

EBERLINE ANALYTICAL

SDG 8693

SDG 8693  
Contact Joseph Verville

REPORT GUIDE

Client Test America, Inc.  
Contract IUK0771

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DUPLICATES

REPORT GUIDES

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Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 11/29/11

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GUIDE, cont.

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ABOUT THE DATA SUMMARY SECTION

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

REPORT GUIDES

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LAB SAMPLE SUMMARY

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Contract IUK0771

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAS NO	CHAIN OF CUSTODY	COLLECTED
S111021-01	IUK0771-02	Boeing - SSFL	WATER			IUK0771	11/06/11 11:00
S111021-02	IUK0771-03 (TRIP-BLANK)	Boeing - SSFL	WATER			IUK0771	11/04/11 00:00
S111021-03	Lab Control Sample		WATER				
S111021-04	Method Blank		WATER				
S111021-05	Duplicate (S111021-01)	Boeing - SSFL	WATER				11/06/11 11:00

LAB SUMMARY

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Client Test America, Inc.  
 Contract IUK0771

QC SUMMARY

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% MOIST	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL SAMPLE ID	DEPARTMENT SAMPLE ID
8693	IUK0771	IUK0771-02	WATER		10.0 L			S111021-01	8693-001
		IUK0771-03 (TRIP-BLANK)	WATER		10.0 L			S111021-02	8693-002
		Method Blank	WATER					S111021-04	8693-004
		Lab Control Sample	WATER					S111021-03	8693-003
		Duplicate (S111021-01)	WATER		10.0 L			S111021-05	8693-005

QC SUMMARY

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**PREP BATCH SUMMARY**

Client Test America, Inc.  
 Contract IUK0771

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI- FIERS
			BATCH	2σ %	CLIENT	MORE	RE BLANK	LCS	
<b>Beta Counting</b>									
AC	WATER	Radium-228 in Water	7271-104	10.4	2		1	1	1/1
SR	WATER	Strontium-90 in Water	7271-104	10.4	2		1	1	1/1
<b>Gas Proportional Counting</b>									
80A	WATER	Gross Alpha in Water	7271-104	20.6	2		1	1	1/1
80B	WATER	Gross Beta in Water	7271-104	11.0	2		1	1	1/1
<b>Gamma Spectroscopy</b>									
GAM	WATER	Gamma Emitters in Water	7271-104	7.0	2		1	1	1/1
<b>Kinetic Phosphorimetry, ug</b>									
U_T	WATER	Uranium, Total	7271-104		2		1	1	1/1
<b>Liquid Scintillation Counting</b>									
H	WATER	Tritium in Water	7271-104	10.0	1		1	1	1/1
<b>Radon Counting</b>									
RA	WATER	Radium-226 in Water	7271-104	16.4	2		1	1	1/1

Blank, LCS, Duplicate and Spike planchets are those in the same preparation batch as some Client sample.

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**LAB WORK SUMMARY**

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Client Test America, Inc.  
Contract IUK0771

LAB SAMPLE	CLIENT SAMPLE ID				SUF-					
COLLECTED	LOCATION	MATRIX			FIX	ANALYZED	REVIEWED	BY	METHOD	
RECEIVED	CUSTODY	SAS no	PLANCHET	TEST						
S111021-01 11/06/11	IUK0771-02		8693-001	80A/80		11/16/11	11/29/11	BW	Gross Alpha in Water	
	Boeing - SSFL	WATER	8693-001	80B/80		11/16/11	11/29/11	BW	Gross Beta in Water	
	IUK0771		8693-001	AC		11/14/11	11/15/11	BW	Radium-228 in Water	
			8693-001	GAM		11/11/11	11/15/11	CSS	Gamma Emitters in Water	
			8693-001	H		11/11/11	11/14/11	BW	Tritium in Water	
			8693-001	RA		11/16/11	11/16/11	BW	Radium-226 in Water	
			8693-001	SR		11/11/11	11/16/11	BW	Strontium-90 in Water	
			8693-001	U_T		11/15/11	11/15/11	CSS	Uranium, Total	
S111021-02 11/04/11	IUK0771-03 (TRIP-BLANK)		8693-002	80A/80		11/17/11	11/29/11	BW	Gross Alpha in Water	
	Boeing - SSFL	WATER	8693-002	80B/80		11/17/11	11/29/11	BW	Gross Beta in Water	
	IUK0771		8693-002	AC		11/14/11	11/15/11	BW	Radium-228 in Water	
			8693-002	GAM		11/11/11	11/15/11	CSS	Gamma Emitters in Water	
			8693-002	RA		11/16/11	11/16/11	BW	Radium-226 in Water	
			8693-002	SR		11/11/11	11/16/11	BW	Strontium-90 in Water	
			8693-002	U_T		11/15/11	11/15/11	CSS	Uranium, Total	
S111021-03	Lab Control Sample		8693-003	80A/80		11/28/11	11/29/11	BW	Gross Alpha in Water	
		WATER	8693-003	80B/80		11/28/11	11/29/11	BW	Gross Beta in Water	
			8693-003	AC		11/14/11	11/15/11	BW	Radium-228 in Water	
			8693-003	GAM		11/14/11	11/15/11	CSS	Gamma Emitters in Water	
			8693-003	H		11/11/11	11/14/11	BW	Tritium in Water	
			8693-003	RA		11/16/11	11/16/11	BW	Radium-226 in Water	
			8693-003	SR		11/11/11	11/16/11	BW	Strontium-90 in Water	
			8693-003	U_T		11/15/11	11/15/11	CSS	Uranium, Total	
S111021-04	Method Blank		8693-004	80A/80		11/22/11	11/29/11	BW	Gross Alpha in Water	
		WATER	8693-004	80B/80		11/22/11	11/29/11	BW	Gross Beta in Water	
			8693-004	AC		11/14/11	11/15/11	BW	Radium-228 in Water	
			8693-004	GAM		11/14/11	11/15/11	CSS	Gamma Emitters in Water	
			8693-004	H		11/11/11	11/14/11	BW	Tritium in Water	
			8693-004	RA		11/16/11	11/16/11	BW	Radium-226 in Water	
			8693-004	SR		11/11/11	11/16/11	BW	Strontium-90 in Water	
			8693-004	U_T		11/15/11	11/15/11	CSS	Uranium, Total	

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**WORK SUMMARY, cont.**

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Client Test America, Inc.  
Contract IUK0771

LAB SAMPLE	CLIENT SAMPLE ID				SUF-				
COLLECTED	LOCATION	MATRIX			FIX	ANALYZED	REVIEWED	BY	METHOD
RECEIVED	CUSTODY	SAS no	PLANCHET	TEST					
S111021-05	Duplicate (S111021-01)		8693-005	80A/80		11/22/11	11/29/11	BW	Gross Alpha in Water
11/06/11	Boeing - SSFL	WATER	8693-005	80B/80		11/22/11	11/29/11	BW	Gross Beta in Water
			8693-005	AC		11/14/11	11/15/11	BW	Radium-228 in Water
			8693-005	GAM		11/14/11	11/15/11	CSS	Gamma Emitters in Water
			8693-005	H		11/11/11	11/14/11	BW	Tritium in Water
			8693-005	RA		11/16/11	11/16/11	BW	Radium-226 in Water
			8693-005	SR		11/11/11	11/16/11	BW	Strontium-90 in Water
			8693-005	U_T		11/15/11	11/15/11	CSS	Uranium, Total

**COUNTS OF TESTS BY SAMPLE TYPE**

TEST	SAS no	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
80A/80		Gross Alpha in Water	900.0		2		1	1	1		5
80B/80		Gross Beta in Water	900.0		2		1	1	1		5
AC		Radium-228 in Water	904.0		2		1	1	1		5
GAM		Gamma Emitters in Water	901.1		2		1	1	1		5
H		Tritium in Water	906.0		1		1	1	1		4
RA		Radium-226 in Water	903.1		2		1	1	1		5
SR		Strontium-90 in Water	905.0		2		1	1	1		5
U_T		Uranium, Total	D5174		2		1	1	1		5
<b>TOTALS</b>					15		8	8	8		39

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8693-004

Method Blank

METHOD BLANK

SDG <u>8693</u>	Client <u>Test America, Inc.</u>
Contact <u>Joseph Verville</u>	Contract <u>IUK0771</u>
Lab sample id <u>S111021-04</u>	Client sample id <u>Method Blank</u>
Dept sample id <u>8693-004</u>	Material/Matrix <u>WATER</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587461	-0.078	0.25	0.504	3.00	U	80A
Gross Beta	12587472	-0.352	0.50	0.858	4.00	U	80B
Tritium	10028178	-5.89	8.9	15.3	500	U	H
Radium-226	13982633	0.110	0.38	0.673	1.00	U	RA
Radium-228	15262201	-0.040	0.19	0.381	1.00	U	AC
Strontium-90	10098972	0.171	0.49	1.09	2.00	U	SR
Uranium, Total		0	0.007	0.017	1.00	U	U_T
Potassium-40	13966002	U		<u>35.5</u>	25.0	U	GAM
Cesium-137	10045973	U		1.97	20.0	U	GAM

QC-BLANK #80547

Lab id <u>EAS</u>
Protocol <u>TA</u>
Version <u>Ver 1.0</u>
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8693-003

Lab Control Sample

**LAB CONTROL SAMPLE**

SDG <u>8693</u>	Client <u>Test America, Inc.</u>
Contact <u>Joseph Verville</u>	Contract <u>IUK0771</u>
Lab sample id <u>S111021-03</u>	Client sample id <u>Lab Control Sample</u>
Dept sample id <u>8693-003</u>	Material/Matrix <u>WATER</u>

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	2σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	39.6	2.2	0.579	3.00		80A	33.7	1.3	118	75-125	70-130
Gross Beta	26.8	1.2	0.929	4.00		80B	28.6	1.1	94	88-112	70-130
Tritium	203	14	15.6	500	J	H	227	9.1	89	88-112	80-120
Radium-226	49.4	2.3	0.795	1.00		RA	50.1	2.0	99	83-117	80-120
Radium-228	4.80	0.43	0.291	1.00		AC	4.66	0.19	103	85-115	60-140
Strontium-90	20.7	1.2	0.556	2.00		SR	18.9	0.76	110	86-114	80-120
Uranium, Total	60.1	6.9	0.169	1.00		U_T	56.5	2.3	106	87-113	80-120
Cobalt-60	130	6.3	3.50	10.0		GAM	138	5.5	94	91-109	80-120
Cesium-137	145	5.5	3.71	20.0		GAM	148	5.9	98	91-109	80-120

QC-LCS #80546

Lab id <u>EAS</u>
Protocol <u>TA</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
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**EBERLINE ANALYTICAL**

SDG 8693

8693-005

IUK0771-02

**DUPLICATE**

SDG <u>8693</u> Contact <u>Joseph Verville</u> DUPLICATE Lab sample id <u>S111021-05</u> Dept sample id <u>8693-005</u>	ORIGINAL Lab sample id <u>S111021-01</u> Dept sample id <u>8693-001</u> Received _____	Client <u>Test America, Inc.</u> Contract <u>IUK0771</u> Client sample id <u>IUK0771-02</u> Location/Matrix <u>Boeing - SSFL</u> <u>WATER</u> Collected/Volume <u>11/06/11 11:00</u> <u>10.0 L</u> Chain of custody id <u>IUK0771</u>
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ANALYTE	DUPLICATE	2σ ERR	MDA	RDL	QUALI-	TEST	ORIGINAL	2σ ERR	MDA	QUALI-	RPD	3σ	DER
	pCi/L	(COUNT)	pCi/L	pCi/L	FIERS		pCi/L	(COUNT)	pCi/L	FIERS	%	TOT	σ
Gross Alpha	0.273	0.25	0.381	3.00	U	80A	0.563	0.29	0.366	J	69	145	1.4
Gross Beta	2.38	0.60	0.881	4.00	J	80B	1.70	0.55	0.824	J	33	64	1.6
Tritium	<u>-130</u>	88	157	500	U	H	-3.07	92	156	U	-	-	2.0
Radium-226	-0.037	0.44	0.813	1.00	U	RA	0.166	0.39	0.680	U	-	-	0.7
Radium-228	0.268	0.15	0.340	1.00	U	AC	0.166	0.14	0.291	U	-	-	1.0
Strontium-90	0.212	0.46	0.931	2.00	U	SR	0.030	0.26	0.511	U	-	-	0.7
Uranium, Total	0.098	0.013	0.017	1.00	J	U_T	0.107	0.014	0.017	J	9	28	0.9
Potassium-40	U		18.5	25.0	U	GAM	U		<u>26.2</u>	U	-	-	0.5
Cesium-137	U		1.71	20.0	U	GAM	U		0.966	U	-	-	0.8

QC-DUP#1 80548

DUPLICATES

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SDG 8693

8693-001

IUK0771-02

DATA SHEET

SDG <u>8693</u>	Client <u>Test America, Inc.</u>
Contact <u>Joseph Verville</u>	Contract <u>IUK0771</u>
Lab sample id <u>S111021-01</u>	Client sample id <u>IUK0771-02</u>
Dept sample id <u>8693-001</u>	Location/Matrix <u>Boeing - SSFL</u> <u>WATER</u>
Received _____	Collected/Volume <u>11/06/11 11:00</u> <u>10.0 L</u>
	Chain of custody id <u>IUK0771</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALIFIERS	TEST
Gross Alpha	12587461	0.563	0.29	0.366	3.00	J	80A
Gross Beta	12587472	1.70	0.55	0.824	4.00	J	80B
Tritium	10028178	-3.07	92	156	500	U	H
Radium-226	13982633	0.166	0.39	0.680	1.00	U	RA
Radium-228	15262201	0.166	0.14	0.291	1.00	U	AC
Strontium-90	10098972	0.030	0.26	0.511	2.00	U	SR
Uranium, Total		0.107	0.014	0.017	1.00	J	U_T
Potassium-40	13966002	U		<u>26.2</u>	25.0	U	GAM
Cesium-137	10045973	U		0.966	20.0	U	GAM

Lab id <u>EAS</u>
Protocol <u>TA</u>
Version <u>Ver 1.0</u>
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Report date <u>11/29/11</u>

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SDG 8693

8693-002

IUK0771-03 (TRIP-BLANK)

DATA SHEET

SDG <u>8693</u>	Client <u>Test America, Inc.</u>
Contact <u>Joseph Verville</u>	Contract <u>IUK0771</u>
Lab sample id <u>S111021-02</u>	Client sample id <u>IUK0771-03 (TRIP-BLANK)</u>
Dept sample id <u>8693-002</u>	Location/Matrix <u>Boeing - SSFL</u> <u>WATER</u>
Received _____	Collected/Volume <u>11/04/11 00:00</u> <u>10.0 L</u>
	Chain of custody id <u>IUK0771</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587461	0.019	0.18	0.311	3.00	U	80A
Gross Beta	12587472	-0.377	0.65	1.08	4.00	U	80B
Radium-226	13982633	-0.226	0.42	0.819	1.00	U	RA
Radium-228	15262201	0.003	0.19	0.313	1.00	U	AC
Strontium-90	10098972	-0.034	0.43	1.02	2.00	U	SR
Uranium, Total		0	0.007	0.017	1.00	U	U_T
Potassium-40	13966002	U		15.0	25.0	U	GAM
Cesium-137	10045973	U		1.35	20.0	U	GAM

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SDG 8693

**LAB METHOD SUMMARY**

RADIUM-228 IN WATER

BETA COUNTING

Test AC Matrix WATER  
 SDG 8693  
 Contact Joseph Verville

Client Test America, Inc.  
 Contract IUK0771

**RESULTS**

LAB            RAW    SUF-  
 SAMPLE ID    TEST FIX    PLANCHET    CLIENT SAMPLE ID            Radium-228

Preparation batch 7271-104

S111021-01	8693-001	IUK0771-02	U
S111021-02	8693-002	IUK0771-03 (TRIP-BLANK)	U
S111021-03	8693-003	Lab Control Sample	ok
S111021-04	8693-004	Method Blank	U
S111021-05	8693-005	Duplicate (S111021-01)	- U

Nominal values and limits from method            RDLs (pCi/L)            1.00

**METHOD PERFORMANCE**

LAB            RAW    SUF-            MDA            ALIQ    PREP    DILU-    YIELD    EFF    COUNT    FWHM    DRIFT    DAYS            ANAL-  
 SAMPLE ID    TEST FIX    CLIENT SAMPLE ID            pCi/L            L            FAC    TION            %            %            min    keV    KeV    HELD    PREPARED    YZED    DETECTOR

Preparation batch 7271-104            2σ prep error 10.4 %            Reference Lab Notebook No. 7271 pg.024

S111021-01	IUK0771-02	0.291	1.80	87	150	8	11/14/11	11/14	GRB-225
S111021-02	IUK0771-03 (TRIP-BLANK)	0.313	1.80	74	150	10	11/14/11	11/14	GRB-227
S111021-03	Lab Control Sample	0.291	1.80	75	150		11/14/11	11/14	GRB-228
S111021-04	Method Blank	0.381	1.80	77	150		11/14/11	11/14	GRB-206
S111021-05	Duplicate (S111021-01)	0.340	1.80	84	150	8	11/14/11	11/14	GRB-207

Nominal values and limits from method            1.00            1.80            30-105            50            180

PROCEDURES    REFERENCE    904.0  
 DWP-894            Sequential Separation of Actinium-228 and  
 Radium-226 in Drinking Water (>1 Liter Aliquot),  
 rev 5

AVERAGES ± 2 SD            MDA 0.323 ± 0.076  
 FOR 5 SAMPLES            YIELD 79 ± 12

Lab id EAS  
 Protocol TA  
 Version Ver 1.0  
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**EBERLINE ANALYTICAL**

SDG 8693

**LAB METHOD SUMMARY**

STRONTIUM-90 IN WATER

BETA COUNTING

Test SR Matrix WATER  
 SDG 8693  
 Contact Joseph Verville

Client Test America, Inc.  
 Contract IUK0771

**RESULTS**

LAB	RAW	SUF-		
SAMPLE ID	TEST	FIX	PLANCHET	CLIENT SAMPLE ID
Preparation batch 7271-104				
S111021-01			8693-001	IUK0771-02
S111021-02			8693-002	IUK0771-03 (TRIP-BLANK)
S111021-03			8693-003	Lab Control Sample
S111021-04			8693-004	Method Blank
S111021-05			8693-005	Duplicate (S111021-01)

Nominal values and limits from method      RDLs (pCi/L)      2.00

**METHOD PERFORMANCE**

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST	FIX	CLIENT	SAMPLE	ID	pCi/L	L	FAC	TION	%	%	min	keV
Preparation batch 7271-104      2σ prep error 10.4 %      Reference Lab Notebook No. 7271 pg.024													
S111021-01			IUK0771-02			0.511	0.500			82		100	5
S111021-02			IUK0771-03 (TRIP-BLANK)			1.02	0.500			87		50	7
S111021-03			Lab Control Sample			0.556	0.500			85		100	11/11/11
S111021-04			Method Blank			1.09	0.500			78		50	11/11/11
S111021-05			Duplicate (S111021-01)			0.931	0.500			89		65	5

Nominal values and limits from method      2.00      0.500      30-105      50      180

PROCEDURES      REFERENCE      905.0  
 CP-380      Strontium in Water Samples, rev 5

AVERAGES ± 2 SD      MDA 0.822 ± 0.539  
 FOR 5 SAMPLES      YIELD 84 ± 9

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EAS  
 Protocol TA  
 Version Ver 1.0  
 Form DVD-LMS  
 Version 3.06  
 Report date 11/29/11

**EBERLINE ANALYTICAL**

SDG 8693

**LAB METHOD SUMMARY**

GROSS ALPHA IN WATER

GAS PROPORTIONAL COUNTING

Test 80A Matrix WATER  
 SDG 8693  
 Contact Joseph Verville

Client Test America, Inc.  
 Contract IUK0771

**RESULTS**

LAB	RAW	SUF-			
SAMPLE ID	TEST	FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
Preparation batch 7271-104					
S111021-01	80		8693-001	IUK0771-02	0.563 J
S111021-02	80		8693-002	IUK0771-03 (TRIP-BLANK)	U
S111021-03	80		8693-003	Lab Control Sample	ok
S111021-04	80		8693-004	Method Blank	U
S111021-05	80		8693-005	Duplicate (S111021-01)	ok U

Nominal values and limits from method      RDLs (pCi/L)      3.00

**METHOD PERFORMANCE**

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	RESID	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-					
SAMPLE ID	TEST	FIX	CLIENT	SAMPLE	ID	pCi/L	L	FAC	TION	mg	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7271-104      2σ prep error 20.6 %      Reference Lab Notebook No. 7271 pg.024																		
S111021-01	80		IUK0771-02			0.366	0.300			12	400		10	11/15/11	11/16			GRB-112
S111021-02	80		IUK0771-03 (TRIP-BLANK)			0.311	0.300			0	400		13	11/15/11	11/17			GRB-107
S111021-03	80		Lab Control Sample			0.579	0.300			61	400			11/15/11	11/28			GRB-101
S111021-04	80		Method Blank			0.504	0.300			60	400			11/15/11	11/22			GRB-112
S111021-05	80		Duplicate (S111021-01)			0.381	0.300			12	400		16	11/15/11	11/22			GRB-101

Nominal values and limits from method      3.00      0.300      0-250      100      180

PROCEDURES      REFERENCE      900.0  
 DWP-121      Gross Alpha and Gross Beta in Drinking Water,  
 rev 10

AVERAGES ± 2 SD      MDA 0.428 ± 0.220  
 FOR 5 SAMPLES      RESIDUE 29 ± 58

Lab id EAS  
 Protocol TA  
 Version Ver 1.0  
 Form DVD-LMS  
 Version 3.06  
 Report date 11/29/11

**EBERLINE ANALYTICAL**

SDG 8693

**LAB METHOD SUMMARY**

GROSS BETA IN WATER

GAS PROPORTIONAL COUNTING

Test 80B Matrix WATER  
 SDG 8693  
 Contact Joseph Verville

Client Test America, Inc.  
 Contract IUK0771

**RESULTS**

LAB	RAW	SUF-			
SAMPLE ID	TEST	FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
Preparation batch 7271-104					
S111021-01	80		8693-001	IUK0771-02	1.70 J
S111021-02	80		8693-002	IUK0771-03 (TRIP-BLANK)	U
S111021-03	80		8693-003	Lab Control Sample	ok
S111021-04	80		8693-004	Method Blank	U
S111021-05	80		8693-005	Duplicate (S111021-01)	ok J

Nominal values and limits from method      RDLs (pCi/L)      4.00

**METHOD PERFORMANCE**

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	RESID	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-			
SAMPLE ID	TEST	FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	mg	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7271-104      2σ prep error 11.0 %      Reference Lab Notebook No. 7271 pg.024																
S111021-01	80		IUK0771-02	0.824	0.300			12	400			10	11/15/11	11/16		GRB-112
S111021-02	80		IUK0771-03 (TRIP-BLANK)	1.08	0.300			0	400			13	11/15/11	11/17		GRB-107
S111021-03	80		Lab Control Sample	0.929	0.300			61	400				11/15/11	11/28		GRB-101
S111021-04	80		Method Blank	0.858	0.300			60	400				11/15/11	11/22		GRB-112
S111021-05	80		Duplicate (S111021-01)	0.881	0.300			12	400			16	11/15/11	11/22		GRB-101

Nominal values and limits from method      4.00      0.300      0-250      100      180

PROCEDURES      REFERENCE      900.0  
 DWP-121      Gross Alpha and Gross Beta in Drinking Water,  
 rev 10

AVERAGES ± 2 SD      MDA 0.914 ± 0.200  
 FOR 5 SAMPLES      RESIDUE 29 ± 58

METHOD SUMMARIES

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Lab id EAS  
 Protocol TA  
 Version Ver 1.0  
 Form DVD-LMS  
 Version 3.06  
 Report date 11/29/11



**EBERLINE ANALYTICAL**

SDG 8693

**LAB METHOD SUMMARY**

GAMMA EMITTERS IN WATER  
GAMMA SPECTROSCOPY

Test GAM Matrix WATER  
SDG 8693  
Contact Joseph Verville

Client Test America, Inc.  
Contract IUK0771

**RESULTS**

<b>LAB</b>	<b>RAW</b>	<b>SUF-</b>			
<b>SAMPLE ID</b>	<b>TEST FIX</b>	<b>PLANCHET</b>	<b>CLIENT SAMPLE ID</b>	<b>Cobalt-60</b>	<b>Cesium-137</b>

Preparation batch 7271-104

S111021-01	8693-001	IUK0771-02		U
S111021-02	8693-002	IUK0771-03 (TRIP-BLANK)		U
S111021-03	8693-003	Lab Control Sample	ok	ok
S111021-04	8693-004	Method Blank		U
S111021-05	8693-005	Duplicate (S111021-01)		- U

Nominal values and limits from method	RDLs (pCi/L)	10.0	20.0
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**METHOD PERFORMANCE**

<b>LAB</b>	<b>RAW</b>	<b>SUF-</b>	<b>MDA</b>	<b>ALIQ</b>	<b>PREP</b>	<b>DILU-</b>	<b>YIELD</b>	<b>EFF</b>	<b>COUNT</b>	<b>FWHM</b>	<b>DRIFT</b>	<b>DAYS</b>	<b>ANAL-</b>		
<b>SAMPLE ID</b>	<b>TEST FIX</b>	<b>CLIENT SAMPLE ID</b>	<b>pCi/L</b>	<b>L</b>	<b>FAC</b>	<b>TION</b>	<b>%</b>	<b>%</b>	<b>min</b>	<b>keV</b>	<b>KeV</b>	<b>HELD</b>	<b>PREPARED</b>	<b>YZED</b>	<b>DETECTOR</b>

Preparation batch 7271-104    2σ prep error 7.0 %    Reference Lab Notebook No. 7271 pg.024

S111021-01	IUK0771-02	2.00							958			5	11/10/11	11/11	MB,08,00
S111021-02	IUK0771-03 (TRIP-BLANK)	2.00							924			7	11/10/11	11/11	01,01,00
S111021-03	Lab Control Sample	2.00							401				11/10/11	11/14	01,01,00
S111021-04	Method Blank	2.00							401				11/10/11	11/14	01,02,00
S111021-05	Duplicate (S111021-01)	2.00							401			8	11/10/11	11/14	MB,08,00

Nominal values and limits from method	6.00	2.00							400				180
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PROCEDURES REFERENCE 901.1  
DWP-100 Preparation of Drinking Water Samples for Gamma Spectroscopy, rev 5

Lab id EAS  
Protocol TA  
Version Ver 1.0  
Form DVD-LMS  
Version 3.06  
Report date 11/29/11

METHOD SUMMARIES

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**EBERLINE ANALYTICAL**

SDG 8693

**LAB METHOD SUMMARY**

URANIUM, TOTAL

KINETIC PHOSPHORIMETRY, UG

Test U T Matrix WATER

SDG 8693

Contact Joseph Verville

Client Test America, Inc.

Contract IUK0771

**RESULTS**

LAB	RAW	SUF-		Uranium,	
SAMPLE ID	TEST	FIX	PLANCHET	CLIENT SAMPLE ID	Total
Preparation batch 7271-104					
S111021-01			8693-001	IUK0771-02	0.107 J
S111021-02			8693-002	IUK0771-03 (TRIP-BLANK)	U
S111021-03			8693-003	Lab Control Sample	ok
S111021-04			8693-004	Method Blank	U
S111021-05			8693-005	Duplicate (S111021-01)	ok J

Nominal values and limits from method      RDLs (pCi/L)      1.00

**METHOD PERFORMANCE**

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-				
SAMPLE ID	TEST	FIX	CLIENT	SAMPLE ID	pCi/L	L	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7271-104			2σ prep error		Reference Lab Notebook No. 7271 pg.024												
S111021-01			IUK0771-02		0.017	0.0200							9	11/15/11	11/15	KPA-001	
S111021-02			IUK0771-03 (TRIP-BLANK)		0.017	0.0200							11	11/15/11	11/15	KPA-001	
S111021-03			Lab Control Sample		0.169	0.0200								11/15/11	11/15	KPA-001	
S111021-04			Method Blank		0.017	0.0200								11/15/11	11/15	KPA-001	
S111021-05			Duplicate (S111021-01)		0.017	0.0200							9	11/15/11	11/15	KPA-001	

Nominal values and limits from method      1.00    0.0200      180

PROCEDURES REFERENCE D5174

AVERAGES ± 2 SD      MDA 0.047 ± 0.136  
FOR 5 SAMPLES      YIELD \_\_\_\_\_ ± \_\_\_\_\_

METHOD SUMMARIES

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Lab id EAS

Protocol TA

Version Ver 1.0

Form DVD-LMS

Version 3.06

Report date 11/29/11

**EBERLINE ANALYTICAL**

SDG 8693

**LAB METHOD SUMMARY**

TRITIUM IN WATER

LIQUID SCINTILLATION COUNTING

Test H Matrix WATER  
 SDG 8693  
 Contact Joseph Verville

Client Test America, Inc.  
 Contract IUK0771

**RESULTS**

LAB RAW SUF-  
 SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Tritium

Preparation batch 7271-104

S111021-01	8693-001	IUK0771-02	U
S111021-03	8693-003	Lab Control Sample	ok J
S111021-04	8693-004	Method Blank	U
S111021-05	8693-005	Duplicate (S111021-01)	- U

Nominal values and limits from method RDLs (pCi/L) 500

**METHOD PERFORMANCE**

LAB	RAW SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	%	%	min	keV	KeV	HELD PREPARED	YZED	DETECTOR

Preparation batch 7271-104 2σ prep error 10.0 % Reference Lab Notebook No. 7271 pg.024

S111021-01	IUK0771-02	156	0.0100	100	150	5	11/11/11	11/11	LSC-007
S111021-03	Lab Control Sample	15.6	1.00	10	150	11/11/11	11/11	LSC-007	
S111021-04	Method Blank	15.3	1.00	10	150	11/11/11	11/11	LSC-007	
S111021-05	Duplicate (S111021-01)	157	0.0100	100	150	5	11/11/11	11/11	LSC-007

Nominal values and limits from method 500 0.0100 100 180

PROCEDURES REFERENCE 906.0  
 DWP-212 Tritium in Drinking Water by Distillation, rev 8

AVERAGES ± 2 SD MDA 86.0 ± 163  
 FOR 4 SAMPLES YIELD 55 ± 104

METHOD SUMMARIES

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Lab id EAS  
 Protocol TA  
 Version Ver 1.0  
 Form DVD-LMS  
 Version 3.06  
 Report date 11/29/11

**EBERLINE ANALYTICAL**

SDG 8693

**LAB METHOD SUMMARY**

RADIUM-226 IN WATER

RADON COUNTING

Test RA Matrix WATER  
 SDG 8693  
 Contact Joseph Verville

Client Test America, Inc.  
 Contract IUK0771

**RESULTS**

LAB            RAW    SUF-  
 SAMPLE ID    TEST FIX    PLANCHET    CLIENT SAMPLE ID            Radium-226

Preparation batch 7271-104

S111021-01	8693-001	IUK0771-02	U
S111021-02	8693-002	IUK0771-03 (TRIP-BLANK)	U
S111021-03	8693-003	Lab Control Sample	ok
S111021-04	8693-004	Method Blank	U
S111021-05	8693-005	Duplicate (S111021-01)	- U

Nominal values and limits from method            RDLs (pCi/L)            1.00

**METHOD PERFORMANCE**

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR

Preparation batch 7271-104            2σ prep error 16.4 %            Reference Lab Notebook No. 7271 pg.024

S111021-01		IUK0771-02	0.680	0.100			100		104		10	11/16/11	11/16	RN-012
S111021-02		IUK0771-03 (TRIP-BLANK)	0.819	0.100			100		104		12	11/16/11	11/16	RN-016
S111021-03		Lab Control Sample	0.795	0.100			100		104			11/16/11	11/16	RN-009
S111021-04		Method Blank	0.673	0.100			100		104			11/16/11	11/16	RN-010
S111021-05		Duplicate (S111021-01)	0.813	0.100			100		104		10	11/16/11	11/16	RN-015

Nominal values and limits from method            1.00    0.100            100            180

PROCEDURES    REFERENCE    903.1  
 DWP-881A      Ra-226 Screening in Drinking Water, rev 6

AVERAGES ± 2 SD            MDA 0.756 ± 0.146  
 FOR 5 SAMPLES            YIELD 100 ± 0

Lab id EAS  
 Protocol TA  
 Version Ver 1.0  
 Form DVD-LMS  
 Version 3.06  
 Report date 11/29/11

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Contact Joseph Verville

REPORT GUIDE

Client Test America, Inc.  
Contract IUK0771

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- \* LAB SAMPLE ID is the lab's primary identification for a sample.
- \* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- \* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- \* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

- \* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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Protocol TA  
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REPORT GUIDE

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PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- \* The preparation batches are shown in the same order as the Method Summary Reports are printed.
- \* Only analyses of planchets relevant to the SDG are included.
- \* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- \* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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Contact Joseph Verville

REPORT GUIDE

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WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- \* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- \* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- \* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- \* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- \* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- \* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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Version 3.06  
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Contract IUK0771

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- \* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- \* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- \* ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- \* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- \* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

- U The RESULT is less than the MDA (Minimum Detectable Activity). If the MDA is blank, the ERROR is used as the limit.

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DATA SHEET

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

- \* An MDA is underlined if it is bigger than its RDL.
- \* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA

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SUMMARY DATA SECTION

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Lab id EAS  
 Protocol TA  
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Contact Joseph Verville

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Contract IUK0771

DATA SHEET

may not be a good estimate of the 'real' minimum detectable activity.

- \* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- \* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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Protocol TA  
Version Ver 1.0  
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EBERLINE ANALYTICAL

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SDG 8693  
Contact Joseph Verville

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- \* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- \* REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- \* The first, computed limits for the recovery reflect:
  1. The error of RESULT, including that introduced by rounding the result prior to printing.  
  
If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
  2. The error of ADDED.
  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- \* The second limits are protocol defined upper and lower QC limits for the recovery.
- \* The recovery is underlined if it is outside either of these ranges.

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SUMMARY DATA SECTION

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Lab id EAS  
Protocol TA  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 11/29/11

EBERLINE ANALYTICAL

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Contact Joseph Verville

REPORT GUIDE

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Contract IUK0771

DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- \* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTS divided by their average expressed as a percent.

If both RESULTS are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

- \* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTS prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTS. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- \* The second limit for the RPD is the larger of:

1. A fixed percentage specified in the protocol.

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DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

- \* The RPD is underlined if it is greater than either limit.
- \* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

- \* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- \* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- \* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

- \* The first, computed limits for the recovery reflect:

1. The errors of the two RESULTS, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

2. The error of ADDED.

3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

- \* The second limits are protocol defined upper and lower QC limits for the recovery.

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Protocol TA  
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MATRIX SPIKE

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

- \* The recovery is underlined (out of spec) if it is outside either of these ranges.

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METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

- \* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

- \* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

- \* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- \* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.

- \* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data' means no amount ADDED was specified. 'LOW' and 'HIGH'

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METHOD SUMMARY

correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- \* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
- \* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.

- \* Aliquots are underlined if less than the nominal value specified for the method.
- \* Preparation factors are underlined if greater than the nominal value specified for the method.
- \* Dilution factors are underlined if greater than the nominal value specified for the method.
- \* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
- \* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
- \* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.
- \* Count times are underlined if less than the nominal value

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 Protocol TA  
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 Version 3.06  
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METHOD SUMMARY

specified for the method.

- \* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- \* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- \* Days Held are underlined if greater than the holding time specified in the protocol.
- \* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1+3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included.

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METHOD SUMMARY

No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

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# Subcontract Order - TestAmerica Irvine (IUK0771)

8693

**SENDING LABORATORY:**

TestAmerica Irvine  
 17461 Derian Avenue, Suite 100  
 Irvine, CA 92614  
 Phone: (949) 261-1022  
 Fax: (949) 260-3297  
 Project Manager: Debby Wilson

**RECEIVING LABORATORY:**

Eberline Services - SUB  
 2030 Wright Avenue  
 Richmond, CA 94804  
 Phone: (510) 235-2633  
 Fax: (510) 235-0438  
 Project Location: California  
 Receipt Temperature: N/A °C

Ice: Y / (N)

Standard TAT is requested unless specific due date is requested. => Due Date: \_\_\_\_\_ Initials: \_\_\_\_\_

Analysis	Units	Expires	Comments
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**Sample ID: IUK0771-02 (Outfall 009 (Composite) - Water)**      **Sampled: 11/06/11 11:00**

EDD + Level 4	N/A	12/04/11 11:00	Excel EDD email to pm, Include Std logs for Lvl IV
Gamma Spec-O	mg/kg	11/05/12 11:00	Out Eberline, k-40 and cs-137 only, DO NOT FILTER!
Gross Alpha-O	pCi/L	05/04/12 11:00	Out Eberline, Boeing permit, DO NOT FILTER!
Gross Beta-O	pCi/L	05/04/12 11:00	Out Eberline Boeing permit, DO NOT FILTER!
Radium, Combined-O	pCi/L	11/05/12 11:00	Out Eberline Boeing permit, DO NOT FILTER!
Strontium 90-O	pCi/L	11/05/12 11:00	Out Eberline, Boeing permit, DO NOT FILTER!
Tritium-O	pCi/L	11/05/12 11:00	Out Eberline, Boeing permit, DO NOT FILTER!
Uranium, Combined-O	pCi/L	11/05/12 11:00	Out Eberline, Boeing permit, DO NOT FILTER!

*Containers Supplied:*


2.5 gal Poly (I)      500 mL Amber (J)

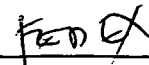
**Sample ID: IUK0771-03 (Trip Blank - Water)**      **Sampled: 11/04/11 00:00**

Gamma Spec-O	mg/kg	11/03/12 00:00	Out Eberline, k-40 and cs-137 only, DO NOT FILTER!
Gross Alpha-O	pCi/L	05/02/12 00:00	Out Eberline, Boeing permit, DO NOT FILTER!
Gross Beta-O	pCi/L	05/02/12 00:00	Out Eberline Boeing permit, DO NOT FILTER!
Radium, Combined-O	pCi/L	11/03/12 00:00	Out Eberline Boeing permit, DO NOT FILTER!
Strontium 90-O	pCi/L	11/03/12 00:00	Out Eberline, Boeing permit, DO NOT FILTER!
Uranium, Combined-O	pCi/L	11/03/12 00:00	Out Eberline, Boeing permit, DO NOT FILTER!

*Containers Supplied:*

  
 Released By \_\_\_\_\_ Date/Time 11/2/11 17:00

  
 Received By \_\_\_\_\_ Date/Time 11/2/11 17:00

  
 Released By \_\_\_\_\_ Date/Time \_\_\_\_\_

  
 Received By \_\_\_\_\_ Date/Time 11/08/11 0940



**RICHMOND, CA LABORATORY**  
SAMPLE RECEIPT CHECKLIST

Client: TEST AMERICA City IRVINE State CA  
 Date/Time received 11/08/11 0940 CoC No. 1UK0771  
 Container I.D. No. 1E CTEST Requested TAT (Days) STD P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact? Yes  No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes  No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [ ] No [ ] N/A
4. Custody seals on sample containers dated & signed? Yes [ ] No [ ] N/A
5. Packing material is: Wet [ ] Dry
6. Number of samples in shipping container: 2 Sample Matrix W
7. Number of containers per sample: \_\_\_\_\_ (Or see CoC )
8. Samples are in correct container Yes  No [ ]
9. Paperwork agrees with samples? Yes  No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels
11. Samples are: In good condition  Leaking [ ] Broken Container [ ] Missing [ ]
12. Samples are: Preserved  Not preserved  pH <2 / N/A Preservative HNO3
13. Describe any anomalies: \_\_\_\_\_

14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date \_\_\_\_\_  
 15. Inspected by [Signature] Date: 11/08/11 Time: 1045

Customer Sample No.	Beta/Gamma com	Ion Chamber mR/hr	Wide	Customer Sample No.	Beta/Gamma com	Ion Chamber mR/hr	Wide
<u>AK STAMP 425</u>	<u>280</u>						

Ion Chamber Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_  
 Alpha Meter Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_  
 Beta/Gamma Meter Ser. No. 99574 Calibration date 15 JUL 11



## **APPENDIX G**

### **Section 5**

Outfall 009 – November 12, 2011

MEC<sup>X</sup> Data Validation Report







# DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: IUK1713

Prepared by

MEC<sup>x</sup>, LP  
12269 East Vassar Drive  
Aurora, CO 80014

## I. INTRODUCTION

Task Order Title: Boeing SSFL NPDES  
 Contract Task Order: 1261.100D.00  
 Sample Delivery Group: IUK1713  
 Project Manager: B. Kelly  
 Matrix: Water  
 QC Level: IV  
 No. of Samples: 2  
 No. of Reanalyses/Dilutions: 0  
 Laboratory: TestAmerica-Irvine

**Table 1. Sample Identification**

Client ID	Laboratory ID	Sub-Laboratory ID	Matrix	Collected	Method
Outfall 009 (Composite)	IUK1713-02	S111040-01, G1K160405-001	Water	11/12/2011 6:33:00 AM	ASTM D-5174, 900. 901.1, 903.1, 904, 905, 906, 245.1, 245.1 Diss, 1613B, SM 2540D
Outfall 009 (Composite)	IUK1713-02RE	N/A	Water	11/12/2011 6:33:00 AM	1613B

## II. Sample Management

No anomalies were observed regarding sample management. Eberline did not note the temperature upon receipt; however, due to the nonvolatile nature of the analytes, no qualifications were required. The samples in this SDG were received at the laboratory within the temperature limits of 4°C ±2°C. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved, if applicable. The COCs were appropriately signed and dated by field and/or laboratory personnel. One cross-out on the COC was not initialed or dated. As the samples were couriered to TestAmerica-Irvine and Eberline, custody seals were not required. Custody seals were intact upon receipt at TestAmerica-West Sacramento. If necessary, the client ID was added to the sample result summary by the reviewer.

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### Data Qualifier Reference Table

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Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

---

### Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

**Qualification Code Reference Table Cont.**

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D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within 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	Unusual problems found with the data that have been 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.	Unusual problems found with the data that have been 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.

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### III. Method Analyses

#### A. EPA METHOD 1613—Dioxin/Furans

Reviewed By: L. Calvin

Date Reviewed: January 10, 2012

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0)*, *USEPA Method 1613*, and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review (8/02)*.

- Holding Times: Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.
- Instrument Performance: Instrument performance criteria were met. Following are findings associated with instrument performance.
  - 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%.
  - Mass Spectrometer Performance: The mass spectrometer performance was acceptable with the static resolving power greater than 10,000.
- Calibration: Calibration criteria were met.
  - Initial Calibration: Initial calibration criteria were met. The initial calibration was acceptable with %RSDs  $\leq 20\%$  for the 15 native compounds (calibration by isotope dilution) and  $\leq 35\%$  for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the Method 1613 QC limits for all standards.
  - Continuing Calibration: Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VERs were acceptable with the concentrations within the acceptance criteria listed in Table 6 of EPA Method 1613. The ion abundance ratios and relative retention times were within the method QC limits.
- Blanks: The method blank had detects above the EDL for most target compounds. Some method blank results were reported as EMPCs; however, due to the extent of the method blank contamination, the reviewer deemed it appropriate to use all method blank results to qualify sample results. Sample results for the individual isomer method blank contaminants were qualified as nondetected, "U," at the level of contamination. The result

for total HpCDF was also qualified as nondetected, "U," as the peaks comprising the total in the sample were present at comparable concentrations in the method blank. Remaining total results with method blank contamination were qualified as estimated, "J," as only a portion of the total was considered method blank contamination.

- Blank Spikes and Laboratory Control Samples: Recoveries were within the acceptance criteria listed in Table 6 of Method 1613, and RPDs were within the laboratory control limit of  $\leq 50\%$ .
- Field QC Samples: 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. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.
- Internal Standards Performance: The labeled internal standard recoveries for the sample were within the acceptance criteria listed in Table 7 of Method 1613.
- Compound Identification: Compound identification was verified. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613. The laboratory performed a confirmation analysis for 2,3,7,8-TCDF; however, as the result (an EMPC in the original analysis) was not confirmed, the original result was rejected, "R," in favor of the nondetected confirmation result, and the result for total TCDF changed to nondetected, "U."
- Compound Quantification and Reported Detection Limits: Compound quantitation was verified by recalculating any sample detects and a representative number of blank spike concentrations. The laboratory calculated and reported compound-specific detection limits. Any detects below the laboratory lower calibration level were qualified as estimated, "J." Individual isomer EMPCs qualified as nondetected for method blank contamination were not further qualified as EMPCs. The EMPC result for 2,3,4,6,7,8-HxCDF was qualified as an estimated nondetect, "UJ," at the level of the EMPC. The totals for HxCDD, PeCDF, and HxCDF were qualified as estimated, "J," as the totals included individual isomers originally reported as EMPCs. Any detects reported between the estimated detection limit (EDL) and the reporting limit (RL) were qualified as estimated, "J," and coded with "DNQ," in order to comply with the NPDES permit. Nondetects are valid to the EDL.

## B. EPA METHODS 245.1—Mercury

Reviewed By: P. Meeks

Date Reviewed: January 10, 2012

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC<sup>X</sup> Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0)*, *EPA Method 245.1*, and the *National Functional Guidelines for Inorganic Data Review (7/02)*.

- Holding Times: The analytical holding time, 28 days, was met.
- Tuning: Not applicable to this analysis.
- Calibration: Calibration criteria were met. Initial calibration  $r^2$  values were  $\geq 0.995$  and all initial and continuing calibration recoveries were within 85-115%. CRI recoveries were within the control limits of 70-130%.
- Blanks: Method blanks and CCBs had no detects.
- Interference Check Samples: Not applicable to this analysis.
- Blank Spikes and Laboratory Control Samples: Recoveries were within method-established QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on the sample in this SDG. Method accuracy was assessed based on LCS results.
- Serial Dilution: No serial dilution analyses were performed.
- Internal Standards Performance: Not applicable to this analysis.
- Sample Result Verification: 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. When the sample results were qualified and the reviewer was able to clearly determine bias, detected results were qualified as either "J+" or "J-"; otherwise, bias was not indicated in the qualification. 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.
- Field QC Samples: 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. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:



- Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
- Field Duplicates: There were no field duplicate samples identified for this SDG.

### C. VARIOUS EPA METHODS — Radionuclides

Reviewed By: P. Meeks

Date Reviewed: January 10, 2012

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *EPA Methods 900.0, 901.1, 903.1, 904.0, 905.0, and 906.0, ASTM Method D-5174, and the National Functional Guidelines for Inorganic Data Review (10/04)*.

- Holding Times: The tritium sample was analyzed within 180 days of collection. The remaining aliquots were preserved within five days of collection.
- Calibration: The laboratory calibration information included the standard certificates and applicable preparation/dilutions logs for NIST-traceability.

All detector efficiencies were greater than 20%. The tritium aliquot was spiked for efficiency determination; therefore, no calibration was necessary. All chemical yields were at least 40% and were considered acceptable. The gamma spectroscopy analytes were determined at the maximum photopeak energy. The kinetic phosphorescence analyzer (KPA) was calibrated immediately prior to the sample analysis. All KPA calibration check standard recoveries were within 90-110% and were deemed acceptable.

- Blanks: There were no analytes detected in the method blanks or the KPA CCBs.
- Blank Spikes and Laboratory Control Samples: The gross alpha recovery was marginally above the control limit; therefore, gross alpha detected in the sample was qualified as estimated, "J." The radium-226 recovery was below the control limit; therefore, nondetected radium-226 in the sample was qualified as estimated, "UJ." The remaining recoveries were within laboratory-established control limits.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on the sample in this SDG. All RPDs were within the laboratory-established control limits.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed for the sample in this SDG. Method accuracy was evaluated based on the LCS results.
- Sample Result Verification: An EPA Level IV review was performed for the sample in this data package. The sample results and MDAs reported on the sample result form were verified against the raw data and no calculation or transcription errors were noted. Any

detects between the MDA 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 MDA. Total uranium, normally reported in aqueous units, was converted to pCi/L using the conversion factor of 0.67 for naturally occurring uranium.

- Field QC Samples: 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. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.

#### **D. VARIOUS EPA METHODS—General Minerals**

Reviewed By: P. Meeks

Date Reviewed: January 10, 2012

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for General Minerals (DVP-6, Rev. 0)*, *SM 2540D*, and the *National Functional Guidelines for Inorganic Data Review (7/02)*.

- Holding Times: The analytical holding time, seven days, was met.
- Calibration: The balance calibration logs were acceptable.
- Blanks: TSS was not detected in the method blanks.
- Blank Spikes and Laboratory Control Samples: The recovery was within laboratory-established QC limits.
- Laboratory Duplicates: No laboratory duplicate analysis was performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: Not applicable to this analysis.
- Sample Result Verification: 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. When the sample results were qualified and the reviewer was able to clearly determine bias, detected results were qualified as either "J+" or "J-"; otherwise, bias was not indicated in the qualification. 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.

- Field QC Samples: 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. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.

# Validated Sample Result Forms IUK1713

## *Analysis Method 900*

**Sample Name** Outfall 009 (Composite) **Matrix Type:** WATER **Validation Level:** IV

**Lab Sample Name:** IUK1713-02 **Sample Date:** 11/12/2011 6:33:00 AM

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Gross Alpha	12587461	0.757	3	0.335	pCi/L	Jb	J	L, DNQ
Gross Beta	12587472	2.33	4	0.945	pCi/L	Jb	J	DNQ

## *Analysis Method 901.1*

**Sample Name** Outfall 009 (Composite) **Matrix Type:** WATER **Validation Level:** IV

**Lab Sample Name:** IUK1713-02 **Sample Date:** 11/12/2011 6:33:00 AM

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cesium-137	10045973	ND	20	1.07	pCi/L	U	U	
Potassium-40	13966002	ND	25	12.4	pCi/L	U	U	

## *Analysis Method 903.1*

**Sample Name** Outfall 009 (Composite) **Matrix Type:** WATER **Validation Level:** IV

**Lab Sample Name:** IUK1713-02 **Sample Date:** 11/12/2011 6:33:00 AM

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226	13982633	0.614	1	0.626	pCi/L	U	UJ	L

## *Analysis Method 904*

**Sample Name** Outfall 009 (Composite) **Matrix Type:** WATER **Validation Level:** IV

**Lab Sample Name:** IUK1713-02 **Sample Date:** 11/12/2011 6:33:00 AM

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-228	15262201	0.022	1	0.414	pCi/L	U	U	

## *Analysis Method 905*

**Sample Name** Outfall 009 (Composite) **Matrix Type:** WATER **Validation Level:** IV

**Lab Sample Name:** IUK1713-02 **Sample Date:** 11/12/2011 6:33:00 AM

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Strontium-90	10098972	0.015	2	0.745	pCi/L	U	U	

*Analysis Method* 906

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<b>Sample Name</b>	Outfall 009 (Composite)	<b>Matrix Type:</b>	WATER	<b>Validation Level:</b>	IV			
<b>Lab Sample Name:</b>	IUK1713-02	<b>Sample Date:</b>	11/12/2011 6:33:00 AM					
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Tritium	10028178	-5.76	500	142	pCi/L	U	U	

---

*Analysis Method* D5174

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<b>Sample Name</b>	Outfall 009 (Composite)	<b>Matrix Type:</b>	WATER	<b>Validation Level:</b>	IV			
<b>Lab Sample Name:</b>	IUK1713-02	<b>Sample Date:</b>	11/12/2011 6:33:00 AM					
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Uranium, Total		0.061	1	0.017	pCi/L	Jb	J	DNQ

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*Analysis Method* EPA 245.1

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<b>Sample Name</b>	Outfall 009 (Composite)	<b>Matrix Type:</b>	Water	<b>Validation Level:</b>	IV			
<b>Lab Sample Name:</b>	IUK1713-02	<b>Sample Date:</b>	11/12/2011 6:33:00 AM					
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Mercury	7439-97-6	ND	0.20	0.10	ug/l		U	

---

*Analysis Method* EPA 245.1-Diss

---

<b>Sample Name</b>	Outfall 009 (Composite)	<b>Matrix Type:</b>	Water	<b>Validation Level:</b>	IV			
<b>Lab Sample Name:</b>	IUK1713-02	<b>Sample Date:</b>	11/12/2011 6:33:00 AM					
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Mercury	7439-97-6	ND	0.20	0.10	ug/l		U	

---

*Analysis Method EPA-5 1613B*

**Sample Name** Outfall 009 (Composite) **Matrix Type:** WATER **Validation Level:** IV  
**Lab Sample Name:** IUK1713-02 **Sample Date:** 11/12/2011 6:33:00 AM

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822-46-9	ND	0.00005	0.0000018	ug/L	J, B	U	B
1,2,3,4,6,7,8-HpCDF	67562-39-4	ND	0.00005	0.0000011	ug/L	J, B	U	B
1,2,3,4,7,8,9-HpCDF	55673-89-7	ND	0.00005	0.0000015	ug/L	J, B	U	B
1,2,3,4,7,8-HxCDD	39227-28-6	0.000001	0.00005	0.0000011	ug/L	J	J	DNQ
1,2,3,4,7,8-HxCDF	70648-26-9	ND	0.00005	0.0000007	ug/L	J, B	U	B
1,2,3,6,7,8-HxCDD	57653-85-7	ND	0.00005	0.000001	ug/L	J, B	U	B
1,2,3,6,7,8-HxCDF	57117-44-9	ND	0.00005	0.0000007	ug/L	J, Q, B	U	B
1,2,3,7,8,9-HxCDD	19408-74-3	ND	0.00005	0.0000008	ug/L	J, B	U	B
1,2,3,7,8,9-HxCDF	72918-21-9	ND	0.00005	0.0000008	ug/L	J, Q, B	U	B
1,2,3,7,8-PeCDD	40321-76-4	ND	0.00005	0.0000028	ug/L		U	
1,2,3,7,8-PeCDF	57117-41-6	ND	0.00005	0.0000023	ug/L	J, B	U	B
2,3,4,6,7,8-HxCDF	60851-34-5	ND	0.00005	0.0000006	ug/L	J, Q	UJ	*III
2,3,4,7,8-PeCDF	57117-31-4	ND	0.00005	0.0000024	ug/L		U	
2,3,7,8-TCDD	1746-01-6	ND	0.00001	0.0000013	ug/L		U	
2,3,7,8-TCDF	51207-31-9	0.000001	0.00001	0.0000012	ug/L	J, Q	R	D
2,3,7,8-TCDF	51207-31-9	ND	0.00001	0.0000028	ug/L		U	
OCDD	3268-87-9	ND	0.00068	0.0000058	ug/L	B	U	B
OCDF	39001-02-0	ND	0.0001	0.0000022	ug/L	J, B	U	B
Total HpCDD	37871-00-4	0.00011	0.00005	0.0000018	ug/L	B, J	J	B, DNQ
Total HpCDF	38998-75-3	ND	0.00005	0.0000013	ug/L	B, J	U	B
Total HxCDD	34465-46-8	0.000016	0.00005	0.0000009	ug/L	B, J, Q	J	B, DNQ, *III
Total HxCDF	55684-94-1	0.000023	0.00005	0.0000007	ug/L	B, J, Q	J	B, DNQ, *III
Total PeCDD	36088-22-9	ND	0.00005	0.0000028	ug/L		U	
Total PeCDF	30402-15-4	0.000003	0.00005	0.0000024	ug/L	B, J, Q	J	B, DNQ, *III
Total TCDD	41903-57-5	ND	0.00001	0.0000013	ug/L		U	
Total TCDF	55722-27-5	ND	0.00001	0.0000028	ug/L	J, Q	U	\$, result and DL changed to ND confirmation result

*Analysis Method SM 2540D*

**Sample Name** Outfall 009 (Composite) **Matrix Type:** Water **Validation Level:** IV  
**Lab Sample Name:** IUK1713-02 **Sample Date:** 11/12/2011 6:33:00 AM

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids	TSS	2.0	10	1.0	mg/l	J	J	DNQ

## **APPENDIX G**

### **Section 6**

Outfall 009 – November 12, 13, & 14, 2011  
Test America Analytical Laboratory Report





## LABORATORY REPORT

Prepared For: MWH-Pasadena/Boeing  
618 Michillinda Avenue, Suite 200  
Arcadia, CA 91007  
Attention: Bronwyn Kelly

Project: Routine Outfall 009  
Routine Outfall 009

Sampled: 11/12/11-11/14/11  
Received: 11/12/11  
Issued: 12/06/11 16:04

NELAP #01108CA California ELAP#2706 CSDLAC #10256 AZ #AZ0671 NV #CA01531

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica. The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.  
This entire report was reviewed and approved for release.*

### CASE NARRATIVE

**SAMPLE RECEIPT:** Samples were received intact, at 4°C, on ice and with chain of custody documentation.

**HOLDING TIMES:** All samples were analyzed within prescribed holding times and/or in accordance with the TestAmerica Sample Acceptance Policy unless otherwise noted in the report.

**PRESERVATION:** Samples requiring preservation were verified prior to sample analysis.

**QA/QC CRITERIA:**

**COMMENTS:** Results that fall between the MDL and RL are 'J' flagged.

**SUBCONTRACTED:** Refer to the last page for specific subcontract laboratory information included in this report.

**ADDITIONAL INFORMATION:** WATER, 1613B, Dioxins/Furans with Totals  
Sample: 1  
Some analytes in this sample and the associated method blank have an ion abundance ratio that is outside of criteria. The analytes are considered as an "estimated maximum possible concentration" (EMPC) because the quantitation is based on the theoretical ion abundance ratio. Analytical results are reported with a "Q" flag.

#### LABORATORY ID

IUK1713-01  
IUK1713-02  
IUK1713-03

#### CLIENT ID

Outfall 009 (Grab)  
Outfall 009 (Composite)  
Trip Blank

#### MATRIX

Water  
Water  
Water

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.

Reviewed By:

**TestAmerica Irvine**

Debby Wilson  
Project Manager

MWH-Pasadena/Boeing  
618 Michillinda Avenue, Suite 200  
Arcadia, CA 91007  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
Received: 11/12/11

*Debby Wilson*

**TestAmerica Irvine**

Debby Wilson  
Project Manager

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**IUK1713 <Page 2 of 38>**

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618 Michillinda Avenue, Suite 200  
Arcadia, CA 91007  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
Received: 11/12/11

## HEXANE EXTRACTABLE MATERIAL

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK1713-01 (Outfall 009 (Grab) - Water)</b>					<b>Sampled: 11/12/11</b>				
<b>Reporting Units: mg/l</b>									
Hexane Extractable Material (Oil & Grease)	EPA 1664A	11K3305	1.3	4.7	ND	1	DA	11/23/11	

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Project Manager

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Arcadia, CA 91007  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
Received: 11/12/11

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK1713-02 (Outfall 009 (Composite) - Water)</b>					<b>Sampled: 11/12/11</b>				
<b>Reporting Units: ug/l</b>									
Mercury	EPA 245.1	11K2186	0.10	0.20	ND	1	DB	11/17/11	
Antimony	EPA 200.8	11K1942	0.30	2.0	ND	1	RDC	11/15/11	
Cadmium	EPA 200.8	11K1942	0.10	1.0	ND	1	RDC	11/15/11	
<b>Copper</b>	EPA 200.8	11K1942	0.50	2.0	<b>2.8</b>	1	RDC	11/15/11	
<b>Lead</b>	EPA 200.8	11K1942	0.20	1.0	<b>2.4</b>	1	RDC	11/15/11	
Thallium	EPA 200.8	11K1942	0.20	1.0	ND	1	RDC	11/15/11	

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Project Manager

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 Arcadia, CA 91007  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
 Routine Outfall 009  
 Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
 Received: 11/12/11

## DISSOLVED METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK1713-02 (Outfall 009 (Composite) - Water) - cont.</b>					<b>Sampled: 11/12/11</b>				
<b>Reporting Units: ug/l</b>									
Mercury	EPA 245.1-Diss	11K2784	0.10	0.20	ND	1	DB	11/21/11	
Antimony	EPA 200.8-Diss	11K1997	0.30	2.0	ND	1	KB1	11/15/11	
Cadmium	EPA 200.8-Diss	11K1997	0.10	1.0	ND	1	KB1	11/15/11	
<b>Copper</b>	EPA 200.8-Diss	11K1997	0.50	2.0	<b>2.1</b>	1	KB1	11/15/11	
<b>Lead</b>	EPA 200.8-Diss	11K1997	0.20	1.0	<b>0.52</b>	1	KB1	11/15/11	J
Thallium	EPA 200.8-Diss	11K1997	0.20	1.0	ND	1	KB1	11/15/11	

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 Project Manager

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 Arcadia, CA 91007  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
 Routine Outfall 009  
 Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
 Received: 11/12/11

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK1713-02 (Outfall 009 (Composite) - Water) - cont.</b>					<b>Sampled: 11/12/11</b>				
Reporting Units: mg/l									
Chloride	EPA 300.0	11K1799	0.30	0.50	1.7	1	NN	11/12/11	
Nitrate/Nitrite-N	EPA 300.0	11K1799	0.15	0.26	0.59	1	NN	11/12/11	
Sulfate	EPA 300.0	11K1799	0.30	0.50	5.2	1	NN	11/12/11	
Total Dissolved Solids	SM2540C	11K2213	1.0	10	41	1	MC	11/16/11	
Total Suspended Solids	SM 2540D	11K2196	1.0	10	2.0	1	DK1	11/15/11	J
<b>Sample ID: IUK1713-02 (Outfall 009 (Composite) - Water)</b>					<b>Sampled: 11/12/11</b>				
Reporting Units: ug/l									
Total Cyanide	SM4500CN-E	11K3077	2.2	5.0	ND	1	SLA	11/21/11	

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 618 Michillinda Avenue, Suite 200  
 Arcadia, CA 91007  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
 Routine Outfall 009  
 Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
 Received: 11/12/11

**900**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK1713-02 (Outfall 009 (Composite) - Water) - cont.</b>					<b>Sampled: 11/12/11</b>				
Reporting Units: pCi/L									
Gross Alpha	900	8694	0.335	3	0.757	1	DVP	11/22/11	Jb
Gross Beta	900	8694	0.945	4	2.33	1	DVP	11/22/11	Jb
<b>Sample ID: IUK1713-03 (Trip Blank - Water)</b>					<b>Sampled: 11/14/11</b>				
Reporting Units: pCi/L									
Gross Alpha	900	8694	0.34	3	-0.081	1	DVP	11/22/11	U
Gross Beta	900	8694	0.766	4	-0.364	1	DVP	11/22/11	U

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 Project Manager

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 618 Michillinda Avenue, Suite 200  
 Arcadia, CA 91007  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
 Routine Outfall 009  
 Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
 Received: 11/12/11

## 901.1

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK1713-02 (Outfall 009 (Composite) - Water)</b>					<b>Sampled: 11/12/11</b>				
<b>Reporting Units: pCi/L</b>									
Cesium-137	901.1	8694	1.07	20	ND	1	LS	11/17/11	U
Potassium-40	901.1	8694	12.4	25	ND	1	LS	11/17/11	U
<b>Sample ID: IUK1713-03 (Trip Blank - Water)</b>					<b>Sampled: 11/14/11</b>				
<b>Reporting Units: pCi/L</b>									
Cesium-134	901.1	8694	3.84	20	ND	1	LS	11/17/11	U
Cesium-137	901.1	8694	2.27	20	ND	1	LS	11/17/11	U
Potassium-40	901.1	8694	383	25	ND	1	LS	11/17/11	U

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 Project Manager

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Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
Received: 11/12/11

## 903.1

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK1713-02 (Outfall 009 (Composite) - Water)</b>					<b>Sampled: 11/12/11</b>				
Reporting Units: pCi/L									
Radium-226	903.1	8694	0.626	1	0.614	1	TM	11/29/11	U
<b>Sample ID: IUK1713-03 (Trip Blank - Water)</b>					<b>Sampled: 11/14/11</b>				
Reporting Units: pCi/L									
Radium-226	903.1	8694	0.639	1	0.103	1	TM	11/29/11	U

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MWH-Pasadena/Boeing  
 618 Michillinda Avenue, Suite 200  
 Arcadia, CA 91007  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
 Routine Outfall 009  
 Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
 Received: 11/12/11

**904**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK1713-02 (Outfall 009 (Composite) - Water)</b>					<b>Sampled: 11/12/11</b>				
Reporting Units: pCi/L									
Radium-228	904	8694	0.414	1	0.022	1	TSC	11/30/11	U
<b>Sample ID: IUK1713-03 (Trip Blank - Water)</b>					<b>Sampled: 11/14/11</b>				
Reporting Units: pCi/L									
Radium-228	904	8694	0.423	1	0.079	1	TSC	11/30/11	U

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
 Routine Outfall 009  
 Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
 Received: 11/12/11

## 905

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK1713-02 (Outfall 009 (Composite) - Water)</b>					<b>Sampled: 11/12/11</b>				
Reporting Units: pCi/L									
Strontium-90	905	8694	0.745	2	0.015	1	NB	11/17/11	U
<b>Sample ID: IUK1713-03 (Trip Blank - Water)</b>					<b>Sampled: 11/14/11</b>				
Reporting Units: pCi/L									
Strontium-90	905	8694	0.613	2	-0.06	1	NB	11/17/11	U

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Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
Received: 11/12/11

## 906

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK1713-02 (Outfall 009 (Composite) - Water)</b>					<b>Sampled: 11/12/11</b>				
<b>Reporting Units: pCi/L</b>									
Tritium	906	8694	142	500	-5.76	1	WK	11/16/11	U

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Project ID: Routine Outfall 009  
 Routine Outfall 009  
 Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
 Received: 11/12/11

## D5174

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK1713-02 (Outfall 009 (Composite) - Water) - cont.</b>					<b>Sampled: 11/12/11</b>				
Reporting Units: pCi/L									
Uranium, Total	D5174	8694	0.017	1	0.061	1	c	12/01/11	Jb
<b>Sample ID: IUK1713-03 (Trip Blank - Water)</b>					<b>Sampled: 11/14/11</b>				
Reporting Units: pCi/L									
Uranium, Total	D5174	8694	0.017	1	ND	1		12/01/11	U

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Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
Received: 11/12/11

## EPA-5 1613Bx

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK1713-02 (Outfall 009 (Composite) - Water)</b>					<b>Sampled: 11/12/11</b>				
<b>Reporting Units: ug/L</b>									
1,2,3,4,6,7,8-HpCDD	EPA-5 1613B	1326073	0.0000018	0.00005	<b>0.000047</b>	0.96	LH	11/23/11	J, B
1,2,3,4,6,7,8-HpCDF	EPA-5 1613B	1326073	0.0000011	0.00005	<b>0.000015</b>	0.96	LH	11/23/11	J, B
1,2,3,4,7,8,9-HpCDF	EPA-5 1613B	1326073	0.0000015	0.00005	<b>0.0000045</b>	0.96	LH	11/23/11	J, B
1,2,3,4,7,8-HxCDD	EPA-5 1613B	1326073	0.0000011	0.00005	<b>0.0000017</b>	0.96	LH	11/23/11	J
1,2,3,4,7,8-HxCDF	EPA-5 1613B	1326073	0.00000074	0.00005	<b>0.0000036</b>	0.96	LH	11/23/11	J, B
1,2,3,6,7,8-HxCDD	EPA-5 1613B	1326073	0.000001	0.00005	<b>0.0000033</b>	0.96	LH	11/23/11	J, B
1,2,3,6,7,8-HxCDF	EPA-5 1613B	1326073	0.0000007	0.00005	<b>0.0000022</b>	0.96	LH	11/23/11	J, Q, B
1,2,3,7,8,9-HxCDD	EPA-5 1613B	1326073	0.00000086	0.00005	<b>0.0000039</b>	0.96	LH	11/23/11	J, B
1,2,3,7,8,9-HxCDF	EPA-5 1613B	1326073	0.00000081	0.00005	<b>0.000001</b>	0.96	LH	11/23/11	J, Q, B
1,2,3,7,8-PeCDD	EPA-5 1613B	1326073	0.0000028	0.00005	ND	0.96	LH	11/23/11	
1,2,3,7,8-PeCDF	EPA-5 1613B	1326073	0.0000023	0.00005	<b>0.0000027</b>	0.96	LH	11/23/11	J, B
2,3,4,6,7,8-HxCDF	EPA-5 1613B	1326073	0.00000067	0.00005	<b>0.000002</b>	0.96	LH	11/23/11	J, Q
2,3,4,7,8-PeCDD	EPA-5 1613B	1326073	0.0000024	0.00005	ND	0.96	LH	11/23/11	
2,3,7,8-TCDD	EPA-5 1613B	1326073	0.0000013	0.00001	ND	0.96	LH	11/23/11	
2,3,7,8-TCDF	EPA-5 1613B	1326073	0.0000012	0.00001	<b>0.0000012</b>	0.96	LH	11/23/11	J, Q
OCDD	EPA-5 1613B	1326073	0.0000058	0.0001	<b>0.00068</b>	0.96	LH	11/23/11	B
OCDF	EPA-5 1613B	1326073	0.0000022	0.0001	<b>0.000047</b>	0.96	LH	11/23/11	J, B
Total HpCDD	EPA-5 1613B	1326073	0.0000018	0.00005	<b>0.00011</b>	0.96	LH	11/23/11	B, J
Total HpCDF	EPA-5 1613B	1326073	0.0000013	0.00005	<b>0.000038</b>	0.96	LH	11/23/11	B, J
Total HxCDD	EPA-5 1613B	1326073	0.00000097	0.00005	<b>0.000016</b>	0.96	LH	11/23/11	B, J, Q
Total HxCDF	EPA-5 1613B	1326073	0.00000073	0.00005	<b>0.000023</b>	0.96	LH	11/23/11	B, J, Q
Total PeCDD	EPA-5 1613B	1326073	0.0000028	0.00005	ND	0.96	LH	11/23/11	
Total PeCDF	EPA-5 1613B	1326073	0.0000024	0.00005	<b>0.0000036</b>	0.96	LH	11/23/11	B, J, Q
Total TCDD	EPA-5 1613B	1326073	0.0000013	0.00001	ND	0.96	LH	11/23/11	
Total TCDF	EPA-5 1613B	1326073	0.0000012	0.00001	<b>0.0000012</b>	0.96	LH	11/23/11	J, Q

Surrogate: 13C-1,2,3,4,6,7,8-HpCDD (23-140%)	64 %
Surrogate: 13C-1,2,3,4,6,7,8-HpCDF (28-143%)	65 %
Surrogate: 13C-1,2,3,4,7,8,9-HpCDF (26-138%)	67 %
Surrogate: 13C-1,2,3,4,7,8-HxCDD (32-141%)	66 %
Surrogate: 13C-1,2,3,4,7,8-HxCDF (26-152%)	64 %
Surrogate: 13C-1,2,3,6,7,8-HxCDD (28-130%)	61 %
Surrogate: 13C-1,2,3,6,7,8-HxCDF (26-123%)	61 %
Surrogate: 13C-1,2,3,7,8,9-HxCDF (29-147%)	66 %
Surrogate: 13C-1,2,3,7,8-PeCDD (25-181%)	56 %
Surrogate: 13C-1,2,3,7,8-PeCDF (24-185%)	61 %
Surrogate: 13C-2,3,4,6,7,8-HxCDF (28-136%)	64 %
Surrogate: 13C-2,3,4,7,8-PeCDF (21-178%)	63 %
Surrogate: 13C-2,3,7,8-TCDD (25-164%)	59 %
Surrogate: 13C-2,3,7,8-TCDF (24-169%)	62 %
Surrogate: 13C-OCDD (17-157%)	60 %
Surrogate: 37Cl4-2,3,7,8-TCDD (35-197%)	93 %

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MWH-Pasadena/Boeing  
618 Michillinda Avenue, Suite 200  
Arcadia, CA 91007  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
Received: 11/12/11

## EPA-5 1613Bx

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK1713-02RE (Outfall 009 (Composite) - Water) - cont.</b>					<b>Sampled: 11/12/11</b>				
<b>Reporting Units: ug/L</b>									
2,3,7,8-TCDF	EPA-5 1613B	1326073	0.0000028	0.00001	ND	0.96	LH	11/28/11	
<i>Surrogate: 13C-2,3,7,8-TCDF (24-169%)</i>					61 %				
<i>Surrogate: 37Cl4-2,3,7,8-TCDD (35-197%)</i>					87 %				

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Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
Received: 11/12/11

## SHORT HOLD TIME DETAIL REPORT

	<b>Hold Time (in days)</b>	<b>Date/Time Sampled</b>	<b>Date/Time Received</b>	<b>Date/Time Extracted</b>	<b>Date/Time Analyzed</b>
<b>Sample ID: Outfall 009 (Composite) (IUK1713-02) - Water</b>					
EPA 300.0	2	11/12/2011 06:33	11/12/2011 12:50	11/12/2011 14:00	11/12/2011 14:42
Filtration	1	11/12/2011 06:33	11/12/2011 12:50	11/14/2011 12:17	11/14/2011 12:18

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Project ID: Routine Outfall 009  
 Routine Outfall 009  
 Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
 Received: 11/12/11

## METHOD BLANK/QC DATA

### HEXANE EXTRACTABLE MATERIAL

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b><u>Batch: 11K3305 Extracted: 11/23/11</u></b>												
<b>Blank Analyzed: 11/23/2011 (11K3305-BLK1)</b>												
Hexane Extractable Material (Oil & Grease)	ND	5.0	1.4	mg/l	DA							
<b>LCS Analyzed: 11/23/2011 (11K3305-BS1)</b>												
Hexane Extractable Material (Oil & Grease)	18.1	5.0	1.4	mg/l	DA	20.0		90	78-114			MNR1
<b>LCS Dup Analyzed: 11/23/2011 (11K3305-BSD1)</b>												
Hexane Extractable Material (Oil & Grease)	18.4	5.0	1.4	mg/l	DA	20.0		92	78-114	2	11	

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Arcadia, CA 91007  
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Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
Received: 11/12/11

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 11K1942 Extracted: 11/14/11</b>												
<b>Blank Analyzed: 11/15/2011 (11K1942-BLK1)</b>												
Antimony	ND	2.0	0.30	ug/l	RDC							
Cadmium	ND	1.0	0.10	ug/l	RDC							
Copper	ND	2.0	0.50	ug/l	RDC							
Lead	ND	1.0	0.20	ug/l	RDC							
Thallium	ND	1.0	0.20	ug/l	RDC							
<b>LCS Analyzed: 11/15/2011 (11K1942-BS1)</b>												
Antimony	83.0	2.0	0.30	ug/l	RDC	80.0		104	85-115			
Cadmium	82.4	1.0	0.10	ug/l	RDC	80.0		103	85-115			
Copper	88.7	2.0	0.50	ug/l	RDC	80.0		111	85-115			
Lead	85.6	1.0	0.20	ug/l	RDC	80.0		107	85-115			
Thallium	85.8	1.0	0.20	ug/l	RDC	80.0		107	85-115			
<b>Matrix Spike Analyzed: 11/15/2011 (11K1942-MS1)</b>						<b>Source: IUK1498-02</b>						
Antimony	72.1	2.0	0.30	ug/l	RDC	80.0	0.433	90	70-130			
Cadmium	79.9	1.0	0.10	ug/l	RDC	80.0	ND	100	70-130			
Copper	81.5	2.0	0.50	ug/l	RDC	80.0	7.59	92	70-130			
Lead	84.6	1.0	0.20	ug/l	RDC	80.0	2.03	103	70-130			
Thallium	82.2	1.0	0.20	ug/l	RDC	80.0	0.347	102	70-130			
<b>Matrix Spike Analyzed: 11/15/2011 (11K1942-MS2)</b>						<b>Source: IUK1632-02</b>						
Antimony	85.0	2.0	0.30	ug/l	RDC	80.0	0.334	106	70-130			
Cadmium	78.1	1.0	0.10	ug/l	RDC	80.0	ND	98	70-130			
Copper	92.5	2.0	0.50	ug/l	RDC	80.0	22.3	88	70-130			
Lead	77.5	1.0	0.20	ug/l	RDC	80.0	0.499	96	70-130			
Thallium	76.6	1.0	0.20	ug/l	RDC	80.0	0.560	95	70-130			
<b>Matrix Spike Dup Analyzed: 11/15/2011 (11K1942-MSD1)</b>						<b>Source: IUK1498-02</b>						
Antimony	73.4	2.0	0.30	ug/l	RDC	80.0	0.433	91	70-130	2	20	
Cadmium	80.1	1.0	0.10	ug/l	RDC	80.0	ND	100	70-130	0.2	20	
Copper	81.1	2.0	0.50	ug/l	RDC	80.0	7.59	92	70-130	0.5	20	
Lead	86.2	1.0	0.20	ug/l	RDC	80.0	2.03	105	70-130	2	20	
Thallium	83.3	1.0	0.20	ug/l	RDC	80.0	0.347	104	70-130	1	20	

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Project Manager

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 Arcadia, CA 91007  
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Project ID: Routine Outfall 009  
 Routine Outfall 009  
 Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
 Received: 11/12/11

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 11K2186 Extracted: 11/15/11</b>												
<b>Blank Analyzed: 11/17/2011 (11K2186-BLK1)</b>												
Mercury	ND	0.20	0.10	ug/l	DB							
<b>LCS Analyzed: 11/17/2011 (11K2186-BS1)</b>												
Mercury	8.07	0.20	0.10	ug/l	DB	8.00		101	85-115			
<b>Matrix Spike Analyzed: 11/17/2011 (11K2186-MS1)</b>												
						<b>Source: IUK1624-01</b>						
Mercury	7.96	0.20	0.10	ug/l	DB	8.00	ND	100	70-130			
<b>Matrix Spike Dup Analyzed: 11/17/2011 (11K2186-MSD1)</b>												
						<b>Source: IUK1624-01</b>						
Mercury	8.00	0.20	0.10	ug/l	DB	8.00	ND	100	70-130	0.5	20	

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 Project Manager

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Arcadia, CA 91007  
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Sampled: 11/12/11-11/14/11  
Received: 11/12/11

## METHOD BLANK/QC DATA

### DISSOLVED METALS

Analyte	Result	Reporting		Units	Analyst	Spike Level	Source		%REC		RPD	RPD Limit	Data Qualifiers
		Limit	MDL				Result	%REC	Limits	RPD			
<b>Batch: 11K1997 Extracted: 11/14/11</b>													
<b>Blank Analyzed: 11/15/2011 (11K1997-BLK1)</b>													
Antimony	ND	2.0	0.30	ug/l	KB1								
Cadmium	ND	1.0	0.10	ug/l	KB1								
Copper	ND	2.0	0.50	ug/l	KB1								
Lead	ND	1.0	0.20	ug/l	KB1								
Thallium	ND	1.0	0.20	ug/l	KB1								
<b>LCS Analyzed: 11/15/2011 (11K1997-BS1)</b>													
Antimony	77.7	2.0	0.30	ug/l	KB1	80.0		97	85-115				
Cadmium	77.0	1.0	0.10	ug/l	KB1	80.0		96	85-115				
Copper	77.5	2.0	0.50	ug/l	KB1	80.0		97	85-115				
Lead	78.0	1.0	0.20	ug/l	KB1	80.0		97	85-115				
Thallium	77.9	1.0	0.20	ug/l	KB1	80.0		97	85-115				
<b>Matrix Spike Analyzed: 11/15/2011 (11K1997-MS1)</b>						<b>Source: IUK1712-01</b>							
Antimony	80.9	2.0	0.30	ug/l	KB1	80.0	2.33	98	70-130				
Cadmium	76.8	1.0	0.10	ug/l	KB1	80.0	0.346	96	70-130				
Copper	122	2.0	0.50	ug/l	KB1	80.0	46.3	95	70-130				
Lead	77.2	1.0	0.20	ug/l	KB1	80.0	1.42	95	70-130				
Thallium	75.4	1.0	0.20	ug/l	KB1	80.0	ND	94	70-130				
<b>Matrix Spike Dup Analyzed: 11/15/2011 (11K1997-MSD1)</b>						<b>Source: IUK1712-01</b>							
Antimony	79.9	2.0	0.30	ug/l	KB1	80.0	2.33	97	70-130	1	20		
Cadmium	75.8	1.0	0.10	ug/l	KB1	80.0	0.346	94	70-130	1	20		
Copper	121	2.0	0.50	ug/l	KB1	80.0	46.3	94	70-130	0.9	20		
Lead	75.6	1.0	0.20	ug/l	KB1	80.0	1.42	93	70-130	2	20		
Thallium	74.2	1.0	0.20	ug/l	KB1	80.0	ND	93	70-130	2	20		

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Debby Wilson  
Project Manager

MWH-Pasadena/Boeing  
 618 Michillinda Avenue, Suite 200  
 Arcadia, CA 91007  
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Project ID: Routine Outfall 009  
 Routine Outfall 009  
 Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
 Received: 11/12/11

## METHOD BLANK/QC DATA

### DISSOLVED METALS

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 11K2784 Extracted: 11/20/11</b>												
<b>Blank Analyzed: 11/21/2011 (11K2784-BLK1)</b>												
Mercury	ND	0.20	0.10	ug/l	DB							
<b>LCS Analyzed: 11/21/2011 (11K2784-BS1)</b>												
Mercury	7.91	0.20	0.10	ug/l	DB	8.00		99	85-115			
<b>Matrix Spike Analyzed: 11/21/2011 (11K2784-MS1)</b>												
						<b>Source: IUK1712-01</b>						
Mercury	7.95	0.20	0.10	ug/l	DB	8.00	ND	99	70-130			
<b>Matrix Spike Dup Analyzed: 11/21/2011 (11K2784-MSD1)</b>												
						<b>Source: IUK1712-01</b>						
Mercury	8.05	0.20	0.10	ug/l	DB	8.00	ND	101	70-130	1	20	

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Debby Wilson  
 Project Manager

MWH-Pasadena/Boeing  
618 Michillinda Avenue, Suite 200  
Arcadia, CA 91007  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
Received: 11/12/11

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 11K1799 Extracted: 11/12/11</b>												
<b>Blank Analyzed: 11/12/2011 (11K1799-BLK1)</b>												
Chloride	ND	0.50	0.30	mg/l	NN							
Nitrate/Nitrite-N	ND	0.26	0.15	mg/l	NN							
Sulfate	ND	0.50	0.30	mg/l	NN							
<b>LCS Analyzed: 11/12/2011 (11K1799-BS1)</b>												
Chloride	4.81	0.50	0.30	mg/l	NN	5.00		96	90-110			
Sulfate	9.71	0.50	0.30	mg/l	NN	10.0		97	90-110			
<b>Matrix Spike Analyzed: 11/12/2011 (11K1799-MS1)</b>						<b>Source: IUK1658-07</b>						
Chloride	126	25	15	mg/l	NN	50.0	84.9	82	80-120			
Sulfate	1160	25	15	mg/l	NN	100	1160	-6	80-120			MHA
<b>Matrix Spike Dup Analyzed: 11/12/2011 (11K1799-MSD1)</b>						<b>Source: IUK1658-07</b>						
Chloride	130	25	15	mg/l	NN	50.0	84.9	91	80-120	4	20	
Sulfate	1170	25	15	mg/l	NN	100	1160	1	80-120	0.6	20	MHA
<b>Batch: 11K2196 Extracted: 11/15/11</b>												
<b>Blank Analyzed: 11/15/2011 (11K2196-BLK1)</b>												
Total Suspended Solids	ND	10	1.0	mg/l	DK1							
<b>LCS Analyzed: 11/15/2011 (11K2196-BS1)</b>												
Total Suspended Solids	989	10	1.0	mg/l	DK1	1000		99	85-115			
<b>Duplicate Analyzed: 11/15/2011 (11K2196-DUP1)</b>						<b>Source: IUK1700-07</b>						
Total Suspended Solids	131	10	1.0	mg/l	DK1		129			2	10	

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Debby Wilson  
Project Manager

MWH-Pasadena/Boeing  
 618 Michillinda Avenue, Suite 200  
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## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b><u>Batch: 11K2213 Extracted: 11/16/11</u></b>												
<b>Blank Analyzed: 11/16/2011 (11K2213-BLK1)</b>												
Total Dissolved Solids	ND	10	1.0	mg/l	MC							
<b>LCS Analyzed: 11/16/2011 (11K2213-BS1)</b>												
Total Dissolved Solids	986	10	1.0	mg/l	MC	1000		99	90-110			
<b>Duplicate Analyzed: 11/16/2011 (11K2213-DUP1)</b>												
Total Dissolved Solids	1300	20	2.0	mg/l	MC		1330			2	10	
<b><u>Batch: 11K3077 Extracted: 11/21/11</u></b>												
<b>Blank Analyzed: 11/21/2011 (11K3077-BLK1)</b>												
Total Cyanide	ND	5.0	2.2	ug/l	SLA							
<b>LCS Analyzed: 11/21/2011 (11K3077-BS1)</b>												
Total Cyanide	100	5.0	2.2	ug/l	SLA	100		100	90-110			
<b>Matrix Spike Analyzed: 11/21/2011 (11K3077-MS1)</b>												
Total Cyanide	102	5.0	2.2	ug/l	SLA	100	ND	102	70-115			
<b>Matrix Spike Dup Analyzed: 11/21/2011 (11K3077-MSD1)</b>												
Total Cyanide	102	5.0	2.2	ug/l	SLA	100	ND	102	70-115	0.1	15	

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Debby Wilson  
 Project Manager

MWH-Pasadena/Boeing  
 618 Michillinda Avenue, Suite 200  
 Arcadia, CA 91007  
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## METHOD BLANK/QC DATA

### 900

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 8694 Extracted: 11/17/11</b>												
<b>LCS Analyzed: 11/22/2011 (S111040-03)</b>						<b>Source:</b>						
Gross Alpha	46.7	3	0.673	pCi/L	DVP	37		126	70-130			
Gross Beta	33.3	4	0.933	pCi/L	DVP	34.3		97	70-130			
<b>Blank Analyzed: 11/28/2011 (S111040-04)</b>						<b>Source:</b>						
Gross Alpha	0.091	3	0.561	pCi/L	DVP			-				U
Gross Beta	-0.43	4	0.839	pCi/L	DVP			-				U
<b>Duplicate Analyzed: 11/28/2011 (S111040-05)</b>						<b>Source: IUK1713-02</b>						
Gross Alpha	0.647	3	0.338	pCi/L	DVP		0.757	-		16		Jb
Gross Beta	2.7	4	0.825	pCi/L	DVP		2.33	-		15		Jb

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Debby Wilson  
 Project Manager



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## METHOD BLANK/QC DATA

### 901.1

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 8694 Extracted: 11/17/11</b>												
<b>LCS Analyzed: 11/18/2011 (S111040-03)</b>						<b>Source:</b>						
Cobalt-60	132	10	1.98	pCi/L	LS	137		96	80-120			
Cesium-137	145	20	2.12	pCi/L	LS	148		98	80-120			
<b>Blank Analyzed: 11/18/2011 (S111040-04)</b>						<b>Source:</b>						
Cesium-137	ND	20	0.955	pCi/L	LS				-			U
Potassium-40	ND	25	11	pCi/L	LS				-			U
<b>Duplicate Analyzed: 11/18/2011 (S111040-05)</b>						<b>Source: IUK1713-02</b>						
Cesium-137	ND	20	1.01	pCi/L	LS		0		-	0		U
Potassium-40	ND	25	21.1	pCi/L	LS		0		-	0		U

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Debby Wilson  
 Project Manager

MWH-Pasadena/Boeing  
 618 Michillinda Avenue, Suite 200  
 Arcadia, CA 91007  
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## METHOD BLANK/QC DATA

### 903.1

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 8694 Extracted: 11/29/11</b>												
<b>LCS Analyzed: 11/29/2011 (S111040-03)</b>						<b>Source:</b>						
Radium-226	39.2	1	0.742	pCi/L	TM	50.1		78	80-120			
<b>Blank Analyzed: 11/29/2011 (S111040-04)</b>						<b>Source:</b>						
Radium-226	0.158	1	0.684	pCi/L	TM				-			U
<b>Duplicate Analyzed: 11/29/2011 (S111040-05)</b>						<b>Source: IUK1713-02</b>						
Radium-226	0.719	1	0.601	pCi/L	TM		0.614		-	16		Jb

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Debby Wilson  
 Project Manager

MWH-Pasadena/Boeing  
 618 Michillinda Avenue, Suite 200  
 Arcadia, CA 91007  
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## METHOD BLANK/QC DATA

### 904

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 8694 Extracted: 11/30/11</b>												
<b>LCS Analyzed: 11/30/2011 (S111040-03)</b>						<b>Source:</b>						
Radium-228	6.31	1	0.427	pCi/L	TSC	5.56	114	60-140				
<b>Blank Analyzed: 11/30/2011 (S111040-04)</b>						<b>Source:</b>						
Radium-228	-0.058	1	0.4	pCi/L	TSC			-				U
<b>Duplicate Analyzed: 11/30/2011 (S111040-05)</b>						<b>Source: IUK1713-02</b>						
Radium-228	0.006	1	0.412	pCi/L	TSC	0.022		-	0			U

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Debby Wilson  
 Project Manager

MWH-Pasadena/Boeing  
 618 Michillinda Avenue, Suite 200  
 Arcadia, CA 91007  
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## METHOD BLANK/QC DATA

### 905

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 8694 Extracted: 11/17/11</b>												
<b>LCS Analyzed: 11/17/2011 (S111040-03)</b>						<b>Source:</b>						
Strontium-90	18.2	2	0.451	pCi/L	NB	17.2	106	80-120				
<b>Blank Analyzed: 11/17/2011 (S111040-04)</b>						<b>Source:</b>						
Strontium-90	0.023	2	0.692	pCi/L	NB			-				U
<b>Duplicate Analyzed: 11/17/2011 (S111040-05)</b>						<b>Source: IUK1713-02</b>						
Strontium-90	-0.131	2	0.441	pCi/L	NB	0.015		-	0			U

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Debby Wilson  
 Project Manager

MWH-Pasadena/Boeing  
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## METHOD BLANK/QC DATA

906

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 8694 Extracted: 11/16/11</b>												
<b>LCS Analyzed: 11/16/2011 (S111040-03)</b>						<b>Source:</b>						
Tritium	2360	500	138	pCi/L	WK	2490		95	80-120			
<b>Blank Analyzed: 11/16/2011 (S111040-04)</b>						<b>Source:</b>						
Tritium	-82.5	500	132	pCi/L	WK				-			U
<b>Duplicate Analyzed: 11/16/2011 (S111040-05)</b>						<b>Source: IUK1713-02</b>						
Tritium	13.4	500	140	pCi/L	WK		-5.76		-	0		U

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 Project Manager

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## METHOD BLANK/QC DATA

### EPA-5 1613Bx

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 1326073 Extracted: 11/22/11</b>												
<b>Blank Analyzed: 11/23/2011 (G1K220000073B)</b>						<b>Source:</b>						
1,2,3,4,6,7,8-HpCDD	1.9e-006	0.00005	0.000001	ug/L	LH			-				J, Q
1,2,3,4,6,7,8-HpCDF	7.5e-006	0.00005	0.000001	ug/L	LH			-				J
1,2,3,4,7,8,9-HpCDF	2.1e-006	0.00005	0.000001	ug/L	LH			-				J, Q
1,2,3,4,7,8-HxCDD	ND	0.00005	0.000001	ug/L	LH			-				
1,2,3,4,7,8-HxCDF	5.2e-006	0.00005	0.000000	ug/L	LH			-				J
1,2,3,6,7,8-HxCDD	1.6e-006	0.00005	0.000001	ug/L	LH			-				J
1,2,3,6,7,8-HxCDF	2.5e-006	0.00005	0.000000	ug/L	LH			-				J
1,2,3,7,8,9-HxCDD	1.4e-006	0.00005	0.000000	ug/L	LH			-				J
1,2,3,7,8,9-HxCDF	1.2e-006	0.00005	0.000000	ug/L	LH			-				J
1,2,3,7,8-PeCDD	ND	0.00005	0.000002	ug/L	LH			-				
1,2,3,7,8-PeCDF	2.3e-006	0.00005	0.000001	ug/L	LH			-				J, Q
2,3,4,6,7,8-HxCDF	ND	0.00005	0.000000	ug/L	LH			-				
2,3,4,7,8-PeCDF	ND	0.00005	0.000002	ug/L	LH			-				
2,3,7,8-TCDD	ND	0.00001	0.000001	ug/L	LH			-				
2,3,7,8-TCDF	ND	0.00001	0.000001	ug/L	LH			-				
OCDD	1.8e-005	0.0001	0.000002	ug/L	LH			-				J, Q
OCDF	1.2e-005	0.0001	0.000001	ug/L	LH			-				J
Total HpCDD	3.4e-006	0.00005	0.000001	ug/L	LH			-				J, Q
Total HpCDF	1.4e-005	0.00005	0.000001	ug/L	LH			-				J, Q
Total HxCDD	2.9e-006	0.00005	0.000000	ug/L	LH			-				J
Total HxCDF	1.5e-005	0.00005	0.000000	ug/L	LH			-				J, Q
Total PeCDD	ND	0.00005	0.000002	ug/L	LH			-				
Total PeCDF	2.3e-006	0.00005	0.000001	ug/L	LH			-				J, Q
Total TCDD	ND	0.00001	0.000001	ug/L	LH			-				
Total TCDF	ND	0.00001	0.000001	ug/L	LH			-				
Surrogate: 13C-1,2,3,4,6,7,8-HpCDD	0.0012			ug/L	LH	0.002		60		23-140		
Surrogate: 13C-1,2,3,4,6,7,8-HpCDF	0.0012			ug/L	LH	0.002		60		28-143		
Surrogate: 13C-1,2,3,4,7,8,9-HpCDF	0.0013			ug/L	LH	0.002		63		26-138		
Surrogate: 13C-1,2,3,4,7,8-HxCDD	0.0012			ug/L	LH	0.002		58		32-141		
Surrogate: 13C-1,2,3,4,7,8-HxCDF	0.0011			ug/L	LH	0.002		57		26-152		
Surrogate: 13C-1,2,3,6,7,8-HxCDD	0.0012			ug/L	LH	0.002		59		28-130		
Surrogate: 13C-1,2,3,6,7,8-HxCDF	0.0012			ug/L	LH	0.002		61		26-123		
Surrogate: 13C-1,2,3,7,8,9-HxCDF	0.0012			ug/L	LH	0.002		59		29-147		
Surrogate: 13C-1,2,3,7,8-PeCDD	0.0011			ug/L	LH	0.002		55		25-181		
Surrogate: 13C-1,2,3,7,8-PeCDF	0.0012			ug/L	LH	0.002		61		24-185		

#### TestAmerica Irvine

Debby Wilson  
Project Manager

MWH-Pasadena/Boeing  
 618 Michillinda Avenue, Suite 200  
 Arcadia, CA 91007  
 Attention: Bronwyn Kelly

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## METHOD BLANK/QC DATA

### EPA-5 1613Bx

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
<b>Batch: 1326073 Extracted: 11/22/11</b>												
<b>Blank Analyzed: 11/23/2011 (G1K220000073B)</b>						<b>Source:</b>						
Surrogate: 13C-2,3,4,6,7,8-HxCDF	0.0012			ug/L	LH	0.002	60	28-136				
Surrogate: 13C-2,3,4,7,8-PeCDF	0.0012			ug/L	LH	0.002	61	21-178				
Surrogate: 13C-2,3,7,8-TCDD	0.0011			ug/L	LH	0.002	57	25-164				
Surrogate: 13C-2,3,7,8-TCDF	0.0012			ug/L	LH	0.002	58	24-169				
Surrogate: 13C-OCDD	0.0023			ug/L	LH	0.004	57	17-157				
Surrogate: 37Cl4-2,3,7,8-TCDD	0.00079			ug/L	LH	0.0008	98	35-197				
<b>LCS Analyzed: 11/23/2011 (G1K220000073C)</b>						<b>Source:</b>						
1,2,3,4,6,7,8-HpCDD	0.00105	0.00005	0.00005	ug/L	LH	0.001	105	70-140				B
1,2,3,4,6,7,8-HpCDF	0.000965	0.00005	0.00005	ug/L	LH	0.001	97	82-122				B
1,2,3,4,7,8,9-HpCDF	0.000994	0.00005	0.00005	ug/L	LH	0.001	99	78-138				B
1,2,3,4,7,8-HxCDD	0.000988	0.00005	0.00005	ug/L	LH	0.001	99	70-164				
1,2,3,4,7,8-HxCDF	0.000997	0.00005	0.00005	ug/L	LH	0.001	100	72-134				B
1,2,3,6,7,8-HxCDD	0.000988	0.00005	0.00005	ug/L	LH	0.001	99	76-134				B
1,2,3,6,7,8-HxCDF	0.00101	0.00005	0.00005	ug/L	LH	0.001	101	84-130				B
1,2,3,7,8,9-HxCDD	0.000983	0.00005	0.00005	ug/L	LH	0.001	98	64-162				B
1,2,3,7,8,9-HxCDF	0.00106	0.00005	0.00005	ug/L	LH	0.001	106	78-130				B
1,2,3,7,8-PeCDD	0.00116	0.00005	0.00005	ug/L	LH	0.001	116	70-142				
1,2,3,7,8-PeCDF	0.00103	0.00005	0.00005	ug/L	LH	0.001	103	80-134				B
2,3,4,6,7,8-HxCDF	0.001	0.00005	0.00005	ug/L	LH	0.001	100	70-156				
2,3,4,7,8-PeCDF	0.00103	0.00005	0.00005	ug/L	LH	0.001	103	68-160				
2,3,7,8-TCDD	0.000208	0.00001	0.00001	ug/L	LH	0.0002	104	67-158				
2,3,7,8-TCDF	0.000222	0.00001	0.00001	ug/L	LH	0.0002	111	75-158				
OCDD	0.0022	0.0001	0.00008	ug/L	LH	0.002	110	78-144				B
OCDF	0.00224	0.0001	0.00009	ug/L	LH	0.002	112	63-170				B
Surrogate: 13C-1,2,3,4,6,7,8-HpCDD	0.00116			ug/L	LH	0.002	58	26-166				
Surrogate: 13C-1,2,3,4,6,7,8-HpCDF	0.00119			ug/L	LH	0.002	60	21-158				
Surrogate: 13C-1,2,3,4,7,8,9-HpCDF	0.00125			ug/L	LH	0.002	62	20-186				
Surrogate: 13C-1,2,3,4,7,8-HxCDD	0.0012			ug/L	LH	0.002	60	21-193				
Surrogate: 13C-1,2,3,4,7,8-HxCDF	0.00117			ug/L	LH	0.002	59	19-202				
Surrogate: 13C-1,2,3,6,7,8-HxCDD	0.00113			ug/L	LH	0.002	57	25-163				
Surrogate: 13C-1,2,3,6,7,8-HxCDF	0.00115			ug/L	LH	0.002	58	21-159				
Surrogate: 13C-1,2,3,7,8,9-HxCDF	0.00117			ug/L	LH	0.002	59	17-205				
Surrogate: 13C-1,2,3,7,8-PeCDD	0.00115			ug/L	LH	0.002	58	21-227				
Surrogate: 13C-1,2,3,7,8-PeCDF	0.00124			ug/L	LH	0.002	62	21-192				

**TestAmerica Irvine**

Debby Wilson  
 Project Manager

MWH-Pasadena/Boeing  
618 Michillinda Avenue, Suite 200  
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## METHOD BLANK/QC DATA

### EPA-5 1613Bx

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 1326073 Extracted: 11/22/11</b>												
<b>LCS Analyzed: 11/23/2011 (G1K220000073C)</b>						<b>Source:</b>						
Surrogate: 13C-2,3,4,6,7,8-HxCDF	0.00115			ug/L	LH	0.002		58	22-176			
Surrogate: 13C-2,3,4,7,8-PeCDF	0.00129			ug/L	LH	0.002		65	13-328			
Surrogate: 13C-2,3,7,8-TCDD	0.00117			ug/L	LH	0.002		58	20-175			
Surrogate: 13C-2,3,7,8-TCDF	0.0012			ug/L	LH	0.002		60	22-152			
Surrogate: 13C-OCDD	0.00221			ug/L	LH	0.004		55	13-199			
Surrogate: 37Cl4-2,3,7,8-TCDD	0.000799			ug/L	LH	0.0008		100	31-191			
<b>LCS Dup Analyzed: 11/23/2011 (G1K220000073L)</b>						<b>Source:</b>						
1,2,3,4,6,7,8-HpCDD	0.00109	0.00005	0.000005	ug/L	LH	0.001	109	70-140	4.2	50		B
1,2,3,4,6,7,8-HpCDF	0.00101	0.00005	0.000005	ug/L	LH	0.001	101	82-122	4.2	50		B
1,2,3,4,7,8,9-HpCDF	0.00103	0.00005	0.000008	ug/L	LH	0.001	103	78-138	3.9	50		B
1,2,3,4,7,8-HxCDD	0.00102	0.00005	0.000001	ug/L	LH	0.001	102	70-164	2.8	50		
1,2,3,4,7,8-HxCDF	0.00103	0.00005	0.000008	ug/L	LH	0.001	103	72-134	2.9	50		B
1,2,3,6,7,8-HxCDD	0.00103	0.00005	0.000001	ug/L	LH	0.001	103	76-134	3.8	50		B
1,2,3,6,7,8-HxCDF	0.00103	0.00005	0.000007	ug/L	LH	0.001	103	84-130	2.2	50		B
1,2,3,7,8,9-HxCDD	0.00105	0.00005	0.000008	ug/L	LH	0.001	105	64-162	6.4	50		B
1,2,3,7,8,9-HxCDF	0.00106	0.00005	0.000005	ug/L	LH	0.001	106	78-130	0.37	50		B
1,2,3,7,8-PeCDD	0.00121	0.00005	0.000003	ug/L	LH	0.001	121	70-142	4	50		
1,2,3,7,8-PeCDF	0.00106	0.00005	0.000003	ug/L	LH	0.001	106	80-134	3.2	50		B
2,3,4,6,7,8-HxCDF	0.00102	0.00005	0.000007	ug/L	LH	0.001	102	70-156	1.3	50		
2,3,4,7,8-PeCDF	0.00108	0.00005	0.000003	ug/L	LH	0.001	108	68-160	4.6	50		
2,3,7,8-TCDD	0.000221	0.00001	0.000001	ug/L	LH	0.0002	111	67-158	6.3	50		
2,3,7,8-TCDF	0.000236	0.00001	0.000001	ug/L	LH	0.0002	118	75-158	6	50		
OCDD	0.00221	0.0001	0.000005	ug/L	LH	0.002	110	78-144	0.4	50		B
OCDF	0.00226	0.0001	0.000015	ug/L	LH	0.002	113	63-170	0.79	50		B
Surrogate: 13C-1,2,3,4,6,7,8-HpCDD	0.000918			ug/L	LH	0.002		46	26-166			
Surrogate: 13C-1,2,3,4,6,7,8-HpCDF	0.000959			ug/L	LH	0.002		48	21-158			
Surrogate: 13C-1,2,3,4,7,8,9-HpCDF	0.000994			ug/L	LH	0.002		50	20-186			
Surrogate: 13C-1,2,3,4,7,8-HxCDD	0.000974			ug/L	LH	0.002		49	21-193			
Surrogate: 13C-1,2,3,4,7,8-HxCDF	0.000976			ug/L	LH	0.002		49	19-202			
Surrogate: 13C-1,2,3,6,7,8-HxCDD	0.000958			ug/L	LH	0.002		48	25-163			
Surrogate: 13C-1,2,3,6,7,8-HxCDF	0.00099			ug/L	LH	0.002		50	21-159			
Surrogate: 13C-1,2,3,7,8,9-HxCDF	0.000968			ug/L	LH	0.002		48	17-205			
Surrogate: 13C-1,2,3,7,8-PeCDD	0.000956			ug/L	LH	0.002		48	21-227			
Surrogate: 13C-1,2,3,7,8-PeCDF	0.00105			ug/L	LH	0.002		53	21-192			

#### TestAmerica Irvine

Debby Wilson  
Project Manager



MWH-Pasadena/Boeing  
 618 Michillinda Avenue, Suite 200  
 Arcadia, CA 91007  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
 Routine Outfall 009  
 Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
 Received: 11/12/11

## METHOD BLANK/QC DATA

### EPA-5 1613Bx

Analyte	Result	Reporting			Spike Level	Source		%REC		RPD		Data Qualifiers
		Limit	MDL	Units		Analyst	Result	%REC	Limits	RPD	Limit	
<b>Batch: 1326073 Extracted: 11/22/11</b>												
<b>LCS Dup Analyzed: 11/23/2011 (G1K220000073L)</b>												
Surrogate: 13C-2,3,4,6,7,8-HxCDF	0.000992			ug/L	LH	0.002	50	22-176				
Surrogate: 13C-2,3,4,7,8-PeCDF	0.00104			ug/L	LH	0.002	52	13-328				
Surrogate: 13C-2,3,7,8-TCDD	0.000953			ug/L	LH	0.002	48	20-175				
Surrogate: 13C-2,3,7,8-TCDF	0.00101			ug/L	LH	0.002	51	22-152				
Surrogate: 13C-OCDD	0.00174			ug/L	LH	0.004	43	13-199				
Surrogate: 37Cl4-2,3,7,8-TCDD	0.000762			ug/L	LH	0.0008	95	31-191				

TestAmerica Irvine

Debby Wilson  
 Project Manager

MWH-Pasadena/Boeing  
 618 Michillinda Avenue, Suite 200  
 Arcadia, CA 91007  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
 Routine Outfall 009  
 Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
 Received: 11/12/11

## Compliance Check

The results obtained from the analytical testing of this data set were checked against compliance limits received from the client. Any results at or above the compliance limits appear in bold on this page.

LabNumber	Analysis	Analyte	Units	Result	MRL	Compliance Limit
IUK1713-01	1664-HEM	Hexane Extractable Material (Oil & Greas	mg/l	0	4.7	15

## Compliance Check

The results obtained from the analytical testing of this data set were checked against compliance limits received from the client. Any results at or above the compliance limits appear in bold on this page.

LabNumber	Analysis	Analyte	Units	Result	MRL	Compliance Limit
IUK1713-02	Cadmium-200.8	Cadmium	ug/l	0.036	1.0	3.1
IUK1713-02	Chloride - 300.0	Chloride	mg/l	1.71	0.50	150
IUK1713-02	Copper-200.8	Copper	ug/l	2.80	2.0	14
IUK1713-02	Lead-200.8	Lead	ug/l	2.45	1.0	5.2
IUK1713-02	Nitrogen, NO3+NO2 -N EPA 300.0	Nitrate/Nitrite-N	mg/l	0.59	0.26	8
IUK1713-02	Sulfate-300.0	Sulfate	mg/l	5.24	0.50	300
IUK1713-02	TDS - SM2540C	Total Dissolved Solids	mg/l	41	10	950

## Compliance Check

The results obtained from the analytical testing of this data set were checked against compliance limits received from the client. Any results at or above the compliance limits appear in bold on this page.

LabNumber	Analysis	Analyte	Units	Result	MRL	Compliance Limit
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## Compliance Check

The results obtained from the analytical testing of this data set were checked against compliance limits received from the client. Any results at or above the compliance limits appear in bold on this page.

LabNumber	Analysis	Analyte	Units	Result	MRL	Compliance Limit
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TestAmerica Irvine

Debby Wilson  
 Project Manager

MWH-Pasadena/Boeing  
618 Michillinda Avenue, Suite 200  
Arcadia, CA 91007  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
Received: 11/12/11

## DATA QUALIFIERS AND DEFINITIONS

- B** Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- J** Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
- Jb** The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
- MHA** Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. See Blank Spike (LCS).
- MNR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- Q** Estimated maximum possible concentration (EMPC).
- U** The RESULT is less than the MDA (Minimum Detectable Activity). If the MDA is blank, the ERROR is used as the limit.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

**TestAmerica Irvine**

Debby Wilson  
Project Manager

*The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from TestAmerica.*

**IUK1713 <Page 35 of 38>**

MWH-Pasadena/Boeing  
618 Michillinda Avenue, Suite 200  
Arcadia, CA 91007  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
Received: 11/12/11

## Certification Summary

### TestAmerica Irvine

Method	Matrix	Nelac	California
EPA 1664A	Water	X	X
EPA 200.8-Diss	Water	X	N/A
EPA 200.8	Water	X	N/A
EPA 245.1-Diss	Water	X	N/A
EPA 245.1	Water	X	N/A
EPA 300.0	Water	X	N/A
Filtration	Water	N/A	N/A
SM 2540D	Water	X	X
SM2540C	Water	X	N/A
SM4500CN-E	Water	X	N/A

*Nevada and NELAP provide analyte specific accreditations. Analyte specific information for TestAmerica may be obtained by contacting the laboratory or visiting our website at [www.testamericainc.com](http://www.testamericainc.com)*

### Subcontracted Laboratories

### TestAmerica Irvine

Debby Wilson  
Project Manager

*The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from TestAmerica.*

MWH-Pasadena/Boeing  
618 Michillinda Avenue, Suite 200  
Arcadia, CA 91007  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
Received: 11/12/11

## Eberline Services - SUB

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: Gamma Spec  
Samples: IUK1713-02, IUK1713-03

Analysis Performed: Gross Alpha  
Samples: IUK1713-02, IUK1713-03

Analysis Performed: Gross Beta  
Samples: IUK1713-02, IUK1713-03

Analysis Performed: Radium, Combined  
Samples: IUK1713-02, IUK1713-03

Analysis Performed: Strontium 90  
Samples: IUK1713-02, IUK1713-03

Analysis Performed: Tritium  
Samples: IUK1713-02, IUK1713-03

Analysis Performed: Uranium, Combined  
Samples: IUK1713-02, IUK1713-03

Method Performed: 900  
Samples: IUK1713-02, IUK1713-03

Method Performed: 901.1  
Samples: IUK1713-02, IUK1713-03

Method Performed: 903.1  
Samples: IUK1713-02, IUK1713-03

Method Performed: 904  
Samples: IUK1713-02, IUK1713-03

Method Performed: 905  
Samples: IUK1713-02, IUK1713-03

Method Performed: 906  
Samples: IUK1713-02

Method Performed: D5174  
Samples: IUK1713-02, IUK1713-03

## TestAmerica Irvine

Debby Wilson  
Project Manager

MWH-Pasadena/Boeing  
618 Michillinda Avenue, Suite 200  
Arcadia, CA 91007  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK1713

Sampled: 11/12/11-11/14/11  
Received: 11/12/11

**TestAmerica West Sacramento** *NELAC Cert #1119CA, Nevada Cert #CA44*

880 Riverside Parkway - West Sacramento, CA 95605

Method Performed: EPA-5 1613B  
Samples: IUK1713-02, IUK1713-02RE

**TestAmerica Irvine**

Debby Wilson  
Project Manager

*The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from TestAmerica.*

**IUK1713 <Page 38 of 38>**

# CHAIN OF CUSTODY FORM

Client Name/Address: <b>MWH-Arcadia</b> 618 Michillinda Ave, Suite 200 Arcadia, CA 91007  Test America Contact: Debby Wilson				Project: Boeing-SSFL NPDES <b>Routine Outfall 009</b> <b>GRAB - HIGH</b> Stormwater at SW-13			<b>ANALYSIS REQUIRED</b>												Field readings: (Log in and include in report Temp and pH)  Temp °F = <b>58.0</b>  pH = <b>6.9</b>  Time of readings = <b>08:45</b>								
Project Manager: Bronwyn Kelly  Sampler: <b>RICK BANAGA</b> <b>ANDREW PAYNE</b>				Phone Number: (626) 568-6691  Fax Number: (626) 568-6515			Oil & Grease (1664-HEM)																				
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #																					Comments
Outfall 009	W	1L Amber	2	<b>11-12-2011</b> <b>08:45</b>	HCl	1A, 1B	X																				
These Samples are 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: <b>[Signature]</b> Date/Time: <b>11-12-2011 11:05</b>				Received By: <b>[Signature]</b> Date/Time: <b>11-12-11 11:05</b>				Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: _____ 48 Hour: _____ 5 Day: _____ Normal: <b>X</b>																			
Relinquished By: <b>[Signature]</b> Date/Time: <b>11-12-11 12:50</b>				Received By: _____ Date/Time: _____				Sample Integrity: (Check) Intact: <b>X</b> On Ice: <b>X</b>																			
Relinquished By: _____ Date/Time: _____				Received By: <b>[Signature]</b> Date/Time: <b>11/12/11 12:50</b>				Data Requirements: (Check) No Level IV: _____ All Level IV: _____ NPDES Level IV: <b>X</b>																			

TN 11/12/11  
14-13

DUK1713

Client Name/Address: MWH-Arcadia 618 Michillinda Ave, Suite 200 Arcadia, CA 91007  Test America Contact: Debby Wilson							Project: Boeing-SSFL NPDES Routine Outfall 009 COMPOSITE - HIGH Stormwater at SW-13							ANALYSIS REQUIRED											
Project Manager: Bronwyn Kelly Sampler: <i>RICK BANACH</i> <i>ANDREW PAYNE</i>							Phone Number: (626) 568-6691 Fax Number: (626) 568-6515							Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, Tl TCDD (and all congeners) Cl <sup>-</sup> , SO <sub>4</sub> , NO <sub>3</sub> +NO <sub>2</sub> -N TDS, TSS Total Dissolved Metals: Sb, Cd, Cu, Pb, Hg, Tl 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) Chronic Toxicity Cyanide											
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, Tl	TCDD (and all congeners)	Cl <sup>-</sup> , SO <sub>4</sub> , NO <sub>3</sub> +NO <sub>2</sub> -N	TDS, TSS	Total Dissolved Metals: Sb, Cd, Cu, Pb, Hg, Tl	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)	Chronic Toxicity												
Outfall 009	W	1L Poly	1	<del>11-12-2011</del> 06:33	HNO <sub>3</sub>	2A	X																		
Outfall 009 Dup	W	1L Poly	1		HNO <sub>3</sub>	2B	X																		
Outfall 009	W	1L Amber	2		None	3A, 3B		X																	
Outfall 009	W	500 mL Poly	2		None	4A, 4B			X																
Outfall 009	W	500 mL Poly	1		None	5				X															
Outfall 009	W	1L Poly	1		None	6					X							Filter w/in 24hrs of receipt at lab							
Outfall 009	W	2.5 Gal Cube	1	11-12-2011 06:33	None	7A						X						Unfiltered and unpreserved analysis							
		500 mL Amber	1		None	7B																			
<del>Outfall 009</del>	<del>W</del>	<del>1 Gal Poly</del>	<del>1</del>	<del></del>	<del>None</del>	<del>8</del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del>X</del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del>Only test if first or second rain events of the year</del>						
Outfall 009	W	500 mL Poly	1	11-12-2011 06:33	NaOH	9									X										

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

These must be added to the same work order for COC Page 1 of 2 for Outfall 009 for the same event.

Relinquished By: <i>Rick Banach</i>	Date/Time: 11-12-2011 11:05	Received By: <i>Matt [Signature]</i>	Date/Time: 11-12-11 11:05	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: _____ 48 Hour: _____ 5 Day: _____ Normal: <input checked="" type="checkbox"/>
Relinquished By: <i>Matt [Signature]</i>	Date/Time: 11-12-11 12:50	Received By: <i>[Signature]</i>	Date/Time: 11/21/11 12:50	Sample Integrity: (Check) Intact: <input checked="" type="checkbox"/> On Ice: <input checked="" type="checkbox"/>
Relinquished By:	Date/Time:	Received By:	Date/Time:	Data Requirements: (Check) No Level IV: _____ All Level IV: _____ NPDES Level IV: <input checked="" type="checkbox"/>

3-6c





**EBERLINE**  
SERVICES

**EBERLINE ANALYTICAL CORPORATION**  
2030 Wright Avenue  
Richmond, California 94804-3849  
Phone (510) 235-2633 Fax (510) 235-0438  
Toll Free (800) 841-5487  
[www.eberlineservices.com](http://www.eberlineservices.com)

December 5, 2011

Ms. Debby Wilson  
Test America Irvine  
17461 Derian Ave., Ste. 100  
Irvine, CA 92614

**Reference: Test America-Irvine IUK1713  
Eberline Analytical Report S111040-8694  
Sample Delivery Group 8694**

Dear Ms. Wilson:

Enclosed is a Level IV CLP-like data package (on CD) for two water samples received under Test America Job No. IUK1713. The samples were received on November 15, 2011.

Please call me, if you have any questions concerning the enclosed report.

Sincerely,

Joseph Verville  
Client Services Manager

NJV/mw

Enclosure: Level IV CLP-like Data Package CD

**1.0 General Comments**

Sample delivery group 8694 consists of the analytical results and supporting documentation for two water samples. Sample ID's and reference dates/times are given in the Sample Summary section of the Summary Data report. The samples were received as stated on the chain-of-custody document. Any discrepancies are noted on the Eberline Analytical Sample Receipt Checklist. No holding times were exceeded.

Tritium and gamma analyses were performed on the samples as received i.e. the samples were not filtered. The analytical volumes for all other analyses were subjected to a full nitric acid/hydrofluoric acid dissolution, and analyses were performed on the dissolution volumes.

**2.0 Quality Control**

Quality Control Samples consisted of laboratory control samples (LCS), method blanks, and duplicate analyses. Included in the data package are copies of the Eberline Analytical radiometrics data sheets. The radiometrics data sheets for the QC LCS and QC blank samples indicate Eberline Analytical's standard QC aliquot of 1.0 sample; results for those QC types are calculated as pCi/sample. The QC LCS and QC blank sample results reported in the Summary Data Section have been divided by the appropriate method specific aliquot (see the Lab Method Summaries for specific aliquots) in order to make the results comparable to the field sample results. All QC sample results were within required control limits.

**3.0 Method Errors**

The error for each result is an estimate of the significant random uncertainties incurred in the measurement process. These are propagated to each final result. They include the counting (Poisson) uncertainty, as well as those intrinsic errors due to carrier or tracer standardization, aliquoting, counter efficiencies, weights, or volumes. The following method errors were propagated to the count error to calculate the  $2\sigma$  error (Total):

<b>Analysis</b>	<b>Method Error</b>
Gross alpha	20.6%
Gross beta	11.0%
Tritium	10.0%
Sr-90	10.4%
Ra-226	16.4%
Ra-228	10.4%
Uranium, Total	
Gamma Spec.	7.0%

**4.0 Analysis Notes**

- 4.1 Gross Alpha/Gross Beta Analysis** – No problems were encountered during the processing of the samples. All quality control sample results were within required control limits.
- 4.2 Tritium Analysis** – No problems were encountered during the processing of the samples. All quality control sample results were within required control limits.
- 4.3 Strontium-90 Analysis** – No problems were encountered during the processing of the samples. All quality control sample results were within required control limits.
- 4.4 Radium-226 Analysis** – The Ra-226 recovery for the LCS was 78%, greater than the lower control limit of 76% but less than the lower warning limit of 84%. No other problems were encountered during the processing of the samples.
- 4.5 Radium-228 Analysis** - No problems were encountered during the processing of the samples. All quality control sample results were within required control limits
- 4.6 Total Uranium Analysis** - No problems were encountered during the processing of the samples. All quality control sample results were within required control limits.
- 4.7 Gamma Spectroscopy** – No problems were encountered during the processing of the samples. All quality control sample results were within required control limits.

**5.0 Case Narrative Certification Statement**

**"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."**

  
\_\_\_\_\_  
**Joseph Verville**  
**Client Services Manager**

12/5/11  
\_\_\_\_\_  
**Date**

E B E R L I N E   A N A L Y T I C A L  
SDG 8694


SDG 8694  
Contact Joseph Verville


Client Test America, Inc.  
Contract IUK1713

S U M M A R Y   D A T A   S E C T I O N

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Prepared by

  
Reviewed by

Lab id EAS  
Protocol TA  
Version Ver 1.0  
Form DVD-TOC  
Version 3.06  
Report date 12/05/11

EBERLINE ANALYTICAL

SDG 8694

SDG 8694  
Contact Joseph Verville

REPORT GUIDE

Client Test America, Inc.  
Contract IUK1713

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DUPLICATES

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EAS  
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EBERLINE ANALYTICAL

SDG 8694

SDG 8694  
Contact Joseph Verville

GUIDE, cont.

Client Test America, Inc.  
Contract IUK1713

ABOUT THE DATA SUMMARY SECTION

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

REPORT GUIDES

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EBERLINE ANALYTICAL

SDG 8694

LAB SAMPLE SUMMARY

SDG 8694  
Contact Joseph Verville

Client Test America, Inc.  
Contract IUK1713

LAB	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAS NO	CHAIN OF CUSTODY	COLLECTED
S111040-01	IUK1713-02	Boeing - SSFL	WATER			IUK1713	11/12/11 06:33
S111040-02	IUK1713-03 (TRIP-BLANK)	Boeing - SSFL	WATER			IUK1713	11/14/11 13:46
S111040-03	Lab Control Sample		WATER				
S111040-04	Method Blank		WATER				
S111040-05	Duplicate (S111040-01)	Boeing - SSFL	WATER				11/12/11 06:33

LAB SUMMARY

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Lab id EAS  
Protocol TA  
Version Ver 1.0  
Form DVD-LS  
Version 3.06  
Report date 12/05/11

EBERLINE ANALYTICAL

SDG 8694

SDG 8694  
 Contact Joseph Verville

Client Test America, Inc.  
 Contract IUK1713

QC SUMMARY

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% MOIST	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL SAMPLE ID	DEPARTMENT SAMPLE ID
8694	IUK1713	IUK1713-02	WATER		10.0 L			S111040-01	8694-001
		IUK1713-03 (TRIP-BLANK)	WATER		10.0 L			S111040-02	8694-002
		Method Blank	WATER					S111040-04	8694-004
		Lab Control Sample	WATER					S111040-03	8694-003
		Duplicate (S111040-01)	WATER			10.0 L		S111040-05	8694-005

QC SUMMARY

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SUMMARY DATA SECTION

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Lab id EAS  
 Protocol TA  
 Version Ver 1.0  
 Form DVD-QS  
 Version 3.06  
 Report date 12/05/11



EBERLINE ANALYTICAL

SDG 8694

SDG 8694  
 Contact Joseph Verville

PREP BATCH SUMMARY

Client Test America, Inc.  
 Contract IUK1713

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI-	
			BATCH	2σ %	CLIENT	MORE	RE	BLANK		LCS
Beta Counting										
AC	WATER	Radium-228 in Water	7271-107	10.4	2			1	1	1/1
SR	WATER	Strontium-90 in Water	7271-107	10.4	2			1	1	1/1
Gas Proportional Counting										
80A	WATER	Gross Alpha in Water	7271-107	20.6	2			1	1	1/1
80B	WATER	Gross Beta in Water	7271-107	11.0	2			1	1	1/1
Gamma Spectroscopy										
GAM	WATER	Gamma Emitters in Water	7271-107	7.0	2			1	1	1/1
Kinetic Phosphorimetry, ug										
U_T	WATER	Uranium, Total	7271-107		2			1	1	1/1
Liquid Scintillation Counting										
H	WATER	Tritium in Water	7271-107	10.0	1			1	1	1/1
Radon Counting										
RA	WATER	Radium-226 in Water	7271-107	16.4	2			1	1	1/1

Blank, LCS, Duplicate and Spike planchets are those in the same preparation batch as some Client sample.

Lab id EAS  
 Protocol TA  
 Version Ver 1.0  
 Form DVD-PBS  
 Version 3.06  
 Report date 12/05/11

**EBERLINE ANALYTICAL**

SDG 8694

**LAB WORK SUMMARY**

SDG 8694  
Contact Joseph Verville

Client Test America, Inc.  
Contract IUK1713

LAB SAMPLE	CLIENT SAMPLE ID				SUF-					
COLLECTED	LOCATION	MATRIX			FIX	ANALYZED	REVIEWED	BY	METHOD	
RECEIVED	CUSTODY	SAS no	PLANCHET	TEST						
S111040-01 11/12/11	IUK1713-02		8694-001	80A/80		11/22/11	11/28/11	BW	Gross Alpha in Water	
	Boeing - SSFL	WATER	8694-001	80B/80		11/22/11	11/28/11	BW	Gross Beta in Water	
	IUK1713		8694-001	AC		11/30/11	12/01/11	BW	Radium-228 in Water	
			8694-001	GAM		11/17/11	11/21/11	CSS	Gamma Emitters in Water	
			8694-001	H		11/16/11	11/18/11	BW	Tritium in Water	
			8694-001	RA		11/29/11	11/30/11	BW	Radium-226 in Water	
			8694-001	SR		11/17/11	11/23/11	BW	Strontium-90 in Water	
			8694-001	U_T		12/01/11	12/01/11	CSS	Uranium, Total	
S111040-02 11/14/11	IUK1713-03 (TRIP-BLANK)		8694-002	80A/80		11/22/11	11/28/11	BW	Gross Alpha in Water	
	Boeing - SSFL	WATER	8694-002	80B/80		11/22/11	11/28/11	BW	Gross Beta in Water	
	IUK1713		8694-002	AC		11/30/11	12/01/11	BW	Radium-228 in Water	
			8694-002	GAM		11/17/11	11/21/11	CSS	Gamma Emitters in Water	
			8694-002	RA		11/29/11	11/30/11	BW	Radium-226 in Water	
			8694-002	SR		11/17/11	11/23/11	BW	Strontium-90 in Water	
S111040-03	Lab Control Sample		8694-003	80A/80		11/22/11	11/28/11	BW	Gross Alpha in Water	
		WATER	8694-003	80B/80		11/22/11	11/28/11	BW	Gross Beta in Water	
			8694-003	AC		11/30/11	12/01/11	BW	Radium-228 in Water	
			8694-003	GAM		11/18/11	11/21/11	CSS	Gamma Emitters in Water	
			8694-003	H		11/16/11	11/18/11	BW	Tritium in Water	
			8694-003	RA		11/29/11	11/30/11	BW	Radium-226 in Water	
S111040-04	Method Blank		8694-004	80A/80		11/28/11	11/28/11	BW	Gross Alpha in Water	
		WATER	8694-004	80B/80		11/28/11	11/28/11	BW	Gross Beta in Water	
			8694-004	AC		11/30/11	12/01/11	BW	Radium-228 in Water	
			8694-004	GAM		11/18/11	11/21/11	CSS	Gamma Emitters in Water	
			8694-004	H		11/16/11	11/18/11	BW	Tritium in Water	
			8694-004	RA		11/29/11	11/30/11	BW	Radium-226 in Water	
		8694-004	SR		11/17/11	11/23/11	BW	Strontium-90 in Water		
		8694-004	U_T		12/01/11	12/01/11	CSS	Uranium, Total		

WORK SUMMARY

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Lab id EAS  
Protocol TA  
Version Ver 1.0  
Form DVD-LWS  
Version 3.06  
Report date 12/05/11

**EBERLINE ANALYTICAL**

SDG 8694

SDG 8694  
Contact Joseph Verville

Client Test America, Inc.  
Contract IUK1713

**WORK SUMMARY, cont.**

LAB SAMPLE	CLIENT SAMPLE ID				SUF-					
COLLECTED	LOCATION	MATRIX			FIX	ANALYZED	REVIEWED	BY	METHOD	
RECEIVED	CUSTODY	SAS no	PLANCHET	TEST						
S111040-05	Duplicate (S111040-01)		8694-005	80A/80		11/28/11	11/28/11	BW	Gross Alpha in Water	
11/12/11	Boeing - SSFL	WATER	8694-005	80B/80		11/28/11	11/28/11	BW	Gross Beta in Water	
			8694-005	AC		11/30/11	12/01/11	BW	Radium-228 in Water	
			8694-005	GAM		11/18/11	11/21/11	CSS	Gamma Emitters in Water	
			8694-005	H		11/16/11	11/18/11	BW	Tritium in Water	
			8694-005	RA		11/29/11	11/30/11	BW	Radium-226 in Water	
			8694-005	SR		11/17/11	11/23/11	BW	Strontium-90 in Water	
			8694-005	U_T		12/01/11	12/01/11	CSS	Uranium, Total	

**COUNTS OF TESTS BY SAMPLE TYPE**

TEST	SAS no	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
80A/80		Gross Alpha in Water	900.0	2			1	1	1		5
80B/80		Gross Beta in Water	900.0	2			1	1	1		5
AC		Radium-228 in Water	904.0	2			1	1	1		5
GAM		Gamma Emitters in Water	901.1	2			1	1	1		5
H		Tritium in Water	906.0	1			1	1	1		4
RA		Radium-226 in Water	903.1	2			1	1	1		5
SR		Strontium-90 in Water	905.0	2			1	1	1		5
U_T		Uranium, Total	D5174	2			1	1	1		5
<b>TOTALS</b>				15			8	8	8		39

WORK SUMMARY

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Lab id EAS  
Protocol TA  
Version Ver 1.0  
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Version 3.06  
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EBERLINE ANALYTICAL

SDG 8694

8694-004

Method Blank

METHOD BLANK

SDG <u>8694</u>	Client <u>Test America, Inc.</u>
Contact <u>Joseph Verville</u>	Contract <u>IUK1713</u>
Lab sample id <u>S111040-04</u>	Client sample id <u>Method Blank</u>
Dept sample id <u>8694-004</u>	Material/Matrix <u>WATER</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587461	0.091	0.31	0.561	3.00	U	80A
Gross Beta	12587472	-0.430	0.48	0.839	4.00	U	80B
Tritium	10028178	-82.5	<u>190</u>	132	500	U	H
Radium-226	13982633	0.158	0.39	0.684	1.00	U	RA
Radium-228	15262201	-0.058	0.15	0.400	1.00	U	AC
Strontium-90	10098972	0.023	0.30	0.692	2.00	U	SR
Uranium, Total		0	0.007	0.017	1.00	U	U_T
Potassium-40	13966002	U		11.0	25.0	U	GAM
Cesium-137	10045973	U		0.955	20.0	U	GAM

QC-BLANK #80597

Lab id <u>EAS</u>
Protocol <u>TA</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>12/05/11</u>

**EBERLINE ANALYTICAL**

SDG 8694

8694-003

Lab Control Sample

**LAB CONTROL SAMPLE**

SDG <u>8694</u>	Client <u>Test America, Inc.</u>
Contact <u>Joseph Verville</u>	Contract <u>IUK1713</u>
Lab sample id <u>S111040-03</u>	Client sample id <u>Lab Control Sample</u>
Dept sample id <u>8694-003</u>	Material/Matrix <u>WATER</u>

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	2σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	46.7	2.5	0.673	3.00	80A	37.0	1.5	126	73-127	70-130
Gross Beta	33.3	1.3	0.933	4.00	80B	34.3	1.4	97	88-112	70-130
Tritium	2360	220	138	500	H	2490	100	95	86-114	80-120
Radium-226	39.2	2.0	0.742	1.00	RA	50.1	2.0	78	86-114	80-120
Radium-228	6.31	0.38	0.427	1.00	AC	5.56	0.22	114	86-114	60-140
Strontium-90	18.2	1.0	0.451	2.00	SR	17.2	0.69	106	87-113	80-120
Uranium, Total	64.2	7.3	0.168	1.00	U_T	62.0	2.5	104	88-112	80-120
Cobalt-60	132	3.7	1.98	10.0	GAM	137	5.5	96	92-108	80-120
Cesium-137	145	3.2	2.12	20.0	GAM	148	5.9	98	92-108	80-120

QC-LCS #80596

Lab id <u>EAS</u>
Protocol <u>TA</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>12/05/11</u>

**EBERLINE ANALYTICAL**

SDG 8694

8694-005

IUK1713-02

**DUPLICATE**

SDG <u>8694</u> Contact <u>Joseph Verville</u> DUPLICATE Lab sample id <u>S111040-05</u> Dept sample id <u>8694-005</u>	ORIGINAL Lab sample id <u>S111040-01</u> Dept sample id <u>8694-001</u> Received _____	Client <u>Test America, Inc.</u> Contract <u>IUK1713</u> Client sample id <u>IUK1713-02</u> Location/Matrix <u>Boeing - SSFL</u> <u>WATER</u> Collected/Volume <u>11/12/11 06:33</u> <u>10.0 L</u> Chain of custody id <u>IUK1713</u>
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ANALYTE	DUPLICATE		MDA		RDL		QUALI-		ORIGINAL		MDA		QUALI-		RPD		3σ		DER	
	pCi/L	2σ ERR (COUNT)	pCi/L		pCi/L		FIERS	TEST	pCi/L	2σ ERR (COUNT)	pCi/L		FIERS	%	TOT		σ			
Gross Alpha	0.647	0.29	0.338		3.00		J	80A	0.757	0.29	0.335		J	16	98		0.5			
Gross Beta	2.70	0.58	0.825		4.00		J	80B	2.33	0.64	0.945		J	15	57		0.8			
Tritium	13.4	<u>200</u>	140		500		U	H	-5.76	<u>220</u>	142		U	-			0.1			
Radium-226	0.719	0.42	0.601		1.00		J	RA	0.614	0.41	0.626		U	16	137		0.3			
Radium-228	0.006	0.17	0.412		1.00		U	AC	0.022	0.16	0.414		U	-			0.1			
Strontium-90	-0.131	0.20	0.441		2.00		U	SR	0.015	0.33	0.745		U	-			0.8			
Uranium, Total	0.075	0.011	0.017		1.00		J	U_T	0.061	0.010	0.017		J	21	33		1.9			
Potassium-40	U		21.1		25.0		U	GAM	U		12.4		U	-			0.7			
Cesium-137	U		1.01		20.0		U	GAM	U		1.07		U	-			0.1			

QC-DUP#1 80598

DUPLICATES

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Lab id <u>EAS</u>
Protocol <u>TA</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>12/05/11</u>

EBERLINE ANALYTICAL

SDG 8694

8694-001

IUK1713-02

DATA SHEET

SDG <u>8694</u>	Client <u>Test America, Inc.</u>
Contact <u>Joseph Verville</u>	Contract <u>IUK1713</u>
Lab sample id <u>S111040-01</u>	Client sample id <u>IUK1713-02</u>
Dept sample id <u>8694-001</u>	Location/Matrix <u>Boeing - SSFL</u> <u>WATER</u>
Received _____	Collected/Volume <u>11/12/11 06:33</u> <u>10.0 L</u>
	Chain of custody id <u>IUK1713</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587461	0.757	0.29	0.335	3.00	J	80A
Gross Beta	12587472	2.33	0.64	0.945	4.00	J	80B
Tritium	10028178	-5.76	<u>220</u>	142	500	U	H
Radium-226	13982633	0.614	0.41	0.626	1.00	U	RA
Radium-228	15262201	0.022	0.16	0.414	1.00	U	AC
Strontium-90	10098972	0.015	0.33	0.745	2.00	U	SR
Uranium, Total		0.061	0.010	0.017	1.00	J	U_T
Potassium-40	13966002	U		12.4	25.0	U	GAM
Cesium-137	10045973	U		1.07	20.0	U	GAM

Lab id <u>EAS</u>
Protocol <u>TA</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>12/05/11</u>

EBERLINE ANALYTICAL

SDG 8694

8694-002

IUK1713-03 (TRIP-BLANK)

DATA SHEET

SDG <u>8694</u>	Client <u>Test America, Inc.</u>
Contact <u>Joseph Verville</u>	Contract <u>IUK1713</u>
Lab sample id <u>S111040-02</u>	Client sample id <u>IUK1713-03 (TRIP-BLANK)</u>
Dept sample id <u>8694-002</u>	Location/Matrix <u>Boeing - SSFL</u> <u>WATER</u>
Received _____	Collected/Volume <u>11/14/11 13:46</u> <u>10.0 L</u>
	Chain of custody id <u>IUK1713</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587461	-0.081	0.14	0.340	3.00	U	80A
Gross Beta	12587472	-0.364	0.44	0.766	4.00	U	80B
Radium-226	13982633	0.103	0.36	0.639	1.00	U	RA
Radium-228	15262201	0.079	0.17	0.423	1.00	U	AC
Strontium-90	10098972	-0.060	0.24	0.613	2.00	U	SR
Uranium, Total		0	0.007	0.017	1.00	U	U_T
Potassium-40	13966002	U		<u>383</u>	25.0	U	GAM
Cesium-134	13967709	U		3.84	20.0	U	GAM
Cesium-137	10045973	U		2.27	20.0	U	GAM

Lab id <u>EAS</u>
Protocol <u>TA</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>12/05/11</u>



**EBERLINE ANALYTICAL**

SDG 8694

**LAB METHOD SUMMARY**

RADIUM-228 IN WATER

BETA COUNTING

Test AC Matrix WATER  
 SDG 8694  
 Contact Joseph Verville

Client Test America, Inc.  
 Contract IUK1713

**RESULTS**

LAB            RAW    SUF-  
 SAMPLE ID    TEST FIX    PLANCHET    CLIENT SAMPLE ID            Radium-228

Preparation batch 7271-107

S111040-01	8694-001	IUK1713-02	U
S111040-02	8694-002	IUK1713-03 (TRIP-BLANK)	U
S111040-03	8694-003	Lab Control Sample	ok
S111040-04	8694-004	Method Blank	U
S111040-05	8694-005	Duplicate (S111040-01)	- U

Nominal values and limits from method            RDLs (pCi/L)            1.00

**METHOD PERFORMANCE**

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR

Preparation batch 7271-107            2σ prep error 10.4 %            Reference Lab Notebook No. 7271 pg.012

S111040-01		IUK1713-02	0.414	1.80			76		150			18	11/30/11	11/30	GRB-217
S111040-02		IUK1713-03 (TRIP-BLANK)	0.423	1.80			74		150			16	11/30/11	11/30	GRB-220
S111040-03		Lab Control Sample	0.427	1.80			73		150				11/30/11	11/30	GRB-221
S111040-04		Method Blank	0.400	1.80			73		150				11/30/11	11/30	GRB-222
S111040-05		Duplicate (S111040-01)	0.412	1.80			75		150			18	11/30/11	11/30	GRB-223

Nominal values and limits from method            1.00            1.80            30-105            50            180

PROCEDURES    REFERENCE    904.0  
 DWP-894        Sequential Separation of Actinium-228 and  
                   Radium-226 in Drinking Water (>1 Liter Aliquot),  
                   rev 5

AVERAGES ± 2 SD            MDA 0.415 ± 0.021  
 FOR 5 SAMPLES            YIELD 74 ± 3

Lab id EAS  
 Protocol TA  
 Version Ver 1.0  
 Form DVD-LMS  
 Version 3.06  
 Report date 12/05/11

**EBERLINE ANALYTICAL**

SDG 8694

**LAB METHOD SUMMARY**

STRONTIUM-90 IN WATER

BETA COUNTING

Test SR Matrix WATER  
 SDG 8694  
 Contact Joseph Verville

Client Test America, Inc.  
 Contract IUK1713

**RESULTS**

LAB RAW SUF-  
 SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Strontium-90

Preparation batch 7271-107

S111040-01	8694-001	IUK1713-02	U
S111040-02	8694-002	IUK1713-03 (TRIP-BLANK)	U
S111040-03	8694-003	Lab Control Sample	ok
S111040-04	8694-004	Method Blank	U
S111040-05	8694-005	Duplicate (S111040-01)	- U

Nominal values and limits from method RDLs (pCi/L) 2.00

**METHOD PERFORMANCE**

LAB RAW SUF- MDA ALIQ PREP DILU- YIELD EFF COUNT FWHM DRIFT DAYS ANAL-  
 SAMPLE ID TEST FIX CLIENT SAMPLE ID pCi/L L FAC TION % % min keV KeV HELD PREPARED YZED DETECTOR

Preparation batch 7271-107 2σ prep error 10.4 % Reference Lab Notebook No. 7271 pg.012

S111040-01	IUK1713-02	0.745	0.500	88	50	5	11/17/11	11/17	GRB-201
S111040-02	IUK1713-03 (TRIP-BLANK)	0.613	0.500	93	50	3	11/17/11	11/17	GRB-202
S111040-03	Lab Control Sample	0.451	0.500	91	100		11/17/11	11/17	GRB-201
S111040-04	Method Blank	0.692	0.500	86	50		11/17/11	11/17	GRB-204
S111040-05	Duplicate (S111040-01)	0.441	0.500	96	87	5	11/17/11	11/17	GRB-227

Nominal values and limits from method 2.00 0.500 30-105 50 180

PROCEDURES REFERENCE 905.0  
 CP-380 Strontium in Water Samples, rev 5

AVERAGES ± 2 SD MDA 0.588 ± 0.277  
 FOR 5 SAMPLES YIELD 91 ± 8

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EAS  
 Protocol TA  
 Version Ver 1.0  
 Form DVD-IMS  
 Version 3.06  
 Report date 12/05/11

**EBERLINE ANALYTICAL**

SDG 8694

**LAB METHOD SUMMARY**

GROSS ALPHA IN WATER  
GAS PROPORTIONAL COUNTING

Test 80A Matrix WATER  
SDG 8694  
Contact Joseph Verville

Client Test America, Inc.  
Contract IUK1713

**RESULTS**

LAB	RAW	SUF-			
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID		Gross Alpha
Preparation batch 7271-107					
S111040-01	80		8694-001 IUK1713-02		0.757 J
S111040-02	80		8694-002 IUK1713-03 (TRIP-BLANK)		U
S111040-03	80		8694-003 Lab Control Sample		ok
S111040-04	80		8694-004 Method Blank		U
S111040-05	80		8694-005 Duplicate (S111040-01)		ok J

Nominal values and limits from method RDLs (pCi/L) 3.00

**METHOD PERFORMANCE**

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	RESID	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	mg	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7271-107 2σ prep error 20.6 % Reference Lab Notebook No. 7271 pg.012															
S111040-01	80	IUK1713-02	0.335	0.300			10		400			10	11/17/11	11/22	GRB-103
S111040-02	80	IUK1713-03 (TRIP-BLANK)	0.340	0.300			0		400			8	11/17/11	11/22	GRB-104
S111040-03	80	Lab Control Sample	0.673	0.300			64		400				11/17/11	11/22	GRB-105
S111040-04	80	Method Blank	0.561	0.300			65		400				11/17/11	11/28	GRB-111
S111040-05	80	Duplicate (S111040-01)	0.338	0.300			11		400			16	11/17/11	11/28	GRB-112

Nominal values and limits from method 3.00 0.300 0-250 100 180

PROCEDURES REFERENCE 900.0  
DWP-121 Gross Alpha and Gross Beta in Drinking Water,  
rev 10

AVERAGES ± 2 SD MDA 0.449 ± 0.316  
FOR 5 SAMPLES RESIDUE 30 ± 64

Lab id EAS  
Protocol TA  
Version Ver 1.0  
Form DVD-LMS  
Version 3.06  
Report date 12/05/11

**EBERLINE ANALYTICAL**

SDG 8694

**LAB METHOD SUMMARY**

GROSS BETA IN WATER

GAS PROPORTIONAL COUNTING

Test 80B Matrix WATER  
 SDG 8694  
 Contact Joseph Verville

Client Test America, Inc.  
 Contract IUK1713

**RESULTS**

LAB	RAW	SUF-			
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID		Gross Beta
Preparation batch 7271-107					
S111040-01	80	8694-001	IUK1713-02		2.33 J
S111040-02	80	8694-002	IUK1713-03 (TRIP-BLANK)		U
S111040-03	80	8694-003	Lab Control Sample		ok
S111040-04	80	8694-004	Method Blank		U
S111040-05	80	8694-005	Duplicate (S111040-01)		ok J

Nominal values and limits from method      RDLs (pCi/L)      4.00

**METHOD PERFORMANCE**

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	RESID	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	mg	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7271-107      2σ prep error 11.0 %      Reference Lab Notebook No. 7271 pg.012															
S111040-01	80	IUK1713-02	0.945	0.300			10	400			10	11/17/11	11/22	GRB-103	
S111040-02	80	IUK1713-03 (TRIP-BLANK)	0.766	0.300			0	400			8	11/17/11	11/22	GRB-104	
S111040-03	80	Lab Control Sample	0.933	0.300			64	400				11/17/11	11/22	GRB-105	
S111040-04	80	Method Blank	0.839	0.300			65	400				11/17/11	11/28	GRB-111	
S111040-05	80	Duplicate (S111040-01)	0.825	0.300			11	400			16	11/17/11	11/28	GRB-112	

Nominal values and limits from method      4.00      0.300      0-250      100      180

PROCEDURES      REFERENCE      900.0  
 DWP-121      Gross Alpha and Gross Beta in Drinking Water,  
 rev 10

AVERAGES ± 2 SD      MDA 0.862 ± 0.152  
 FOR 5 SAMPLES      RESIDUE 30 ± 64

Lab id EAS  
 Protocol TA  
 Version Ver 1.0  
 Form DVD-LMS  
 Version 3.06  
 Report date 12/05/11

**EBERLINE ANALYTICAL**

SDG 8694

**LAB METHOD SUMMARY**

GAMMA EMITTERS IN WATER

GAMMA SPECTROSCOPY

Test GAM Matrix WATER

SDG 8694

Contact Joseph Verville

Client Test America, Inc.

Contract IUK1713

**RESULTS**

<b>LAB</b>	<b>RAW</b>	<b>SUF-</b>			
<b>SAMPLE ID</b>	<b>TEST FIX</b>	<b>PLANCHET</b>	<b>CLIENT SAMPLE ID</b>	<b>Cobalt-60</b>	<b>Cesium-137</b>

Preparation batch 7271-107

S111040-01	8694-001	IUK1713-02			U
S111040-02	8694-002	IUK1713-03 (TRIP-BLANK)			U
S111040-03	8694-003	Lab Control Sample	ok		ok
S111040-04	8694-004	Method Blank			U
S111040-05	8694-005	Duplicate (S111040-01)			- U

Nominal values and limits from method	RDLs (pCi/L)	10.0	20.0
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**METHOD PERFORMANCE**

<b>LAB</b>	<b>RAW</b>	<b>SUF-</b>	<b>MDA</b>	<b>ALIQ</b>	<b>PREP</b>	<b>DILU-</b>	<b>YIELD</b>	<b>EFF</b>	<b>COUNT</b>	<b>FWHM</b>	<b>DRIFT</b>	<b>DAYS</b>	<b>ANAL-</b>		
<b>SAMPLE ID</b>	<b>TEST FIX</b>	<b>CLIENT SAMPLE ID</b>	<b>pCi/L</b>	<b>L</b>	<b>FAC</b>	<b>TION</b>	<b>%</b>	<b>%</b>	<b>min</b>	<b>keV</b>	<b>KeV</b>	<b>HELD</b>	<b>PREPARED</b>	<b>YZED</b>	<b>DETECTOR</b>

Preparation batch 7271-107      2σ prep error 7.0 %      Reference Lab Notebook No. 7271 pg.012

S111040-01	IUK1713-02		2.00					848			5	11/17/11	11/17	MB,08,00
S111040-02	IUK1713-03 (TRIP-BLANK)		2.00					840			3	11/17/11	11/17	MB,06,00
S111040-03	Lab Control Sample		2.00					1135				11/17/11	11/18	01,01,00
S111040-04	Method Blank		2.00					1135				11/17/11	11/18	MB,08,00
S111040-05	Duplicate (S111040-01)		2.00					1136			6	11/17/11	11/18	01,02,00

Nominal values and limits from method	6.00	2.00		400	180
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<b>PROCEDURES</b>	<b>REFERENCE</b>	901.1
	DWP-100	Preparation of Drinking Water Samples for Gamma Spectroscopy, rev 5

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Lab id EAS

Protocol TA

Version Ver 1.0

Form DVD-LMS

Version 3.06

Report date 12/05/11

EBERLINE ANALYTICAL

SDG 8694

LAB METHOD SUMMARY

URANIUM, TOTAL

KINETIC PHOSPHORIMETRY, UG

Test U T Matrix WATER

SDG 8694

Contact Joseph Verville

Client Test America, Inc.

Contract IUK1713

RESULTS

LAB	RAW	SUF-		Uranium,
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Total
Preparation batch 7271-107				
S111040-01		8694-001	IUK1713-02	0.061 J
S111040-02		8694-002	IUK1713-03 (TRIP-BLANK)	U
S111040-03		8694-003	Lab Control Sample	ok
S111040-04		8694-004	Method Blank	U
S111040-05		8694-005	Duplicate (S111040-01)	ok J

Nominal values and limits from method RDLs (pCi/L) 1.00

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	%	%	min	keV	keV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7271-107			2σ prep error		Reference Lab Notebook No. 7271 pg.012										
S111040-01		IUK1713-02	0.017	0.0200								19	12/01/11	12/01	KPA-001
S111040-02		IUK1713-03 (TRIP-BLANK)	0.017	0.0200								17	12/01/11	12/01	KPA-001
S111040-03		Lab Control Sample	0.168	0.0200									12/01/11	12/01	KPA-001
S111040-04		Method Blank	0.017	0.0200									12/01/11	12/01	KPA-001
S111040-05		Duplicate (S111040-01)	0.017	0.0200								19	12/01/11	12/01	KPA-001

Nominal values and limits from method 1.00 0.0200 180

PROCEDURES REFERENCE D5174

AVERAGES ± 2 SD MDA 0.047 ± 0.135  
FOR 5 SAMPLES YIELD \_\_\_\_\_ ± \_\_\_\_\_

Lab id EAS

Protocol TA

Version Ver 1.0

Form DVD-LMS

Version 3.06

Report date 12/05/11

**EBERLINE ANALYTICAL**

SDG 8694

**LAB METHOD SUMMARY**

TRITIUM IN WATER

LIQUID SCINTILLATION COUNTING

Test H Matrix WATER  
 SDG 8694  
 Contact Joseph Verville

Client Test America, Inc.  
 Contract IUK1713

**RESULTS**

LAB	RAW	SUF-		
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Tritium
Preparation batch 7271-107				
S111040-01		8694-001	IUK1713-02	U
S111040-03		8694-003	Lab Control Sample	ok
S111040-04		8694-004	Method Blank	U
S111040-05		8694-005	Duplicate (S111040-01)	- U

Nominal values and limits from method      RDLs (pCi/L)      500

**METHOD PERFORMANCE**

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7271-107			2σ prep error 10.0 %			Reference Lab Notebook No. 7271 pg.012									
S111040-01		IUK1713-02	142	0.0100			100		300			4	11/16/11	11/16	LSC-005
S111040-03		Lab Control Sample	138	0.100			10		300				11/16/11	11/16	LSC-005
S111040-04		Method Blank	132	0.100			10		300				11/16/11	11/16	LSC-005
S111040-05		Duplicate (S111040-01)	140	0.0100			100		300			4	11/16/11	11/16	LSC-005

Nominal values and limits from method      500      0.0100      100      180

PROCEDURES      REFERENCE      906.0  
 DWP-212      Tritium in Drinking Water by Distillation, rev 8

AVERAGES ± 2 SD      MDA 138 ± 8.64  
 FOR 4 SAMPLES      YIELD 55 ± 104

METHOD SUMMARIES

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 Form DVD-LMS  
 Version 3.06  
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**EBERLINE ANALYTICAL**

SDG 8694

**LAB METHOD SUMMARY**

RADIUM-226 IN WATER  
RADON COUNTING

Test RA Matrix WATER  
SDG 8694  
Contact Joseph Verville

Client Test America, Inc.  
Contract IUK1713

**RESULTS**

LAB RAW SUF-  
SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Radium-226

Preparation batch 7271-107

S111040-01	8694-001	IUK1713-02	U
S111040-02	8694-002	IUK1713-03 (TRIP-BLANK)	U
S111040-03	8694-003	Lab Control Sample	<u>LOW</u>
S111040-04	8694-004	Method Blank	U
S111040-05	8694-005	Duplicate (S111040-01)	ok J

Nominal values and limits from method RDLs (pCi/L) 1.00

**METHOD PERFORMANCE**

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-				
SAMPLE ID	TEST	FIX	CLIENT	SAMPLE ID	pCi/L	L	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7271-107 2σ prep error 16.4 % Reference Lab Notebook No. 7271 pg.012																	
S111040-01			IUK1713-02		0.626	0.100			100		<u>95</u>		17	11/29/11	11/29		RN-013
S111040-02			IUK1713-03 (TRIP-BLANK)		0.639	0.100			100		<u>95</u>		15	11/29/11	11/29		RN-014
S111040-03			Lab Control Sample		0.742	0.100			100		<u>95</u>			11/29/11	11/29		RN-009
S111040-04			Method Blank		0.684	0.100			100		<u>95</u>			11/29/11	11/29		RN-010
S111040-05			Duplicate (S111040-01)		0.601	0.100			100		<u>95</u>		17	11/29/11	11/29		RN-012

Nominal values and limits from method 1.00 0.100 100 180

PROCEDURES REFERENCE 903.1  
DWP-881A Ra-226 Screening in Drinking Water, rev 6

AVERAGES ± 2 SD MDA 0.658 ± 0.111  
FOR 5 SAMPLES YIELD 100 ± 0

METHOD SUMMARIES

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Protocol TA  
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Form DVD-LMS  
Version 3.06  
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SDG 8694  
Contact Joseph Verville

REPORT GUIDE

Client Test America, Inc.  
Contract IUK1713

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- \* LAB SAMPLE ID is the lab's primary identification for a sample.
- \* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- \* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- \* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

- \* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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Lab id EAS  
Protocol TA  
Version Ver 1.0  
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Version 3.06  
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EBERLINE ANALYTICAL

SDG 8694

SDG 8694  
Contact Joseph Verville

REPORT GUIDE

Client Test America, Inc.  
Contract IUK1713

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- \* The preparation batches are shown in the same order as the Method Summary Reports are printed.
- \* Only analyses of planchets relevant to the SDG are included.
- \* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- \* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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SDG 8694  
Contact Joseph Verville

REPORT GUIDE

Client Test America, Inc.  
Contract IUK1713

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- \* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- \* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- \* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- \* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- \* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- \* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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EBERLINE ANALYTICAL

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SDG 8694  
Contact Joseph Verville

REPORT GUIDE

Client Test America, Inc.  
Contract IUK1713

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- \* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- \* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- \* ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- \* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- \* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

- U The RESULT is less than the MDA (Minimum Detectable Activity). If the MDA is blank, the ERROR is used as the limit.

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Protocol TA  
Version Ver 1.0  
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EBERLINE ANALYTICAL

SDG 8694

SDG 8694  
Contact Joseph Verville

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Client Test America, Inc.  
Contract IUK1713

DATA SHEET

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

- \* An MDA is underlined if it is bigger than its RDL.
- \* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA

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SUMMARY DATA SECTION

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Lab id EAS  
Protocol TA  
Version Ver 1.0  
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EBERLINE ANALYTICAL

SDG 8694

SDG 8694  
Contact Joseph Verville

GUIDE, cont.

Client Test America, Inc.  
Contract IUK1713

DATA SHEET

may not be a good estimate of the 'real' minimum detectable activity.

- \* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- \* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

REPORT GUIDES

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Lab id EAS  
Protocol TA  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
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EBERLINE ANALYTICAL

SDG 8694

SDG 8694  
Contact Joseph Verville

REPORT GUIDE

Client Test America, Inc.  
Contract IUKI713

LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- \* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- \* REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- \* The first, computed limits for the recovery reflect:
  1. The error of RESULT, including that introduced by rounding the result prior to printing.  
  
If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
  2. The error of ADDED.
  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- \* The second limits are protocol defined upper and lower QC limits for the recovery.
- \* The recovery is underlined if it is outside either of these ranges.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EAS  
Protocol TA  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 12/05/11

EBERLINE ANALYTICAL

SDG 8694

SDG 8694  
Contact Joseph Verville

REPORT GUIDE

Client Test America, Inc.  
Contract IUK1713

DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- \* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTS divided by their average expressed as a percent.

If both RESULTS are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

- \* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTS prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTS. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- \* The second limit for the RPD is the larger of:

1. A fixed percentage specified in the protocol.

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Protocol TA  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 12/05/11



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DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

- \* The RPD is underlined if it is greater than either limit.
- \* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

- \* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- \* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- \* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

- \* The first, computed limits for the recovery reflect:

1. The errors of the two RESULTS, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

2. The error of ADDED.

3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

- \* The second limits are protocol defined upper and lower QC limits for the recovery.

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MATRIX SPIKE

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

- \* The recovery is underlined (out of spec) if it is outside either of these ranges.

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METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

- \* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

- \* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

- \* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- \* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- \* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data' means no amount ADDED was specified. 'LOW' and 'HIGH'

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SUMMARY DATA SECTION

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METHOD SUMMARY

correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- \* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
  - \* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.
- MDAs are underlined if greater than the printed RDL.
- \* Aliquots are underlined if less than the nominal value specified for the method.
  - \* Preparation factors are underlined if greater than the nominal value specified for the method.
  - \* Dilution factors are underlined if greater than the nominal value specified for the method.
  - \* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
  - \* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
  - \* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.
  - \* Count times are underlined if less than the nominal value

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SUMMARY DATA SECTION

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Lab id EAS  
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Version Ver 1.0  
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METHOD SUMMARY

specified for the method.

- \* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- \* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- \* Days Held are underlined if greater than the holding time specified in the protocol.
- \* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1+3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included.

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SUMMARY DATA SECTION

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METHOD SUMMARY

No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

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SUMMARY DATA SECTION

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Lab id EAS  
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# Subcontract Order - TestAmerica Irvine (IUK1713)

**SENDING LABORATORY:**

TestAmerica Irvine  
 17461 Derian Avenue, Suite 100  
 Irvine, CA 92614  
 Phone: (949) 261-1022  
 Fax: (949) 260-3297  
 Project Manager: Debby Wilson

**RECEIVING LABORATORY:**

Eberline Services - SUB  
 2030 Wright Avenue  
 Richmond, CA 94804  
 Phone: (510) 235-2633  
 Fax: (510) 235-0438  
 Project Location: California  
 Receipt Temperature: \_\_\_\_\_ °C

8694

Ice: Y / N

Standard TAT is requested unless specific due date is requested. => Due Date: \_\_\_\_\_ Initials: \_\_\_\_\_

Analysis	Units	Expires	Comments
<b>Sample ID: IUK1713-02 (Outfall 009 (Composite) - Water)</b> <b>Sampled: 11/12/11 06:33</b>			
Gamma Spec-O	mg/kg	11/11/12 06:33	Out Eberline, k-40 and cs-137 only, DO NOT FILTER!
Gross Alpha-O	pCi/L	05/10/12 06:33	Out Eberline, Boeing permit, DO NOT FILTER!
Gross Beta-O	pCi/L	05/10/12 06:33	Out Eberline Boeing permit, DO NOT FILTER!
Radium, Combined-O	pCi/L	11/11/12 06:33	Out Eberline Boeing permit, DO NOT FILTER!
Strontium 90-O	pCi/L	11/11/12 06:33	Out Eberline, Boeing permit, DO NOT FILTER!
Tritium-O	pCi/L	11/11/12 06:33	Out Eberline, Boeing permit, DO NOT FILTER!
Uranium, Combined-O	pCi/L	11/11/12 06:33	Out Eberline, Boeing permit, DO NOT FILTER!

*Containers Supplied:*

2.5 gal Poly (I) **HNO<sub>3</sub>** 500 mL Amber (J)

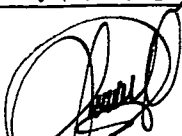
**Sample ID: IUK1713-03 (Trip Blank - Water)**

**Sampled: 11/14/11 13:46**

Gamma Spec-O	mg/kg	11/13/12 13:46	Out Eberline, k-40 and cs-137 only, DO NOT FILTER!
Gross Alpha-O	pCi/L	05/12/12 13:46	Out Eberline, Boeing permit, DO NOT FILTER!
Gross Beta-O	pCi/L	05/12/12 13:46	Out Eberline Boeing permit, DO NOT FILTER!
Radium, Combined-O	pCi/L	11/13/12 13:46	Out Eberline Boeing permit, DO NOT FILTER!
Strontium 90-O	pCi/L	11/13/12 13:46	Out Eberline, Boeing permit, DO NOT FILTER!
Tritium-O	pCi/L	11/13/12 13:46	Out Eberline, Boeing permit, DO NOT FILTER!
Uranium, Combined-O	pCi/L	11/13/12 13:46	Out Eberline, Boeing permit, DO NOT FILTER!

*Containers Supplied:*

2.5 gal Poly (A) **HNO<sub>3</sub>**

Released By   
 Released By **FED EX**

11/14/11  
 Date/Time  
11/15  
 Date/Time

**Fed Ex** 11/14/11  
 Received By [Signature] Date/Time  
 Received By [Signature] 11/15/11 0950  
 Date/Time





# RICHMOND, CA LABORATORY

## SAMPLE RECEIPT CHECKLIST

Client: TEST AMERICA City IRVINE State CA  
 Date/Time received 11/15/11 0950 CoC No. 10K1713  
 Container I.D. No. 16 WEST Requested TAT (Days) STD P.D. Received Yes [ ] No [ ]

### INSPECTION:

1. Custody seals on shipping container intact? Yes [ ] No [ ] N/A [x]
2. Custody seals on shipping container dated & signed? Yes [ ] No [ ] N/A [x]
3. Custody seals on sample containers intact? Yes [ ] No [ ] N/A [x]
4. Custody seals on sample containers dated & signed? Yes [ ] No [ ] N/A [x]
5. Packing material is: Wet [ ] Dry [x]
6. Number of samples in shipping container: 2 Sample Matrix W
7. Number of containers per sample: \_\_\_\_\_ (Or see CoC X)
8. Samples are in correct container Yes [x] No [ ]
9. Paperwork agrees with samples? Yes [x] No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [x]
11. Samples are: In good condition [x] Leaking [ ] Broken Container [ ] Missing [ ]
12. Samples are: Preserved [x] Not preserved [x] pH 4.2 Preservative HNO3
13. Describe any anomalies: \_\_\_\_\_

14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date \_\_\_\_\_  
 15. Inspected by [Signature] Date: 11/15/11 Time: 1115

Customer Sample No.	Beta/Gamma com	Ion Chamber mR/hr	Wide	Customer Sample No.	Beta/Gamma com	Ion Chamber mR/hr	Wide
<u>AW SAMPLES</u>	<u>50</u>						

Ion Chamber Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_  
 Alpha Meter Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_  
 Beta/Gamma Meter Ser. No. 99574 Calibration date 15 JUL 11



## **APPENDIX G**

### **Section 7**

Outfall 009 – November 20, 2011

MEC<sup>X</sup> Data Validation Reports





# DATA VALIDATION REPORT

Boeing SSFL NPDES

SAMPLE DELIVERY GROUP: IUK2640

Prepared by

MEC<sup>x</sup>, LP  
12269 East Vassar Drive  
Aurora, CO 80014

**I. INTRODUCTION**

Task Order Title: Boeing SSFL NPDES  
 Contract Task Order: 1261.100D.00  
 Sample Delivery Group: IUK2640  
 Project Manager: B. Kelly  
 Matrix: Water  
 QC Level: IV  
 No. of Samples: 2  
 No. of Reanalyses/Dilutions: 0  
 Laboratory: TestAmerica-Irvine

**Table 1. Sample Identification**

Client ID	Laboratory ID	Sub-Laboratory ID	Matrix	Collected	Method
Outfall 009 (Composite)	IUK2640-02	G1K260414-001, S111064-01	Water	11/20/2011 5:50:00 PM	ASTM D-5174, 900. 901.1, 903.1, 904, 905, 906, 245.1, 245.1 Diss, 1613B, SM 2540D

**II. Sample Management**

No anomalies were observed regarding sample management. Eberline did not note the temperature upon receipt; however, due to the nonvolatile nature of the analytes, no qualifications were required. The samples were received at TestAmerica-West Sacramento below the temperature control limit at 1°C; however, as the samples were not noted to be frozen or damaged, no qualifications were required. The samples in this SDG were received at the laboratory within the temperature limits of 4°C ±2°C. According to the case narrative for this SDG, the samples were received intact, on ice, and properly preserved, if applicable. The COCs were appropriately signed and dated by field and/or laboratory personnel. As the samples were couriered to TestAmerica-Irvine, custody seals were not required. Custody seals were intact upon receipt at Eberline. Although the samples were delivered by courier to TestAmerica-West Sacramento, the sample receiving information indicates no custody seals were utilized. If necessary, the client ID was added to the sample result summary by the reviewer.

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### Data Qualifier Reference Table

---

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

---

### Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.



**Qualification Code Reference Table Cont.**

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D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within 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	Unusual problems found with the data that have been 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.	Unusual problems found with the data that have been 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.

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### III. Method Analyses

#### A. EPA METHOD 1613—Dioxin/Furans

Reviewed By: L. Calvin

Date Reviewed: January 10, 2012

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 0)*, *USEPA Method 1613*, and the *National Functional Guidelines Chlorinated Dioxin/Furan Data Review (8/02)*.

- Holding Times: Extraction and analytical holding times were met. The water sample was extracted and analyzed within one year of collection.
- Instrument Performance: Instrument performance criteria were met. Following are findings associated with instrument performance.
  - 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%.
  - Mass Spectrometer Performance: The mass spectrometer performance was acceptable with the static resolving power greater than 10,000.
- Calibration: Calibration criteria were met.
  - Initial Calibration: Initial calibration criteria were met. The initial calibration was acceptable with %RSDs  $\leq 20\%$  for the 15 native compounds (calibration by isotope dilution) and  $\leq 35\%$  for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the Method 1613 QC limits for all standards.
  - Continuing Calibration: Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VERs were acceptable with the concentrations within the acceptance criteria listed in Table 6 of EPA Method 1613. The ion abundance ratios and relative retention times were within the method QC limits.
- Blanks: The method blank had detects above the EDL for numerous target compounds. Some method blank results were reported as EMPCs; however, due to the extent of the method blank contamination, the reviewer deemed it appropriate to use all method blank results to qualify sample results. The method blank result for OCDD was insufficient to qualify the sample result. Sample results for the remaining individual isomer method blank

contaminants were qualified as nondetected, “U,” at the level of contamination. Total results were qualified as estimated, “J,” as only a portion of the total was considered method blank contamination.

- Blank Spikes and Laboratory Control Samples: Recoveries were within the acceptance criteria listed in Table 6 of Method 1613.
- Field QC Samples: 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. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.
- Internal Standards Performance: The labeled internal standard recoveries for the sample were within the acceptance criteria listed in Table 7 of Method 1613.
- Compound Identification: Compound identification was verified. The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613.
- Compound Quantification and Reported Detection Limits: Compound quantification was verified by recalculating any sample detects and a representative number of blank spike concentrations. The laboratory calculated and reported compound-specific detection limits. Any detects below the laboratory lower calibration level were qualified as estimated, “J.” Individual isomer EMPCs qualified as nondetected for method blank contamination were not further qualified as EMPCs. The EMPC results for 1,2,3,4,6,7,8-HpCDF and 1,2,3,4,7,8,9-HpCDF were qualified as estimated nondetects, “UJ,” at the level of the EMPC. Totals containing EMPCs were qualified as estimated, “J.” Any detects reported between the estimated detection limit (EDL) and the reporting limit (RL) were qualified as estimated, “J,” and coded with “DNQ,” in order to comply with the NPDES permit. Nondetects are valid to the EDL.

## **B. EPA METHODS 245.1—Mercury**

Reviewed By: P. Meeks

Date Reviewed: January 10, 2012

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC<sup>X</sup> Data Validation Procedure for Metals (DVP-5, Rev. 0 and DVP-21, Rev. 0)*, *EPA Method 245.1*, and the *National Functional Guidelines for Inorganic Data Review (7/02)*.

- Holding Times: The analytical holding time, 28 days, was met.

- Tuning: Not applicable to this analysis.
- Calibration: Calibration criteria were met. Initial calibration  $r^2$  values were  $\geq 0.995$  and all initial and continuing calibration recoveries were within 85-115%. CRI recoveries were within the control limits of 70-130%.
- Blanks: Method blanks and CCBs had no detects.
- Interference Check Samples: Not applicable to this analysis.
- Blank Spikes and Laboratory Control Samples: Recoveries were within method-established QC limits.
- Laboratory Duplicates: No laboratory duplicate analyses were performed.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed on the sample in this SDG. Method accuracy was assessed based on LCS results.
- Serial Dilution: No serial dilution analyses were performed.
- Internal Standards Performance: Not applicable to this analysis.
- Sample Result Verification: 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. When the sample results were qualified and the reviewer was able to clearly determine bias, detected results were qualified as either "J+" or "J-"; otherwise, bias was not indicated in the qualification. 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.
- Field QC Samples: 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. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.

## C. VARIOUS EPA METHODS — Radionuclides

Reviewed By: P. Meeks

Date Reviewed: January 10, 2012

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *EPA Methods 900.0, 901.1, 903.1, 904.0, 905.0, and 906.0*, *ASTM Method D-5174*, and the *National Functional Guidelines for Inorganic Data Review (10/04)*.

- Holding Times: The tritium sample was analyzed within 180 days of collection. The remaining aliquots were preserved within five days of collection.
- Calibration: The laboratory calibration information included the standard certificates and applicable preparation/dilutions logs for NIST-traceability.

All detector efficiencies were greater than 20%. The tritium aliquot was spiked for efficiency determination; therefore, no calibration was necessary. All chemical yields were at least 40% and were considered acceptable. The gamma spectroscopy analytes were determined at the maximum photopeak energy. The kinetic phosphorescence analyzer (KPA) was calibrated immediately prior to the sample analysis. All KPA calibration check standard recoveries were within 90-110% and were deemed acceptable.

- Blanks: There were no analytes detected in the method blanks or the KPA CCBs.
- Blank Spikes and Laboratory Control Samples: The recoveries were within laboratory-established control limits.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on the sample in this SDG. All RPDs were within the laboratory-established control limits.
- Matrix Spike/Matrix Spike Duplicate: No MS/MSD analyses were performed for the sample in this SDG. Method accuracy was evaluated based on the LCS results.
- Sample Result Verification: An EPA Level IV review was performed for the sample in this data package. The sample results and MDAs reported on the sample result form were verified against the raw data and no calculation or transcription errors were noted. Any detects between the MDA 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 MDA. Total uranium, normally reported in aqueous units, was converted to pCi/L using the conversion factor of 0.67 for naturally occurring uranium.
- Field QC Samples: 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. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

- Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
- Field Duplicates: There were no field duplicate samples identified for this SDG.

#### **D. VARIOUS EPA METHODS—General Minerals**

Reviewed By: P. Meeks

Date Reviewed: January 10, 2012

The sample listed in Table 1 for this analysis was validated based on the guidelines outlined in the *MEC<sup>x</sup> Data Validation Procedure for General Minerals (DVP-6, Rev. 0)*, *SM 2540D*, and the *National Functional Guidelines for Inorganic Data Review (7/02)*.

- Holding Times: The analytical holding time, seven days, was met.
- Calibration: The balance calibration logs were acceptable.
- Blanks: TSS was not detected in the method blanks.
- Blank Spikes and Laboratory Control Samples: The recovery was within laboratory-established QC limits.
- Laboratory Duplicates: No laboratory duplicate analysis was performed on the sample in this SDG.
- Matrix Spike/Matrix Spike Duplicate: Not applicable to this analysis.
- Sample Result Verification: 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. When the sample results were qualified and the reviewer was able to clearly determine bias, detected results were qualified as either “J+” or “J-”; otherwise, bias was not indicated in the qualification. 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.
- Field QC Samples: 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. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
  - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.

# Validated Sample Result Forms IUK2640

## *Analysis Method 8696*

**Sample Name** Outfall 009 (Composite) **Matrix Type:** WATER **Validation Level:** IV

**Lab Sample Name:** IUK2640-02 **Sample Date:** 11/20/2011 5:50:00 PM

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Uranium, Total		0.365	1	0.017	pCi/L	Jb	J	DNQ

## *Analysis Method 900*

**Sample Name** Outfall 009 (Composite) **Matrix Type:** WATER **Validation Level:** IV

**Lab Sample Name:** IUK2640-02 **Sample Date:** 11/20/2011 5:50:00 PM

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Gross Alpha	12587461	0.368	3	0.209	pCi/L	Jb	J	DNQ
Gross Beta	12587472	1.64	4	0.912	pCi/L	Jb	J	DNQ

## *Analysis Method 901.1*

**Sample Name** Outfall 009 (Composite) **Matrix Type:** WATER **Validation Level:** IV

**Lab Sample Name:** IUK2640-02 **Sample Date:** 11/20/2011 5:50:00 PM

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Cesium-137	10045973	ND	20	1.25	pCi/L	U	U	
Potassium-40	13966002	ND	25	18	pCi/L	U	U	

## *Analysis Method 903.1*

**Sample Name** Outfall 009 (Composite) **Matrix Type:** WATER **Validation Level:** IV

**Lab Sample Name:** IUK2640-02 **Sample Date:** 11/20/2011 5:50:00 PM

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-226	13982633	0.392	1	0.747	pCi/L	U	U	

## *Analysis Method 904*

**Sample Name** Outfall 009 (Composite) **Matrix Type:** WATER **Validation Level:** IV

**Lab Sample Name:** IUK2640-02 **Sample Date:** 11/20/2011 5:50:00 PM

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Radium-228	15262201	0.4	1	0.602	pCi/L	U	U	

*Analysis Method 905*

---

<b>Sample Name</b>	Outfall 009 (Composite)	<b>Matrix Type:</b>	WATER	<b>Validation Level:</b>	IV			
<b>Lab Sample Name:</b>	IUK2640-02	<b>Sample Date:</b>	11/20/2011 5:50:00 PM					
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Strontium-90	10098972	0.039	2	0.798	pCi/L	U	U	

---

*Analysis Method 906*

---

<b>Sample Name</b>	Outfall 009 (Composite)	<b>Matrix Type:</b>	WATER	<b>Validation Level:</b>	IV			
<b>Lab Sample Name:</b>	IUK2640-02	<b>Sample Date:</b>	11/20/2011 5:50:00 PM					
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Tritium	10028178	-20.4	500	152	pCi/L	U	U	

---

*Analysis Method EPA 245.1*

---

<b>Sample Name</b>	Outfall 009 (Composite)	<b>Matrix Type:</b>	Water	<b>Validation Level:</b>	IV			
<b>Lab Sample Name:</b>	IUK2640-02	<b>Sample Date:</b>	11/20/2011 5:50:00 PM					
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Mercury	7439-97-6	ND	0.20	0.10	ug/l		U	

---

*Analysis Method EPA 245.1-Diss*

---

<b>Sample Name</b>	Outfall 009 (Composite)	<b>Matrix Type:</b>	Water	<b>Validation Level:</b>	IV			
<b>Lab Sample Name:</b>	IUK2640-02	<b>Sample Date:</b>	11/20/2011 5:50:00 PM					
<b>Analyte</b>	<b>CAS No</b>	<b>Result Value</b>	<b>RL</b>	<b>MDL</b>	<b>Result Units</b>	<b>Lab Qualifier</b>	<b>Validation Qualifier</b>	<b>Validation Notes</b>
Mercury	7439-97-6	ND	0.20	0.10	ug/l		U	

---



*Analysis Method EPA-5 1613B*

**Sample Name** Outfall 009 (Composite) **Matrix Type:** WATER **Validation Level:** IV  
**Lab Sample Name:** IUK2640-02 **Sample Date:** 11/20/2011 5:50:00 PM

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
1,2,3,4,6,7,8-HpCDD	35822-46-9	ND	0.00005	0.0000008	ug/L	J, B	U	B
1,2,3,4,6,7,8-HpCDF	67562-39-4	ND	0.00005	0.0000008	ug/L	J, Q	UJ	*III
1,2,3,4,7,8,9-HpCDF	55673-89-7	ND	0.00005	0.0000012	ug/L	J, Q	UJ	*III
1,2,3,4,7,8-HxCDD	39227-28-6	ND	0.00005	0.0000007	ug/L	J, B	U	B
1,2,3,4,7,8-HxCDF	70648-26-9	ND	0.00005	0.0000005	ug/L	J, Q, B	U	B
1,2,3,6,7,8-HxCDD	57653-85-7	ND	0.00005	0.0000007	ug/L	J, Q, B	U	B
1,2,3,6,7,8-HxCDF	57117-44-9	0.000001	0.00005	0.0000005	ug/L	J	J	DNQ
1,2,3,7,8,9-HxCDD	19408-74-3	ND	0.00005	0.0000007	ug/L	J, Q, B	U	B
1,2,3,7,8,9-HxCDF	72918-21-9	ND	0.00005	0.0000005	ug/L	J, B	U	B
1,2,3,7,8-PeCDD	40321-76-4	ND	0.00005	0.0000016	ug/L		U	
1,2,3,7,8-PeCDF	57117-41-6	ND	0.00005	0.0000016	ug/L		U	
2,3,4,6,7,8-HxCDF	60851-34-5	ND	0.00005	0.0000004	ug/L	J, B	U	B
2,3,4,7,8-PeCDF	57117-31-4	ND	0.00005	0.0000018	ug/L		U	
2,3,7,8-TCDD	1746-01-6	ND	0.00001	0.0000014	ug/L		U	
2,3,7,8-TCDF	51207-31-9	ND	0.00001	0.0000011	ug/L		U	
OCDD	3268-87-9	0.00042	0.0001	0.0000034	ug/L	B		
OCDF	39001-02-0	ND	0.0001	0.0000022	ug/L	J, B	U	B
Total HpCDD	37871-00-4	0.000066	0.00005	0.0000008	ug/L	J, B	J	B, DNQ
Total HpCDF	38998-75-3	0.000021	0.00005	0.0000009	ug/L	J, Q, B	J	B, DNQ, *III
Total HxCDD	34465-46-8	0.000011	0.00005	0.0000007	ug/L	J, Q, B	J	B, DNQ, *III
Total HxCDF	55684-94-1	0.000009	0.00005	0.0000005	ug/L	J, Q, B	J	B, DNQ, *III
Total PeCDD	36088-22-9	ND	0.00005	0.0000016	ug/L		U	
Total PeCDF	30402-15-4	ND	0.00005	0.0000016	ug/L		U	
Total TCDD	41903-57-5	ND	0.00001	0.0000014	ug/L		U	
Total TCDF	55722-27-5	ND	0.00001	0.0000011	ug/L		U	

*Analysis Method SM 2540D*

**Sample Name** Outfall 009 (Composite) **Matrix Type:** Water **Validation Level:** IV  
**Lab Sample Name:** IUK2640-02 **Sample Date:** 11/20/2011 5:50:00 PM

Analyte	CAS No	Result Value	RL	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids	TSS	4.0	10	1.0	mg/l	Ja	J	DNQ



## **APPENDIX G**

### **Section 8**

Outfall 009 – November 20 & 21, 2011

Test America Analytical Laboratory Reports



## LABORATORY REPORT

Prepared For: MWH-Pasadena/Boeing  
618 Michillinda Avenue, Suite 200  
Arcadia, CA 91007  
Attention: Bronwyn Kelly

Project: Routine Outfall 009  
Routine Outfall 009

Sampled: 11/20/11-11/21/11  
Received: 11/21/11  
Issued: 12/13/11 18:02

NELAP #01108CA California ELAP#2706 CSDLAC #10256 AZ #AZ0671 NV #CA01531

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica. The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.  
This entire report was reviewed and approved for release.*

## SAMPLE CROSS REFERENCE

SUBCONTRACTED: Refer to the last page for specific subcontract laboratory information included in this report.

ADDITIONAL  
INFORMATION:

WATER, 1613B, Dioxins/Furans with Totals

Sample: 1

Some analytes in this sample and the associated method blank have an ion abundance ratio that is outside of criteria. The analytes are considered as an "estimated maximum possible concentration" (EMPC) because the quantitation is based on the theoretical ion abundance ratio. Analytical results are reported with a "Q" flag.

### LABORATORY ID

IUK2640-01  
IUK2640-02  
IUK2640-03

### CLIENT ID

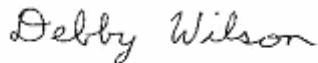
Outfall 009 (Grab)  
Outfall 009 (Composite)  
Trip Blank

### MATRIX

Water  
Water  
Water

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.

Reviewed By:



**TestAmerica Irvine**

Debby Wilson  
Project Manager

MWH-Pasadena/Boeing  
618 Michillinda Avenue, Suite 200  
Arcadia, CA 91007  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK2640

Sampled: 11/20/11-11/21/11  
Received: 11/21/11

## HEXANE EXTRACTABLE MATERIAL

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK2640-01 (Outfall 009 (Grab) - Water)</b>					<b>Sampled: 11/20/11</b>				
<b>Reporting Units: mg/l</b>									
Hexane Extractable Material (Oil & Grease)	EPA 1664A	11L0083	1.3	4.7	ND	1	DA	12/01/11	

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Debby Wilson  
Project Manager

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**IUK2640 <Page 2 of 37>**

MWH-Pasadena/Boeing  
 618 Michillinda Avenue, Suite 200  
 Arcadia, CA 91007  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
 Routine Outfall 009  
 Report Number: IUK2640

Sampled: 11/20/11-11/21/11  
 Received: 11/21/11

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK2640-02 (Outfall 009 (Composite) - Water)</b>					<b>Sampled: 11/20/11</b>				
<b>Reporting Units: ug/l</b>									
Mercury	EPA 245.1	11K3398	0.10	0.20	ND	1	DB	11/30/11	
Antimony	EPA 200.8	11K3276	0.30	2.0	ND	1	NH	11/22/11	
Cadmium	EPA 200.8	11K3276	0.10	1.0	ND	1	NH	11/22/11	
<b>Copper</b>	EPA 200.8	11K3276	0.50	2.0	<b>1.6</b>	1	NH	11/22/11	Ja
<b>Lead</b>	EPA 200.8	11K3276	0.20	1.0	<b>1.1</b>	1	NH	11/22/11	
Thallium	EPA 200.8	11K3276	0.20	1.0	ND	1	NH	11/22/11	

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
 Routine Outfall 009  
 Report Number: IUK2640

Sampled: 11/20/11-11/21/11  
 Received: 11/21/11

## DISSOLVED METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK2640-02 (Outfall 009 (Composite) - Water) - cont.</b>					<b>Sampled: 11/20/11</b>				
<b>Reporting Units: ug/l</b>									
Mercury	EPA 245.1-Diss	11K3399	0.10	0.20	ND	1	DB	12/01/11	
Antimony	EPA 200.8-Diss	11K3385	0.30	2.0	ND	1	KB1	11/23/11	
Cadmium	EPA 200.8-Diss	11K3385	0.10	1.0	ND	1	KB1	11/23/11	
<b>Copper</b>	EPA 200.8-Diss	11K3385	0.50	2.0	<b>1.8</b>	1	KB1	11/23/11	Ja
Lead	EPA 200.8-Diss	11K3385	0.20	1.0	ND	1	KB1	11/23/11	
Thallium	EPA 200.8-Diss	11K3385	0.20	1.0	ND	1	KB1	11/23/11	

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
 Routine Outfall 009  
 Report Number: IUK2640

Sampled: 11/20/11-11/21/11  
 Received: 11/21/11

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK2640-02 (Outfall 009 (Composite) - Water) - cont.</b>					<b>Sampled: 11/20/11</b>				
Reporting Units: mg/l									
Chloride	EPA 300.0	11K3186	0.30	0.50	1.8	1	NN	11/22/11	
Nitrate/Nitrite-N	EPA 300.0	11K3186	0.15	0.26	0.40	1	NN	11/22/11	
Sulfate	EPA 300.0	11K3186	0.30	0.50	22	1	NN	11/22/11	
Total Dissolved Solids	SM2540C	11K3105	1.0	10	50	1	MNS	11/22/11	
Total Suspended Solids	SM 2540D	11K3261	1.0	10	4.0	1	DK1	11/22/11	Ja
<b>Sample ID: IUK2640-02 (Outfall 009 (Composite) - Water)</b>					<b>Sampled: 11/20/11</b>				
Reporting Units: ug/l									
Total Cyanide	SM4500CN-E	11L0134	2.2	5.0	ND	1	SLA	12/01/11	

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
 Routine Outfall 009  
 Report Number: IUK2640

Sampled: 11/20/11-11/21/11  
 Received: 11/21/11

## 8696

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK2640-02 (Outfall 009 (Composite) - Water) - cont.</b>					<b>Sampled: 11/20/11</b>				
Reporting Units: pCi/L									
Uranium, Total	8696	8696	0.017	1	0.365	1	NS	12/01/11	Jb
<b>Sample ID: IUK2640-03 (Trip Blank - Water)</b>					<b>Sampled: 11/21/11</b>				
Reporting Units: pCi/L									
Uranium, Total	8696	8696	0.017	1	ND	1	NS	12/01/11	U

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
 Routine Outfall 009  
 Report Number: IUK2640

Sampled: 11/20/11-11/21/11  
 Received: 11/21/11

## 900

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK2640-02 (Outfall 009 (Composite) - Water)</b>					<b>Sampled: 11/20/11</b>				
Reporting Units: pCi/L									
Gross Alpha	900	8696	0.209	3	0.368	1	DVP	12/05/11	Jb
Gross Beta	900	8696	0.912	4	1.64	1	DVP	12/05/11	Jb
<b>Sample ID: IUK2640-03 (Trip Blank - Water)</b>					<b>Sampled: 11/21/11</b>				
Reporting Units: pCi/L									
Gross Alpha	900	8696	0.246	3	0.018	1	DVP	12/05/11	U
Gross Beta	900	8696	0.757	4	-0.153	1	DVP	12/05/11	U

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
 Routine Outfall 009  
 Report Number: IUK2640

Sampled: 11/20/11-11/21/11  
 Received: 11/21/11

## 901.1

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK2640-02 (Outfall 009 (Composite) - Water)</b>					<b>Sampled: 11/20/11</b>				
<b>Reporting Units: pCi/L</b>									
Cesium-137	901.1	8696	1.25	20	ND	1	LS	11/29/11	U
Potassium-40	901.1	8696	18	25	ND	1	LS	11/29/11	U
<b>Sample ID: IUK2640-03 (Trip Blank - Water)</b>					<b>Sampled: 11/21/11</b>				
<b>Reporting Units: pCi/L</b>									
Cesium-137	901.1	8696	1.15	20	ND	1	LS	11/29/11	U
Potassium-40	901.1	8696	13.2	25	ND	1	LS	11/29/11	U

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Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK2640

Sampled: 11/20/11-11/21/11  
Received: 11/21/11

## 903.1

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK2640-02 (Outfall 009 (Composite) - Water)</b>					<b>Sampled: 11/20/11</b>				
Reporting Units: pCi/L									
Radium-226	903.1	8696	0.747	1	0.392	1	TM	12/06/11	U
<b>Sample ID: IUK2640-03 (Trip Blank - Water)</b>					<b>Sampled: 11/21/11</b>				
Reporting Units: pCi/L									
Radium-226	903.1	8696	0.708	1	0.294	1	TM	12/06/11	U

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Project Manager

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IUK2640 <Page 9 of 37>

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Arcadia, CA 91007  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK2640

Sampled: 11/20/11-11/21/11  
Received: 11/21/11

## 904

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK2640-02 (Outfall 009 (Composite) - Water)</b>					<b>Sampled: 11/20/11</b>				
Reporting Units: pCi/L									
Radium-228	904	8696	0.602	1	0.4	1	ASM	12/06/11	U
<b>Sample ID: IUK2640-03 (Trip Blank - Water)</b>					<b>Sampled: 11/21/11</b>				
Reporting Units: pCi/L									
Radium-228	904	8696	0.578	1	-0.166	1	ASM	12/06/11	U

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618 Michillinda Avenue, Suite 200  
Arcadia, CA 91007  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK2640

Sampled: 11/20/11-11/21/11  
Received: 11/21/11

## 905

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK2640-02 (Outfall 009 (Composite) - Water)</b>					<b>Sampled: 11/20/11</b>				
Reporting Units: pCi/L									
Strontium-90	905	8696	0.798	2	0.039	1	WL	12/02/11	U
<b>Sample ID: IUK2640-03 (Trip Blank - Water)</b>					<b>Sampled: 11/21/11</b>				
Reporting Units: pCi/L									
Strontium-90	905	8696	0.809	2	0.227	1	WL	12/02/11	U

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Arcadia, CA 91007  
Attention: Bronwyn Kelly

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Routine Outfall 009  
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Sampled: 11/20/11-11/21/11  
Received: 11/21/11

## 906

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK2640-02 (Outfall 009 (Composite) - Water)</b>					<b>Sampled: 11/20/11</b>				
<b>Reporting Units: pCi/L</b>									
Tritium	906	8696	152	500	-20.4	1	WL	12/06/11	U

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Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK2640

Sampled: 11/20/11-11/21/11  
Received: 11/21/11

## EPA-5 1613Bx

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Analyst	Date Analyzed	Data Qualifiers
<b>Sample ID: IUK2640-02 (Outfall 009 (Composite) - Water) - cont.</b>					<b>Sampled: 11/20/11</b>				
Reporting Units: ug/L									
1,2,3,4,6,7,8-HpCDD	EPA-5 1613B	1335103	0.00000086	0.00005	<b>0.000028</b>	0.97	SO	12/02/11	J, B
1,2,3,4,6,7,8-HpCDF	EPA-5 1613B	1335103	0.00000081	0.00005	<b>0.000081</b>	0.97	SO	12/02/11	J, Q
1,2,3,4,7,8,9-HpCDF	EPA-5 1613B	1335103	0.0000012	0.00005	<b>0.000016</b>	0.97	SO	12/02/11	J, Q
1,2,3,4,7,8-HxCDD	EPA-5 1613B	1335103	0.00000079	0.00005	<b>0.000012</b>	0.97	SO	12/02/11	J, B
1,2,3,4,7,8-HxCDF	EPA-5 1613B	1335103	0.00000054	0.00005	<b>0.000016</b>	0.97	SO	12/02/11	J, Q, B
1,2,3,6,7,8-HxCDD	EPA-5 1613B	1335103	0.00000072	0.00005	<b>0.000022</b>	0.97	SO	12/02/11	J, Q, B
1,2,3,6,7,8-HxCDF	EPA-5 1613B	1335103	0.00000051	0.00005	<b>0.000017</b>	0.97	SO	12/02/11	J
1,2,3,7,8,9-HxCDD	EPA-5 1613B	1335103	0.0000007	0.00005	<b>0.000025</b>	0.97	SO	12/02/11	J, Q, B
1,2,3,7,8,9-HxCDF	EPA-5 1613B	1335103	0.00000055	0.00005	<b>0.000011</b>	0.97	SO	12/02/11	J, B
1,2,3,7,8-PeCDD	EPA-5 1613B	1335103	0.0000016	0.00005	ND	0.97	SO	12/02/11	
1,2,3,7,8-PeCDF	EPA-5 1613B	1335103	0.0000016	0.00005	ND	0.97	SO	12/02/11	
2,3,4,6,7,8-HxCDF	EPA-5 1613B	1335103	0.00000046	0.00005	<b>0.000015</b>	0.97	SO	12/02/11	J, B
2,3,4,7,8-PeCDD	EPA-5 1613B	1335103	0.0000018	0.00005	ND	0.97	SO	12/02/11	
2,3,7,8-TCDD	EPA-5 1613B	1335103	0.0000014	0.00001	ND	0.97	SO	12/02/11	
2,3,7,8-TCDF	EPA-5 1613B	1335103	0.0000011	0.00001	ND	0.97	SO	12/02/11	
OCDD	EPA-5 1613B	1335103	0.0000034	0.0001	<b>0.00042</b>	0.97	SO	12/02/11	B
OCDF	EPA-5 1613B	1335103	0.0000022	0.0001	<b>0.00003</b>	0.97	SO	12/02/11	J, B
Total HpCDD	EPA-5 1613B	1335103	0.00000086	0.00005	<b>0.000066</b>	0.97	SO	12/02/11	J, B
Total HpCDF	EPA-5 1613B	1335103	0.00000099	0.00005	<b>0.000021</b>	0.97	SO	12/02/11	J, Q, B
Total HxCDD	EPA-5 1613B	1335103	0.00000073	0.00005	<b>0.000011</b>	0.97	SO	12/02/11	J, Q, B
Total HxCDF	EPA-5 1613B	1335103	0.00000051	0.00005	<b>0.0000092</b>	0.97	SO	12/02/11	J, Q, B
Total PeCDD	EPA-5 1613B	1335103	0.0000016	0.00005	ND	0.97	SO	12/02/11	
Total PeCDF	EPA-5 1613B	1335103	0.0000016	0.00005	ND	0.97	SO	12/02/11	
Total TCDD	EPA-5 1613B	1335103	0.0000014	0.00001	ND	0.97	SO	12/02/11	
Total TCDF	EPA-5 1613B	1335103	0.0000011	0.00001	ND	0.97	SO	12/02/11	

Surrogate: 13C-1,2,3,4,6,7,8-HpCDD (23-140%)	45 %
Surrogate: 13C-1,2,3,4,6,7,8-HpCDF (28-143%)	53 %
Surrogate: 13C-1,2,3,4,7,8,9-HpCDF (26-138%)	47 %
Surrogate: 13C-1,2,3,4,7,8-HxCDD (32-141%)	51 %
Surrogate: 13C-1,2,3,4,7,8-HxCDF (26-152%)	48 %
Surrogate: 13C-1,2,3,6,7,8-HxCDD (28-130%)	56 %
Surrogate: 13C-1,2,3,6,7,8-HxCDF (26-123%)	50 %
Surrogate: 13C-1,2,3,7,8,9-HxCDF (29-147%)	54 %
Surrogate: 13C-1,2,3,7,8-PeCDD (25-181%)	53 %
Surrogate: 13C-1,2,3,7,8-PeCDF (24-185%)	54 %
Surrogate: 13C-2,3,4,6,7,8-HxCDF (28-136%)	53 %
Surrogate: 13C-2,3,4,7,8-PeCDF (21-178%)	56 %
Surrogate: 13C-2,3,7,8-TCDD (25-164%)	54 %
Surrogate: 13C-2,3,7,8-TCDF (24-169%)	58 %
Surrogate: 13C-OCDD (17-157%)	38 %
Surrogate: 37Cl4-2,3,7,8-TCDD (35-197%)	93 %

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Project Manager

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Routine Outfall 009  
Report Number: IUK2640

Sampled: 11/20/11-11/21/11  
Received: 11/21/11

## SHORT HOLD TIME DETAIL REPORT

	<b>Hold Time (in days)</b>	<b>Date/Time Sampled</b>	<b>Date/Time Received</b>	<b>Date/Time Extracted</b>	<b>Date/Time Analyzed</b>
<b>Sample ID: Outfall 009 (Composite) (IUK2640-02) - Water</b>					
EPA 300.0	2	11/20/2011 17:50	11/21/2011 18:35	11/22/2011 11:00	11/22/2011 11:14
Filtration	1	11/20/2011 17:50	11/21/2011 18:35	11/22/2011 16:53	11/22/2011 16:54

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Sampled: 11/20/11-11/21/11  
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## METHOD BLANK/QC DATA

### HEXANE EXTRACTABLE MATERIAL

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b><u>Batch: 11L0083 Extracted: 12/01/11</u></b>												
<b>Blank Analyzed: 12/01/2011 (11L0083-BLK1)</b>												
Hexane Extractable Material (Oil & Grease)	ND	5.0	1.4	mg/l	DA							
<b>LCS Analyzed: 12/01/2011 (11L0083-BS1)</b>												
Hexane Extractable Material (Oil & Grease)	17.9	5.0	1.4	mg/l	DA	20.0		90	78-114			MNR1
<b>LCS Dup Analyzed: 12/01/2011 (11L0083-BSD1)</b>												
Hexane Extractable Material (Oil & Grease)	19.2	5.0	1.4	mg/l	DA	20.0		96	78-114	7	11	

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 Project Manager

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Received: 11/21/11

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 11K3276 Extracted: 11/22/11</b>												
<b>Blank Analyzed: 11/22/2011 (11K3276-BLK1)</b>												
Antimony	ND	2.0	0.30	ug/l	NH							
Cadmium	ND	1.0	0.10	ug/l	NH							
Copper	ND	2.0	0.50	ug/l	NH							
Lead	ND	1.0	0.20	ug/l	NH							
Thallium	ND	1.0	0.20	ug/l	NH							
<b>LCS Analyzed: 11/22/2011 (11K3276-BS1)</b>												
Antimony	85.0	2.0	0.30	ug/l	NH	80.0		106	85-115			
Cadmium	84.8	1.0	0.10	ug/l	NH	80.0		106	85-115			
Copper	84.0	2.0	0.50	ug/l	NH	80.0		105	85-115			
Lead	79.8	1.0	0.20	ug/l	NH	80.0		100	85-115			
Thallium	77.4	1.0	0.20	ug/l	NH	80.0		97	85-115			
<b>Matrix Spike Analyzed: 11/22/2011 (11K3276-MS1)</b>						<b>Source: IUK2397-02RE1</b>						
Antimony	84.4	2.0	0.30	ug/l	NH	80.0	ND	105	70-130			
Cadmium	79.4	1.0	0.10	ug/l	NH	80.0	ND	99	70-130			
Copper	85.9	2.0	0.50	ug/l	NH	80.0	7.34	98	70-130			
Lead	77.4	1.0	0.20	ug/l	NH	80.0	1.57	95	70-130			
Thallium	73.8	1.0	0.20	ug/l	NH	80.0	ND	92	70-130			
<b>Matrix Spike Analyzed: 11/22/2011 (11K3276-MS2)</b>						<b>Source: IUK2397-03RE1</b>						
Antimony	83.9	2.0	0.30	ug/l	NH	80.0	0.449	104	70-130			
Cadmium	79.4	1.0	0.10	ug/l	NH	80.0	ND	99	70-130			
Copper	76.9	2.0	0.50	ug/l	NH	80.0	0.673	95	70-130			
Lead	75.4	1.0	0.20	ug/l	NH	80.0	0.202	94	70-130			
Thallium	73.1	1.0	0.20	ug/l	NH	80.0	ND	91	70-130			
<b>Matrix Spike Dup Analyzed: 11/22/2011 (11K3276-MSD1)</b>						<b>Source: IUK2397-02RE1</b>						
Antimony	84.5	2.0	0.30	ug/l	NH	80.0	ND	106	70-130	0.1	20	
Cadmium	79.7	1.0	0.10	ug/l	NH	80.0	ND	100	70-130	0.4	20	
Copper	85.5	2.0	0.50	ug/l	NH	80.0	7.34	98	70-130	0.5	20	
Lead	77.3	1.0	0.20	ug/l	NH	80.0	1.57	95	70-130	0.09	20	
Thallium	74.8	1.0	0.20	ug/l	NH	80.0	ND	93	70-130	1	20	

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Project Manager

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 Arcadia, CA 91007  
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## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 11K3398 Extracted: 11/30/11</b>												
<b>Blank Analyzed: 11/30/2011 (11K3398-BLK1)</b>												
Mercury	ND	0.20	0.10	ug/l	DB							
<b>LCS Analyzed: 11/30/2011 (11K3398-BS1)</b>												
Mercury	8.22	0.20	0.10	ug/l	DB	8.00		103	85-115			
<b>Matrix Spike Analyzed: 11/30/2011 (11K3398-MS1)</b>												
							<b>Source: IUK2791-02</b>					
Mercury	3.85	0.20	0.10	ug/l	DB	8.00	ND	48	70-130			M2
<b>Matrix Spike Dup Analyzed: 11/30/2011 (11K3398-MSD1)</b>												
							<b>Source: IUK2791-02</b>					
Mercury	3.93	0.20	0.10	ug/l	DB	8.00	ND	49	70-130	2	20	M2

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 Project Manager

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## METHOD BLANK/QC DATA

### DISSOLVED METALS

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 11K3385 Extracted: 11/23/11</b>												
<b>Blank Analyzed: 11/23/2011 (11K3385-BLK1)</b>												
Antimony	ND	2.0	0.30	ug/l	KB1							
Cadmium	ND	1.0	0.10	ug/l	KB1							
Copper	ND	2.0	0.50	ug/l	KB1							
Lead	ND	1.0	0.20	ug/l	KB1							
Thallium	ND	1.0	0.20	ug/l	KB1							
<b>LCS Analyzed: 11/23/2011 (11K3385-BS1)</b>												
Antimony	82.6	2.0	0.30	ug/l	KB1	80.0		103	85-115			
Cadmium	80.2	1.0	0.10	ug/l	KB1	80.0		100	85-115			
Copper	80.4	2.0	0.50	ug/l	KB1	80.0		100	85-115			
Lead	78.2	1.0	0.20	ug/l	KB1	80.0		98	85-115			
Thallium	78.5	1.0	0.20	ug/l	KB1	80.0		98	85-115			
<b>Matrix Spike Analyzed: 11/23/2011 (11K3385-MS1)</b>						<b>Source: IUK2660-01</b>						
Antimony	83.3	2.0	0.30	ug/l	KB1	80.0	0.566	103	70-130			
Cadmium	81.6	1.0	0.10	ug/l	KB1	80.0	ND	102	70-130			
Copper	81.8	2.0	0.50	ug/l	KB1	80.0	2.76	99	70-130			
Lead	78.4	1.0	0.20	ug/l	KB1	80.0	0.488	97	70-130			
Thallium	78.4	1.0	0.20	ug/l	KB1	80.0	ND	98	70-130			
<b>Matrix Spike Dup Analyzed: 11/23/2011 (11K3385-MSD1)</b>						<b>Source: IUK2660-01</b>						
Antimony	84.2	2.0	0.30	ug/l	KB1	80.0	0.566	105	70-130	1	20	
Cadmium	81.7	1.0	0.10	ug/l	KB1	80.0	ND	102	70-130	0.1	20	
Copper	82.6	2.0	0.50	ug/l	KB1	80.0	2.76	100	70-130	0.9	20	
Lead	80.0	1.0	0.20	ug/l	KB1	80.0	0.488	99	70-130	2	20	
Thallium	80.7	1.0	0.20	ug/l	KB1	80.0	ND	101	70-130	3	20	

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Debby Wilson  
Project Manager

MWH-Pasadena/Boeing  
 618 Michillinda Avenue, Suite 200  
 Arcadia, CA 91007  
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Sampled: 11/20/11-11/21/11  
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## METHOD BLANK/QC DATA

### DISSOLVED METALS

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 11K3399 Extracted: 11/30/11</b>												
<b>Blank Analyzed: 12/01/2011 (11K3399-BLK1)</b>												
Mercury	ND	0.20	0.10	ug/l	DB							
<b>LCS Analyzed: 12/01/2011 (11K3399-BS1)</b>												
Mercury	8.75	0.20	0.10	ug/l	DB	8.00		109	85-115			
<b>Matrix Spike Analyzed: 12/01/2011 (11K3399-MS1)</b>												
						<b>Source: IUK2775-01</b>						
Mercury	8.77	0.20	0.10	ug/l	DB	8.00	ND	110	70-130			
<b>Matrix Spike Dup Analyzed: 12/01/2011 (11K3399-MSD1)</b>												
						<b>Source: IUK2775-01</b>						
Mercury	8.83	0.20	0.10	ug/l	DB	8.00	ND	110	70-130	0.7	20	

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 Project Manager

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## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 11K3105 Extracted: 11/22/11</b>												
<b>Blank Analyzed: 11/22/2011 (11K3105-BLK1)</b>												
Total Dissolved Solids	ND	10	1.0	mg/l	MNS							
<b>LCS Analyzed: 11/22/2011 (11K3105-BS1)</b>												
Total Dissolved Solids	992	10	1.0	mg/l	MNS	1000		99	90-110			
<b>Duplicate Analyzed: 11/22/2011 (11K3105-DUP1)</b>												
Total Dissolved Solids	443	10	1.0	mg/l	MNS		444			0.2	10	
<b>Batch: 11K3186 Extracted: 11/22/11</b>												
<b>Blank Analyzed: 11/22/2011 (11K3186-BLK1)</b>												
Chloride	ND	0.50	0.30	mg/l	NN							
Nitrate/Nitrite-N	ND	0.26	0.15	mg/l	NN							
Sulfate	ND	0.50	0.30	mg/l	NN							
<b>LCS Analyzed: 11/22/2011 (11K3186-BS1)</b>												
Chloride	5.16	0.50	0.30	mg/l	NN	5.00		103	90-110			
Sulfate	10.2	0.50	0.30	mg/l	NN	10.0		102	90-110			
<b>Matrix Spike Analyzed: 11/22/2011 (11K3186-MS1)</b>												
Chloride	6.65	0.50	0.30	mg/l	NN	5.00	1.75	98	80-120			
Sulfate	33.2	0.50	0.30	mg/l	NN	10.0	22.4	108	80-120			
<b>Matrix Spike Analyzed: 11/23/2011 (11K3186-MS2)</b>												
Chloride	128	25	15	mg/l	NN	50.0	81.3	94	80-120			
Sulfate	574	25	15	mg/l	NN	100	484	89	80-120			MHA

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Project Manager



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## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b><u>Batch: 11K3186 Extracted: 11/22/11</u></b>												
<b>Matrix Spike Dup Analyzed: 11/22/2011 (11K3186-MSD1)</b>						<b>Source: IUK2640-02</b>						
Chloride	6.91	0.50	0.30	mg/l	NN	5.00	1.75	103	80-120	4	20	
Sulfate	33.7	0.50	0.30	mg/l	NN	10.0	22.4	113	80-120	1	20	
<b>Matrix Spike Dup Analyzed: 11/23/2011 (11K3186-MSD2)</b>						<b>Source: IUK2796-01</b>						
Chloride	125	25	15	mg/l	NN	50.0	81.3	87	80-120	3	20	
Sulfate	557	25	15	mg/l	NN	100	484	73	80-120	3	20	MHA
<b><u>Batch: 11K3261 Extracted: 11/22/11</u></b>												
<b>Blank Analyzed: 11/22/2011 (11K3261-BLK1)</b>												
Total Suspended Solids	ND	10	1.0	mg/l	DK1							
<b>LCS Analyzed: 11/22/2011 (11K3261-BS1)</b>												
Total Suspended Solids	989	10	1.0	mg/l	DK1	1000		99	85-115			
<b>Duplicate Analyzed: 11/22/2011 (11K3261-DUP1)</b>						<b>Source: IUK2582-01</b>						
Total Suspended Solids	63.0	10	1.0	mg/l	DK1		62.0			2	10	
<b><u>Batch: 11L0134 Extracted: 12/01/11</u></b>												
<b>Blank Analyzed: 12/01/2011 (11L0134-BLK1)</b>												
Total Cyanide	ND	5.0	2.2	ug/l	SLA							
<b>LCS Analyzed: 12/01/2011 (11L0134-BS1)</b>												
Total Cyanide	101	5.0	2.2	ug/l	SLA	100		101	90-110			

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Debby Wilson  
 Project Manager

MWH-Pasadena/Boeing  
618 Michillinda Avenue, Suite 200  
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Routine Outfall 009  
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Received: 11/21/11

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b><u>Batch: 11L0134 Extracted: 12/01/11</u></b>												
<b>Matrix Spike Analyzed: 12/01/2011 (11L0134-MS1)</b>						<b>Source: IUK2640-02</b>						
Total Cyanide	104	5.0	2.2	ug/l	SLA	100	ND	104	70-115			
<b>Matrix Spike Dup Analyzed: 12/01/2011 (11L0134-MSD1)</b>						<b>Source: IUK2640-02</b>						
Total Cyanide	107	5.0	2.2	ug/l	SLA	100	ND	107	70-115	2	15	

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 Arcadia, CA 91007  
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## METHOD BLANK/QC DATA

**8696**

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 8696 Extracted: 12/01/11</b>												
<b>LCS Analyzed: 12/01/2011 (S111064-03)</b>												
Uranium, Total	64.2	1	0.168	pCi/L	NS	62.5	103	80-120				
<b>Blank Analyzed: 12/01/2011 (S111064-04)</b>												
Uranium, Total	ND	1	0.017	pCi/L	NS			-				U
<b>Duplicate Analyzed: 12/01/2011 (S111064-05)</b>												
Uranium, Total	0.379	1	0.017	pCi/L	NS		0.365	-	4			Jb

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 Project Manager

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## METHOD BLANK/QC DATA

### 900

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 8696 Extracted: 12/01/11</b>												
<b>LCS Analyzed: 12/06/2011 (S111064-03)</b>						<b>Source:</b>						
Gross Alpha	39.1	3	0.616	pCi/L	DVP	33.7		116	70-130			
Gross Beta	27.1	4	1.13	pCi/L	DVP	28.6		95	70-130			
<b>Blank Analyzed: 12/05/2011 (S111064-04)</b>						<b>Source:</b>						
Gross Alpha	0.07	3	0.504	pCi/L	DVP			-				U
Gross Beta	-0.245	4	0.833	pCi/L	DVP			-				U
<b>Duplicate Analyzed: 12/05/2011 (S111064-05)</b>						<b>Source: IUK2640-02</b>						
Gross Alpha	0.508	3	0.299	pCi/L	DVP		0.368	-		32		Jb
Gross Beta	1.45	4	0.82	pCi/L	DVP		1.64	-		12		Jb

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 Project Manager

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## METHOD BLANK/QC DATA

### 901.1

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 8696 Extracted: 11/28/11</b>												
<b>LCS Analyzed: 11/30/2011 (S111064-03)</b>						<b>Source:</b>						
Cobalt-60	133	10	1.85	pCi/L	LS	136		98	80-120			
Cesium-137	147	20	2.34	pCi/L	LS	148		99	80-120			
<b>Blank Analyzed: 11/30/2011 (S111064-04)</b>						<b>Source:</b>						
Cesium-137	ND	20	1.88	pCi/L	LS				-			U
Potassium-40	ND	25	35.2	pCi/L	LS				-			U
<b>Duplicate Analyzed: 11/30/2011 (S111064-05)</b>						<b>Source: IUK2640-02</b>						
Cesium-137	ND	20	1.08	pCi/L	LS		0		-	0		U
Potassium-40	ND	25	22.5	pCi/L	LS		0		-	0		U

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## METHOD BLANK/QC DATA

### 903.1

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 8696 Extracted: 12/06/11</b>												
<b>LCS Analyzed: 12/06/2011 (S111064-03)</b>						<b>Source:</b>						
Radium-226	50.1	1	0.727	pCi/L	TM	55.7		90	80-120			
<b>Blank Analyzed: 12/06/2011 (S111064-04)</b>						<b>Source:</b>						
Radium-226	-0.053	1	0.674	pCi/L	TM				-			U
<b>Duplicate Analyzed: 12/06/2011 (S111064-05)</b>						<b>Source: IUK2640-02</b>						
Radium-226	0.4	1	0.698	pCi/L	TM		0.392		-	0		U

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## METHOD BLANK/QC DATA

904

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 8696 Extracted: 12/06/11</b>												
<b>LCS Analyzed: 12/06/2011 (S111064-03)</b>						<b>Source:</b>						
Radium-228	5.92	1	0.614	pCi/L	ASM	5.55	107	60-140				
<b>Blank Analyzed: 12/06/2011 (S111064-04)</b>						<b>Source:</b>						
Radium-228	-0.138	1	0.609	pCi/L	ASM			-				U
<b>Duplicate Analyzed: 12/06/2011 (S111064-05)</b>						<b>Source: IUK2640-02</b>						
Radium-228	0.042	1	0.753	pCi/L	ASM	0.4		-	0			U

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## METHOD BLANK/QC DATA

### 905

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 8696 Extracted: 12/02/11</b>												
<b>LCS Analyzed: 12/02/2011 (S111064-03)</b>						<b>Source:</b>						
Strontium-90	19.4	2	0.669	pCi/L	WL	18.9	103	80-120				
<b>Blank Analyzed: 12/02/2011 (S111064-04)</b>						<b>Source:</b>						
Strontium-90	-0.216	2	0.928	pCi/L	WL			-				U
<b>Duplicate Analyzed: 12/02/2011 (S111064-05)</b>						<b>Source: IUK2640-02</b>						
Strontium-90	-0.067	2	0.781	pCi/L	WL	0.039		-	0			U

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## METHOD BLANK/QC DATA

906

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 8696 Extracted: 12/05/11</b>												
<b>LCS Analyzed: 12/06/2011 (S111064-03)</b>						<b>Source:</b>						
Tritium	209	500	14.6	pCi/L	WL	226		92	80-120			Jb
<b>Blank Analyzed: 12/06/2011 (S111064-04)</b>						<b>Source:</b>						
Tritium	-5.17	500	14.8	pCi/L	WL				-			U
<b>Duplicate Analyzed: 12/06/2011 (S111064-05)</b>						<b>Source: IUK2640-02</b>						
Tritium	-39.2	500	152	pCi/L	WL		-20.4		-	0		U

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## METHOD BLANK/QC DATA

### EPA-5 1613Bx

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 1335103 Extracted: 12/01/11</b>												
<b>Blank Analyzed: 12/02/2011 (G1L010000103B)</b>						<b>Source:</b>						
1,2,3,4,6,7,8-HpCDD	3.1e-006	0.00005	0000005	ug/L	SO			-				J
1,2,3,4,6,7,8-HpCDF	ND	0.00005	0000001	ug/L	SO			-				
1,2,3,4,7,8,9-HpCDF	ND	0.00005	0000001	ug/L	SO			-				
1,2,3,4,7,8-HxCDD	1.2e-006	0.00005	0000008	ug/L	SO			-				J, Q
1,2,3,4,7,8-HxCDF	1.3e-006	0.00005	0000006	ug/L	SO			-				J, Q
1,2,3,6,7,8-HxCDD	9.4e-007	0.00005	0000006	ug/L	SO			-				J, Q
1,2,3,6,7,8-HxCDF	ND	0.00005	0000005	ug/L	SO			-				
1,2,3,7,8,9-HxCDD	1.7e-006	0.00005	0000006	ug/L	SO			-				J, Q
1,2,3,7,8,9-HxCDF	1.9e-006	0.00005	0000006	ug/L	SO			-				J, Q
1,2,3,7,8-PeCDD	ND	0.00005	0000001	ug/L	SO			-				
1,2,3,7,8-PeCDF	ND	0.00005	0000001	ug/L	SO			-				
2,3,4,6,7,8-HxCDF	9e-007	0.00005	0000005	ug/L	SO			-				J, Q
2,3,4,7,8-PeCDF	ND	0.00005	0000001	ug/L	SO			-				
2,3,7,8-TCDD	ND	0.00001	0000001	ug/L	SO			-				
2,3,7,8-TCDF	ND	0.00001	0000001	ug/L	SO			-				
OCDD	1.4e-005	0.0001	0000001	ug/L	SO			-				J
OCDF	7.7e-006	0.0001	0000002	ug/L	SO			-				J, Q
Total HpCDD	4.5e-006	0.00005	0000005	ug/L	SO			-				J, Q
Total HpCDF	1.1e-006	0.00005	0000001	ug/L	SO			-				J, Q
Total HxCDD	3.9e-006	0.00005	0000007	ug/L	SO			-				J, Q
Total HxCDF	4.2e-006	0.00005	0000005	ug/L	SO			-				J, Q
Total PeCDD	ND	0.00005	0000001	ug/L	SO			-				
Total PeCDF	ND	0.00005	0000001	ug/L	SO			-				
Total TCDD	ND	0.00001	0000001	ug/L	SO			-				
Total TCDF	ND	0.00001	0000001	ug/L	SO			-				
Surrogate: 13C-1,2,3,4,6,7,8-HpCDD	0.00091			ug/L	SO	0.002		45		23-140		
Surrogate: 13C-1,2,3,4,6,7,8-HpCDF	0.001			ug/L	SO	0.002		52		28-143		
Surrogate: 13C-1,2,3,4,7,8,9-HpCDF	0.00093			ug/L	SO	0.002		47		26-138		
Surrogate: 13C-1,2,3,4,7,8-HxCDD	0.00092			ug/L	SO	0.002		46		32-141		
Surrogate: 13C-1,2,3,4,7,8-HxCDF	0.00093			ug/L	SO	0.002		47		26-152		
Surrogate: 13C-1,2,3,6,7,8-HxCDD	0.0012			ug/L	SO	0.002		61		28-130		
Surrogate: 13C-1,2,3,6,7,8-HxCDF	0.0011			ug/L	SO	0.002		53		26-123		
Surrogate: 13C-1,2,3,7,8,9-HxCDF	0.0011			ug/L	SO	0.002		55		29-147		
Surrogate: 13C-1,2,3,7,8-PeCDD	0.0011			ug/L	SO	0.002		53		25-181		
Surrogate: 13C-1,2,3,7,8-PeCDF	0.0011			ug/L	SO	0.002		53		24-185		

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Debby Wilson  
 Project Manager

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### EPA-5 1613Bx

Analyte	Result	Reporting Limit	MDL	Units	Analyst	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
<b>Batch: 1335103 Extracted: 12/01/11</b>												
<b>Blank Analyzed: 12/02/2011 (G1L010000103B)</b>						<b>Source:</b>						
Surrogate: 13C-2,3,4,6,7,8-HxCDF	0.0011			ug/L	SO	0.002		53	28-136			
Surrogate: 13C-2,3,4,7,8-PeCDF	0.0011			ug/L	SO	0.002		57	21-178			
Surrogate: 13C-2,3,7,8-TCDD	0.0011			ug/L	SO	0.002		55	25-164			
Surrogate: 13C-2,3,7,8-TCDF	0.0012			ug/L	SO	0.002		58	24-169			
Surrogate: 13C-OCDD	0.0014			ug/L	SO	0.004		36	17-157			
Surrogate: 37Cl4-2,3,7,8-TCDD	0.00075			ug/L	SO	0.0008		94	35-197			
<b>LCS Analyzed: 12/02/2011 (G1L010000103C)</b>						<b>Source:</b>						
1,2,3,4,6,7,8-HpCDD	0.00109	0.00005	0.000002	ug/L	SO	0.001		109	70-140			B
1,2,3,4,6,7,8-HpCDF	0.00118	0.00005	0.000003	ug/L	SO	0.001		118	82-122			
1,2,3,4,7,8,9-HpCDF	0.00115	0.00005	0.000002	ug/L	SO	0.001		115	78-138			
1,2,3,4,7,8-HxCDD	0.00111	0.00005	0.000002	ug/L	SO	0.001		111	70-164			B
1,2,3,4,7,8-HxCDF	0.00112	0.00005	0.000004	ug/L	SO	0.001		112	72-134			B
1,2,3,6,7,8-HxCDD	0.000979	0.00005	0.000002	ug/L	SO	0.001		98	76-134			B
1,2,3,6,7,8-HxCDF	0.00114	0.00005	0.000004	ug/L	SO	0.001		114	84-130			
1,2,3,7,8,9-HxCDD	0.00111	0.00005	0.000000	ug/L	SO	0.001		111	64-162			B
1,2,3,7,8,9-HxCDF	0.00112	0.00005	0.000004	ug/L	SO	0.001		112	78-130			B
1,2,3,7,8-PeCDD	0.00106	0.00005	0.000002	ug/L	SO	0.001		106	70-142			
1,2,3,7,8-PeCDF	0.00109	0.00005	0.000002	ug/L	SO	0.001		109	80-134			
2,3,4,6,7,8-HxCDF	0.0011	0.00005	0.000004	ug/L	SO	0.001		110	70-156			B
2,3,4,7,8-PeCDF	0.00108	0.00005	0.000002	ug/L	SO	0.001		108	68-160			
2,3,7,8-TCDD	0.000219	0.00001	0.000001	ug/L	SO	0.0002		110	67-158			
2,3,7,8-TCDF	0.000217	0.00001	0.000001	ug/L	SO	0.0002		108	75-158			
OCDD	0.00231	0.0001	0.000004	ug/L	SO	0.002		115	78-144			B
OCDF	0.00253	0.0001	0.000003	ug/L	SO	0.002		127	63-170			B
Surrogate: 13C-1,2,3,4,6,7,8-HpCDD	0.000982			ug/L	SO	0.002		49	26-166			
Surrogate: 13C-1,2,3,4,6,7,8-HpCDF	0.0011			ug/L	SO	0.002		55	21-158			
Surrogate: 13C-1,2,3,4,7,8,9-HpCDF	0.00104			ug/L	SO	0.002		52	20-186			
Surrogate: 13C-1,2,3,4,7,8-HxCDD	0.000983			ug/L	SO	0.002		49	21-193			
Surrogate: 13C-1,2,3,4,7,8-HxCDF	0.000993			ug/L	SO	0.002		50	19-202			
Surrogate: 13C-1,2,3,6,7,8-HxCDD	0.00117			ug/L	SO	0.002		59	25-163			
Surrogate: 13C-1,2,3,6,7,8-HxCDF	0.00104			ug/L	SO	0.002		52	21-159			
Surrogate: 13C-1,2,3,7,8,9-HxCDF	0.00117			ug/L	SO	0.002		59	17-205			
Surrogate: 13C-1,2,3,7,8-PeCDD	0.00108			ug/L	SO	0.002		54	21-227			
Surrogate: 13C-1,2,3,7,8-PeCDF	0.00106			ug/L	SO	0.002		53	21-192			

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## METHOD BLANK/QC DATA

### EPA-5 1613Bx

Analyte	Result	Reporting			Spike Level	Source		%REC		RPD		Data Qualifiers
		Limit	MDL	Units		Analyst	Result	%REC	Limits	RPD	Limit	
<b>Batch: 1335103 Extracted: 12/01/11</b>												
<b>LCS Analyzed: 12/02/2011 (G1L010000103C)</b>												
Surrogate: 13C-2,3,4,6,7,8-HxCDF	0.00112			ug/L	SO	0.002	56	22-176				
Surrogate: 13C-2,3,4,7,8-PeCDF	0.00116			ug/L	SO	0.002	58	13-328				
Surrogate: 13C-2,3,7,8-TCDD	0.00103			ug/L	SO	0.002	52	20-175				
Surrogate: 13C-2,3,7,8-TCDF	0.00113			ug/L	SO	0.002	57	22-152				
Surrogate: 13C-OCDD	0.00176			ug/L	SO	0.004	44	13-199				
Surrogate: 37Cl4-2,3,7,8-TCDD	0.000774			ug/L	SO	0.0008	97	31-191				

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 Received: 11/21/11

## Compliance Check

The results obtained from the analytical testing of this data set were checked against compliance limits received from the client. Any results at or above the compliance limits appear in bold on this page.

LabNumber	Analysis	Analyte	Units	Result	MRL	Compliance Limit
IUK2640-01	1664-HEM	Hexane Extractable Material (Oil & Greas	mg/l	0	4.7	15

## Compliance Check

The results obtained from the analytical testing of this data set were checked against compliance limits received from the client. Any results at or above the compliance limits appear in bold on this page.

LabNumber	Analysis	Analyte	Units	Result	MRL	Compliance Limit
IUK2640-02	Cadmium-200.8	Cadmium	ug/l	0.024	1.0	3.1
IUK2640-02	Chloride - 300.0	Chloride	mg/l	1.75	0.50	150
IUK2640-02	Copper-200.8	Copper	ug/l	1.56	2.0	14
IUK2640-02	Lead-200.8	Lead	ug/l	1.13	1.0	5.2
IUK2640-02	Nitrogen, NO3+NO2 -N EPA 300.0	Nitrate/Nitrite-N	mg/l	0.40	0.26	8
IUK2640-02	Sulfate-300.0	Sulfate	mg/l	22	0.50	300
IUK2640-02	TDS - SM2540C	Total Dissolved Solids	mg/l	50	10	950

## Compliance Check

The results obtained from the analytical testing of this data set were checked against compliance limits received from the client. Any results at or above the compliance limits appear in bold on this page.

LabNumber	Analysis	Analyte	Units	Result	MRL	Compliance Limit
-----------	----------	---------	-------	--------	-----	------------------

TestAmerica Irvine

Debby Wilson  
 Project Manager

MWH-Pasadena/Boeing  
618 Michillinda Avenue, Suite 200  
Arcadia, CA 91007  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK2640

Sampled: 11/20/11-11/21/11  
Received: 11/21/11

## DATA QUALIFIERS AND DEFINITIONS

- B** Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- J** Estimated result. Result is less than the reporting limit.
- Ja** Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
- Jb** The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
- M2** The MS and/or MSD were below the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
- MHA** Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. See Blank Spike (LCS).
- MNR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- Q** Estimated maximum possible concentration (EMPC).
- U** The RESULT is less than the MDA (Minimum Detectable Activity). If the MDA is blank, the ERROR is used as the limit.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

**TestAmerica Irvine**

Debby Wilson  
Project Manager

*The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from TestAmerica.*

**IUK2640 <Page 34 of 37>**

MWH-Pasadena/Boeing  
618 Michillinda Avenue, Suite 200  
Arcadia, CA 91007  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK2640

Sampled: 11/20/11-11/21/11  
Received: 11/21/11

## Certification Summary

### TestAmerica Irvine

Method	Matrix	Nelac	California
EPA 1664A	Water	X	X
EPA 200.8-Diss	Water	X	N/A
EPA 200.8	Water	X	N/A
EPA 245.1-Diss	Water	X	N/A
EPA 245.1	Water	X	N/A
EPA 300.0	Water	X	N/A
Filtration	Water	N/A	N/A
SM 2540D	Water	X	X
SM2540C	Water	X	N/A
SM4500CN-E	Water	X	N/A

*Nevada and NELAP provide analyte specific accreditations. Analyte specific information for TestAmerica may be obtained by contacting the laboratory or visiting our website at [www.testamericainc.com](http://www.testamericainc.com)*

### Subcontracted Laboratories

### TestAmerica Irvine

Debby Wilson  
Project Manager

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**IUK2640 <Page 35 of 37>**

MWH-Pasadena/Boeing  
618 Michillinda Avenue, Suite 200  
Arcadia, CA 91007  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK2640

Sampled: 11/20/11-11/21/11  
Received: 11/21/11

## Eberline Services - SUB

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: Gamma Spec  
Samples: IUK2640-02, IUK2640-03

Analysis Performed: Gross Alpha  
Samples: IUK2640-02, IUK2640-03

Analysis Performed: Gross Beta  
Samples: IUK2640-02, IUK2640-03

Analysis Performed: Radium, Combined  
Samples: IUK2640-02, IUK2640-03

Analysis Performed: Strontium 90  
Samples: IUK2640-02, IUK2640-03

Analysis Performed: Tritium  
Samples: IUK2640-02

Analysis Performed: Uranium, Combined  
Samples: IUK2640-02, IUK2640-03

Method Performed: 8696  
Samples: IUK2640-02, IUK2640-03

Method Performed: 900  
Samples: IUK2640-02, IUK2640-03

Method Performed: 901.1  
Samples: IUK2640-02, IUK2640-03

Method Performed: 903.1  
Samples: IUK2640-02, IUK2640-03

Method Performed: 904  
Samples: IUK2640-02, IUK2640-03

Method Performed: 905  
Samples: IUK2640-02, IUK2640-03

Method Performed: 906  
Samples: IUK2640-02

## TestAmerica Irvine

Debby Wilson  
Project Manager



MWH-Pasadena/Boeing  
618 Michillinda Avenue, Suite 200  
Arcadia, CA 91007  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 009  
Routine Outfall 009  
Report Number: IUK2640

Sampled: 11/20/11-11/21/11  
Received: 11/21/11

**TestAmerica West Sacramento** *NELAC Cert #1119CA, Nevada Cert #CA44*

880 Riverside Parkway - West Sacramento, CA 95605

Method Performed: EPA-5 1613B

Samples: IUK2640-02

**TestAmerica Irvine**

Debby Wilson  
Project Manager



TUK2640

Client Name/Address: MWH-Arcadia 618 Michillinda Ave, Suite 200 Arcadia, CA 91007  Test America Contact: Debby Wilson				Project: Boeing-SSFL NPDES <b>Routine Outfall 009 COMPOSITE</b> Stormwater at SW-13			ANALYSIS REQUIRED																																
Project Manager: Bronwyn Kelly  Sampler: <b>RICK BANAGN</b>				Phone Number: (626) 568-6691  Fax Number: (626) 568-6515			Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, Tl	TCDD (and all congeners)	Cl <sup>-</sup> , SO <sub>4</sub> , NO <sub>3</sub> +NO <sub>2</sub> -N	TDS, TSS	Total Dissolved Metals: Sb, Cd, Cu, Pb, Hg, Tl	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)	Chromic Toxicity	Cyanide											Comments														
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, Tl	TCDD (and all congeners)	Cl <sup>-</sup> , SO <sub>4</sub> , NO <sub>3</sub> +NO <sub>2</sub> -N	TDS, TSS	Total Dissolved Metals: Sb, Cd, Cu, Pb, Hg, Tl	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)	Chromic Toxicity	Cyanide											Comments														
Outfall 009	W	1L Poly	1	<b>11-20-2011 17:50</b>	HNO <sub>3</sub>	2A	X																																
Outfall 009 Dup	W	1L Poly	1		HNO <sub>3</sub>	2B	X																																
Outfall 009	W	1L Amber	2		None	3A, 3B		X																															
Outfall 009	W	500 mL Poly	2		None	4A, 4B		X																															
Outfall 009	W	500 mL Poly	1		None	5			X																														
Outfall 009	W	1L Poly	1		None	6				X																												Filter w/in 24hrs of receipt at lab	
Outfall 009	W	2.5 Gal Cube	1	<b>11-20-2011 17:50</b>	None	7A						X																										Unfiltered and unpreserved analysis	
		500 mL Amber	1		None	7B																																	
<del>Outfall 009</del>	<del>W</del>	<del>1 Gal Poly</del>	<del>1</del>	<del></del>	<del>None</del>	<del>8</del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>	<del>Only test if first or second rain events of the year</del>
Outfall 009	W	500 mL Poly	1	<b>11-20-2011 17:50</b>	NaOH	9								X																									

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

These must be added to the same work order for COC Page 1 of 2 for Outfall 009 for the same event.

Relinquished By <i>Rain King</i>	Date/Time: 11-21-2011 12:30	Received By <i>Matt C...</i>	Date/Time: 11-21-11 12:30	Turn-around time: (Check) 24 Hour: _____ 72 Hour: _____ 10 Day: _____ 48 Hour: _____ 5 Day: _____ Normal: <b>X</b>
Relinquished By <i>Matt C...</i>	Date/Time: 11-21-11 18:35	Received By <i>Stephanie...</i>	Date/Time: 11/21/11 18:35	Sample Integrity: (Check) Intact: <b>✓</b> On Ice: <b>✓</b>
Relinquished By	Date/Time:	Received By	Date/Time:	Data Requirements: (Check) No Level IV: _____ All Level IV: _____ NPDES Level IV: <b>X</b>



**EBERLINE**  
SERVICES

**EBERLINE ANALYTICAL CORPORATION**  
2030 Wright Avenue  
Richmond, California 94804-3849  
Phone (510) 235-2633 Fax (510) 235-0438  
Toll Free (800) 841-5487  
[www.eberlineservices.com](http://www.eberlineservices.com)

December 13, 2011

Ms. Debby Wilson  
Test America Irvine  
17461 Derian Ave., Ste. 100  
Irvine, CA 92614

**Reference: Test America-Irvine IUK2640**  
**Eberline Analytical Report S111064-8696**  
**Sample Delivery Group 8696**

Dear Ms. Wilson:

Enclosed is a Level IV CLP-like data package (on CD) for two water samples received under Test America Job No. IUK2640. The samples were received on November 23, 2011.

Please call me, if you have any questions concerning the enclosed report.

Sincerely,

Joseph Verville  
Client Services Manager

NJV/mw

Enclosure: *Level IV CLP-like Data Package CD*

### 1.0 General Comments

Sample delivery group 8696 consists of the analytical results and supporting documentation for two water samples. Sample ID's and reference dates/times are given in the Sample Summary section of the Summary Data report. The samples were received as stated on the chain-of-custody document. Any discrepancies are noted on the Eberline Analytical Sample Receipt Checklist. No holding times were exceeded.

Tritium and gamma analyses were performed on the samples as received i.e. the samples were not filtered. The analytical volumes for all other analyses were subjected to a full nitric acid/hydrofluoric acid dissolution, and analyses were performed on the dissolution volumes.

### 2.0 Quality Control

Quality Control Samples consisted of laboratory control samples (LCS), method blanks, and duplicate analyses. Included in the data package are copies of the Eberline Analytical radiometrics data sheets. The radiometrics data sheets for the QC LCS and QC blank samples indicate Eberline Analytical's standard QC aliquot of 1.0 sample; results for those QC types are calculated as pCi/sample. The QC LCS and QC blank sample results reported in the Summary Data Section have been divided by the appropriate method specific aliquot (see the Lab Method Summaries for specific aliquots) in order to make the results comparable to the field sample results. All QC sample results were within required control limits.

### 3.0 Method Errors

The error for each result is an estimate of the significant random uncertainties incurred in the measurement process. These are propagated to each final result. They include the counting (Poisson) uncertainty, as well as those intrinsic errors due to carrier or tracer standardization, aliquoting, counter efficiencies, weights, or volumes. The following method errors were propagated to the count error to calculate the  $2\sigma$  error (Total):

Analysis	Method Error
Gross alpha	20.6%
Gross beta	11.0%
Tritium	10.0%
Sr-90	10.4%
Ra-226	16.4%
Ra-228	10.4%
Uranium, Total	
Gamma Spec.	7.0%

**4.0 Analysis Notes**

- 4.1 Gross Alpha/Gross Beta Analysis** – No problems were encountered during the processing of the samples. All quality control sample results were within required control limits.
- 4.2 Tritium Analysis** – No problems were encountered during the processing of the samples. All quality control sample results were within required control limits.
- 4.3 Strontium-90 Analysis** – No problems were encountered during the processing of the samples. All quality control sample results were within required control limits.
- 4.4 Radium-226 Analysis** – No problems were encountered during the processing of the samples. All quality control sample results were within required control limits.
- 4.5 Radium-228 Analysis** - No problems were encountered during the processing of the samples. All quality control sample results were within required control limits.
- 4.6 Total Uranium Analysis** - No problems were encountered during the processing of the samples. All quality control sample results were within required control limits.
- 4.7 Gamma Spectroscopy** – No problems were encountered during the processing of the samples. All quality control sample results were within required control limits.

**5.0 Case Narrative Certification Statement**

**"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."**

  
\_\_\_\_\_  
**Joseph Verville**  
**Client Services Manager**

12/13/11  
Date

EBERLINE ANALYTICAL  
SDG 8696

SDG 8696  
Contact Joseph Verville

Client Test America, Inc.  
Contract IUK2640

S U M M A R Y   D A T A   S E C T I O N

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Prepared by

  
Reviewed by

Lab id EAS  
Protocol TA  
Version Ver 1.0  
Form DVD-TOC  
Version 3.06  
Report date 12/12/11

EBERLINE ANALYTICAL

SDG 8696

SDG 8696  
Contact Joseph Verville

REPORT GUIDE

Client Test America, Inc.  
Contract IUK2640

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DUPLICATES

REPORT GUIDES

Page 1

SUMMARY DATA SECTION

Page 1

Lab id EAS  
Protocol TA  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 12/12/11