPDES PERMIT CA0001309

Outfall	Constituent	Monitoring	Units	Number of Samples	MEC	CV	Multiplier	Projected Maximum Effluent Concentration (99/99)	Dilution Ratio	Background Concentration	Projected Maximum Receiving Water Concentration	Step 1, Determine Water Quality Objectives	BU - Beneficial use protection NC-Human noncarcinogen AP-Aquatic life protection TMDL-Total Maximum Daily Load
3-7, 9, 10	Boron	Annual	mg/L	0	Not Analyzed	0.6	Not Analyzed	Not Analyzed	NA	NA	Not Analyzed	1	BU
3-7, 9, 10	Chloride	Discharge	mg/L	1	4.2	0.6	13.20	55.43	NA	NA	55.43	150	BU
3-7, 9, 10	Fluoride	Annual	mg/L	0	Not Analyzed	0.6	Not Analyzed	Not Analyzed	NA	NA	Not Analyzed	1.6	BU
3-7, 9, 10	Nitrate + Nitrite as Nitrogen (N)	Discharge	mg/L	1	0.78	0.6	13.20	10.29	NA	NA	10.29	8	BU/TMDL
3-7, 9, 10	Oil & Grease	Discharge	mg/L	1	Available Data <DL	0.6	All Data Qualified	All Data Qualified	NA	NA	NA	10	BU
3-7, 9, 10	Sulfate	Discharge	mg/L	1	5.0	0.6	13.20	65.98	NA	NA	65.98	300	BU
3-7, 9, 10	Total Dissolved Solids	Discharge	mg/L	1	84	0.6	13.20	1108.54	NA	NA	1108.54	850	BU
3-7, 9, 10	Total Suspended Solids	Annual	mg/L	0	Not Analyzed	0.6	Not Analyzed	Not Analyzed	NA	NA	Not Analyzed	45	BU

See attached RPA Summary for abbreviations, definitions and other explanations for the data presented.