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RECEIVED NOV. 2012 NMED Hazardous Waste Bureau

Los Alamos
NATIONAL LABORATORY
EST. 1943

Environmental Protection Division
Water Quality & RCRA Group (ENV-RCRA)
P.O. Box 1663, Mail Stop K490
Los Alamos, New Mexico 87545
(505) 667-0666

Date: NOV 0 2 2012
Refer To: ENV-RCRA-12-0242
LAUR: 12-25701

Mr. Jerry Schoeppner, Chief
Ground Water Quality Bureau
New Mexico Environment Department
Harold Runnels Building, Room N2250
1190 St. Francis Drive
P.O. Box 26110
Santa Fe, NM 87502

Dear Mr. Schoeppner:

SUBJECT: DP-857, SIGMA MESA EVAPORATION BASINS, LEAK COLLECTION SUMP ANALYTICAL RESULTS

In accordance with the terms and conditions of Discharge Permit DP-857 (modified October 1, 2002), Los Alamos National Security, LLC (LANS) is required to conduct monthly inspections of the leak collection sumps at the Sanitary Effluent Reclamation Facility's (SERF) Sigma Mesa evaporation basins. In the event that liquid is present in a sump, LANS is also required to sample the contents of the sump and submit the analytical results to the New Mexico Environment Department (NMED) Ground Water Quality Bureau. On August 29, 2012, water was discovered in the east leak collection sump of the southwest evaporation basin. Water quality samples were collected from the east leak collection sump on September 11, 2012. The following enclosures provide the NMED with the analytical results from this sampling event:

- Enclosure 1 contains a summary of detected organic compounds and all general inorganics and metals results.

35556

- Enclosure 2 contains copies the analytical data reports from GEL Laboratories LLC.

All results were less than the New Mexico Water Quality Commission (NMWQCC) Regulation 3103 standards for ground water with the exception of the following:

Regulation 3103 Contaminant	Result	Regulation 3103 Standard
Boron	1,260 µg/L	750 µg/L
Chloride	7,440 mg/L	250 mg/L
Total Dissolved Solids (TDS)	14,000 mg/L	1,000 mg/L

Field conductivity and pH measurements taken from water in both the east leak collection sump and the southwest evaporation basin were essentially identical.

Please contact Robert S. Beers by telephone at (505) 667-7969 or by email at bbeers@lanl.gov if you have questions regarding the enclosed water quality data.

Sincerely,

Michael T. Saladen
Group Leader, (Acting)
Water Quality & RCRA Group (ENV-RCRA)
Los Alamos National Security, LLC

MTS:RSB/lm

Enclosures:
1. Table 1. Summary of Water Quality Sampling Results, Southwest SERF Evaporation Basin, East Leak Collection Sump
2. Copies of Analytical Data Reports, GEL Laboratories LLC

Cy: James Hogan, NMED/SWQB, Santa Fe, NM, w/enc.
John E. Kieling, NMED/HWB, Santa Fe, NM, w/enc.
Stephen M. Yanicak, NMED/DOE/OB, w/enc., (E-File)
Gene E. Turner, LASO-EPO, w/enc., (E-File)
Hai Shen, LASO-EPO, w/enc., (E-File)
Carl A. Beard, PADOPS, w/o enc., A102
Michael T. Brandt, ADESH, w/o enc., (E-File)
Alison M. Dorries, ENV-DO, w/o enc., (E-File)
Andrew W. Erickson, UI-DO, w/enc., (E-File)

Cy (continued):
Gary F. Blauert, ES-UI, w/enc., (E-File)
Mark Trujillo, ES-UI, w/enc., (E-File)
Robert S. Beers, ENV-RCRA, w/enc., K490
IRM-RMMSO, w/enc., (E-File)
ENV-RCRA, Correspondence File, w/enc., K490

ENCLOSURE 1

Table 1. Summary of Water Quality Sampling Results, Southwest SERF Evaporation Basin, East Leak Collection Sump

ENV-RCRA-12-0242

LAUR-12-25701

Date: NOV 0 2 2012

Table 1. Summary of Water Quality Sampling Results, Southwest SERF Evaporation Basin, East Leak Collection Sump.

Location	Sample Date	Parameter Name	Result	20.6.2.3103 NMAC	Units	Lab Qualifier	Detect Flag	Validation Qualifier	Field Sample ID
SW SERF Evap Basin_East Standpipe	9/11/2012	Acetone	14.9	na	ug/L		Y	NQ	SWWS50-12-23285
SW SERF Evap Basin_East Standpipe	9/11/2012	Chloroform	1.52	100	ug/L		Y	NQ	SWWS50-12-23285
SW SERF Evap Basin_East Standpipe	9/11/2012	Methylene Chloride	4.25	100	ug/L	J	Y	J	SWWS50-12-23285
SW SERF Evap Basin_East Standpipe	9/11/2012	Gross alpha	-12.9	na	pCi/L	U	N	U	SWWS50-12-23285
SW SERF Evap Basin_East Standpipe	9/11/2012	Radium-226	0.317	30*	pCi/L	U	N	U	SWWS50-12-23285
SW SERF Evap Basin_East Standpipe	9/11/2012	Radium-228	1.04	30*	pCi/L		Y	NQ	SWWS50-12-23285
SW SERF Evap Basin_East Standpipe	9/11/2012	Mercury (total)	0.067	2	ug/L	U	N	U	SWWS50-12-23285
SW SERF Evap Basin_East Standpipe	9/11/2012	Silver	0.2	50	ug/L	U	N	U	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Aluminum	68	5000	ug/L	U	N	U	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Arsenic	11.2	100	ug/L		Y	NQ	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Boron	1260	750	ug/L		Y	NQ	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Barium	42.2	1000	ug/L		Y	NQ	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Cadmium	1.1	10	ug/L	UN	N	UJ	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Chloride	7440	250	mg/L		Y	NQ	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Cobalt	1	50	ug/L	U	N	U	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Chromium	5.26	50	ug/L	J	N	U	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Copper	13.4	1000	ug/L		Y	NQ	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Iron	30	1000	ug/L	U	N	U	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Mercury	0.067	2	ug/L	U	N	U	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Manganese	11.6	200	ug/L		Y	NQ	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Molybdenum	97.7	1000	ug/L	E	Y	NQ	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Nickel	7.13	200	ug/L		Y	NQ	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Lead	0.5	50	ug/L	U	N	U	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Selenium	12.4	50	ug/L	JN	Y	J-	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Uranium	1.68	30	ug/L	U	N	U	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Zinc	6.71	10000	ug/L	J	Y	J	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Ammonia as Nitrogen	0.84	na	mg/L		Y	NQ	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Nitrate-Nitrite as Nitrogen	0.0224	10	mg/L	J	Y	J	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Total Dissolved Solids	14000	1000	mg/L		Y	NQ	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Total Kjeldahl Nitrogen	5.55	na	mg/L		Y	J-	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Sulfate	348	600	mg/L		Y	NQ	SWWS50-12-23287
SW SERF Evap Basin_East Standpipe	9/11/2012	Fluoride	0.718	1.6	mg/L		Y	NQ	SWWS50-12-23287

***NMWQCC 3103 Ground Water Std: combined Ra-226 and Ra-228.**

ENCLOSURE 2

Copies of Analytical Data Reports, GEL Laboratories LLC

ENV-RCRA-12-0242

LAUR-12-25701

Date: NOV 0 2 2012

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1551**	**Date Collected:**	**09/11/2012 14:00**	**Matrix:**	**W**
Lab Sample ID:	**311164001**	**Date Received:**	**09/13/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**SWWS50-12-23285**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1248391**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**09/25/2012 11:23**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**09/25/2012 11:23**				
Data File:	**092512V3\3D209.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
75-71-8	Dichlorodifluoromethane	U	1.00	ug/L	0.300	1.00
74-87-3	Chloromethane	U	1.00	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	1.00	ug/L	0.300	1.00
74-83-9	Bromomethane	U	1.00	ug/L	0.300	1.00
75-00-3	Chloroethane	U	1.00	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	1.00	ug/L	0.300	1.00
60-29-7	Ethyl ether	U	1.00	ug/L	0.300	1.00
67-64-1	Acetone		14.9	ug/L	3.00	10.0
75-05-8	Acetonitrile	U	25.0	ug/L	8.00	25.0
75-35-4	1,1-Dichloroethylene	U	1.00	ug/L	0.300	1.00
74-88-4	Iodomethane	U	5.00	ug/L	1.50	5.00
75-09-2	Methylene chloride	J	4.25	ug/L	3.00	10.0
75-15-0	Carbon disulfide	U	5.00	ug/L	1.50	5.00
1634-04-4	tert-Butyl methyl ether	U	1.00	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
108-05-4	Vinyl acetate	U	5.00	ug/L	1.50	5.00
75-34-3	1,1-Dichloroethane	U	1.00	ug/L	0.300	1.00
78-93-3	2-Butanone	U	5.00	ug/L	2.00	5.00
156-59-2	cis-1,2-Dichloroethylene	U	1.00	ug/L	0.300	1.00
594-20-7	2,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
67-66-3	Chloroform		1.52	ug/L	0.300	1.00
74-97-5	Bromochloromethane	U	1.00	ug/L	0.300	1.00
71-55-6	1,1,1-Trichloroethane	U	1.00	ug/L	0.300	1.00
563-58-6	1,1-Dichloropropene	U	1.00	ug/L	0.300	1.00
71-36-3	n-Butyl alcohol	U	50.0	ug/L	15.0	50.0
56-23-5	Carbon tetrachloride	U	1.00	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	1.00	ug/L	0.300	1.00
71-43-2	Benzene	U	1.00	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	1.00	ug/L	0.300	1.00
78-87-5	1,2-Dichloropropane	U	1.00	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	1.00	ug/L	0.300	1.00
74-95-3	Dibromomethane	U	1.00	ug/L	0.300	1.00
108-10-1	4-Methyl-2-pentanone	U	5.00	ug/L	1.50	5.00
10061-01-5	cis-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
108-88-3	Toluene	U	1.00	ug/L	0.300	1.00
10061-02-6	trans-1,3-Dichloropropylene	U	1.00	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	1.00	ug/L	0.300	1.00
591-78-6	2-Hexanone	U	5.00	ug/L	2.20	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1551**	**Date Collected:**	**09/11/2012 14:00**	**Matrix:**	**W**
Lab Sample ID:	**311164001**	**Date Received:**	**09/13/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**SWWS50-12-23285**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1248391**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**09/25/2012 11:23**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**09/25/2012 11:23**				
Data File:	**092512V3\3D209.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
142-28-9	1,3-Dichloropropane	U	1.00	ug/L	0.300	1.00
127-18-4	Tetrachloroethylene	U	1.00	ug/L	0.300	1.00
124-48-1	Dibromochloromethane	U	1.00	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	1.00	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	1.00	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	1.00	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	2.00	ug/L	0.300	2.00
95-47-6	o-Xylene	U	1.00	ug/L	0.300	1.00
100-42-5	Styrene	U	1.00	ug/L	0.300	1.00
75-25-2	Bromoform	U	1.00	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
96-18-4	1,2,3-Trichloropropane	U	1.00	ug/L	0.300	1.00
108-86-1	Bromobenzene	U	1.00	ug/L	0.300	1.00
103-65-1	n-Propylbenzene	U	1.00	ug/L	0.300	1.00
95-49-8	2-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-82-8	Isopropylbenzene	U	1.00	ug/L	0.300	1.00
108-67-8	1,3,5-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
106-43-4	4-Chlorotoluene	U	1.00	ug/L	0.300	1.00
98-06-6	tert-Butylbenzene	U	1.00	ug/L	0.300	1.00
95-63-6	1,2,4-Trimethylbenzene	U	1.00	ug/L	0.300	1.00
135-98-8	sec-Butylbenzene	U	1.00	ug/L	0.300	1.00
99-87-6	4-Isopropyltoluene	U	1.00	ug/L	0.300	1.00
541-73-1	1,3-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
106-46-7	1,4-Dichlorobenzene	U	1.00	ug/L	0.300	1.00
104-51-8	n-Butylbenzene	U	1.00	ug/L	0.300	1.00
96-12-8	1,2-Dibromo-3-chloropropane	U	1.00	ug/L	0.300	1.00
87-68-3	Hexachlorobutadiene	U	1.00	ug/L	0.300	1.00
91-20-3	Naphthalene	U	1.00	ug/L	0.400	1.00
87-61-6	1,2,3-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
107-02-8	Acrolein	U	5.00	ug/L	1.50	5.00
76-13-1	Trichlorotrifluoroethane	U	5.00	ug/L	1.50	5.00
107-05-1	Allyl chloride	U	5.00	ug/L	1.50	5.00
107-13-1	Acrylonitrile	U	5.00	ug/L	1.50	5.00
126-99-8	2-Chloro-1,3-butadiene	U	1.00	ug/L	0.300	1.00
107-12-0	Propionitrile	U	5.00	ug/L	1.50	5.00
126-98-7	Methacrylonitrile	U	5.00	ug/L	1.50	5.00
78-83-1	Isobutyl alcohol	U	50.0	ug/L	15.0	50.0
80-62-6	Methyl methacrylate	U	5.00	ug/L	1.50	5.00

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1551**	**Date Collected:**	**09/11/2012 14:00**	**Matrix:**	**W**
Lab Sample ID:	**311164001**	**Date Received:**	**09/13/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**SWWS50-12-23285**	**Method:**	**SW846 8260B DOE-AL**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1248391**	**Inst:**	**VOA3.I**	**Dilution:**	**1**
Run Date:	**09/25/2012 11:23**	**Analyst:**	**CDS1**	**Purge Vol:**	**5 mL**
Prep Date:	**09/25/2012 11:23**				
Data File:	**092512V3\3D209.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
97-63-2	Ethyl methacrylate	U	5.00	ug/L	1.50	5.00
630-20-6	1,1,1,2-Tetrachloroethane	U	1.00	ug/L	0.300	1.00
120-82-1	1,2,4-Trichlorobenzene	U	1.00	ug/L	0.300	1.00
95-50-1	1,2-Dichlorobenzene	U	1.00	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	53.8	50.0	ug/L	108	(80%-123%)
Bromofluorobenzene	48.8	50.0	ug/L	97.5	(80%-120%)
Toluene-d8	52.9	50.0	ug/L	106	(80%-120%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1551**	**Date Collected:**	**09/11/2012 14:00**	**Matrix:**	**W**
Lab Sample ID:	**311164001**	**Date Received:**	**09/13/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**SWWS50-12-23285**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1246778**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**09/20/2012 18:18**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**09/18/2012 10:05**	**Aliquot:**	**850 mL**	**Final Volume:**	**1 mL**
Data File:	**S092012a.B\s3i2026.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
62-75-9	N-Methyl-N-nitrosomethylamine	U	11.8	ug/L	3.53	11.8
110-86-1	Pyridine	U	11.8	ug/L	3.53	11.8
62-53-3	Aniline	U	11.8	ug/L	3.53	11.8
108-95-2	Phenol	U	11.8	ug/L	3.53	11.8
111-44-4	bis(2-Chloroethyl) ether	U	11.8	ug/L	3.53	11.8
95-57-8	2-Chlorophenol	U	11.8	ug/L	3.53	11.8
541-73-1	1,3-Dichlorobenzene	U	11.8	ug/L	3.53	11.8
106-46-7	1,4-Dichlorobenzene	U	11.8	ug/L	3.53	11.8
95-50-1	1,2-Dichlorobenzene	U	11.8	ug/L	3.53	11.8
39638-32-9	bis(2-Chloroisopropyl)ether	U	11.8	ug/L	3.53	11.8
100-51-6	Benzyl alcohol	U	11.8	ug/L	3.53	11.8
95-48-7	o-Cresol	U	11.8	ug/L	3.53	11.8
65794-96-9	m,p-Cresols	U	11.8	ug/L	3.53	11.8
621-64-7	N-Nitrosodi--n-propylamine *N-Nitrosodipropylamine*	U	11.8	ug/L	3.53	11.8
67-72-1	Hexachloroethane	U	11.8	ug/L	3.53	11.8
98-95-3	Nitrobenzene	U	11.8	ug/L	3.53	11.8
78-59-1	Isophorone	U	11.8	ug/L	3.53	11.8
88-75-5	2-Nitrophenol	U	11.8	ug/L	3.53	11.8
105-67-9	2,4-Dimethylphenol	U	11.8	ug/L	3.53	11.8
111-91-1	bis(2-Chloroethoxy)methane	U	11.8	ug/L	3.53	11.8
120-83-2	2,4-Dichlorophenol	U	11.8	ug/L	3.53	11.8
65-85-0	Benzoic acid	U	23.5	ug/L	7.06	23.5
106-47-8	4-Chloroaniline	U	11.8	ug/L	3.88	11.8
87-68-3	Hexachlorobutadiene	U	11.8	ug/L	3.53	11.8
59-50-7	Parachlorometa cresol *4-Chloro-3-methylphenol*	U	11.8	ug/L	3.53	11.8
91-57-6	2-Methylnaphthalene	U	1.18	ug/L	0.353	1.18
91-20-3	Naphthalene	U	1.18	ug/L	0.353	1.18
90-12-0	1-Methylnaphthalene	U	1.18	ug/L	0.353	1.18
77-47-4	Hexachlorocyclopentadiene	U	11.8	ug/L	3.53	11.8
88-06-2	2,4,6-Trichlorophenol	U	11.8	ug/L	3.53	11.8
95-95-4	2,4,5-Trichlorophenol	U	11.8	ug/L	3.53	11.8
91-58-7	2-Chloronaphthalene	U	1.18	ug/L	0.353	1.18
88-74-4	2-Nitroaniline *o-Nitroaniline*	U	11.8	ug/L	3.53	11.8
99-09-2	3-Nitroaniline *m-Nitroaniline*	U	11.8	ug/L	3.53	11.8
131-11-3	Dimethylphthalate	U	11.8	ug/L	3.53	11.8
606-20-2	2,6-Dinitrotoluene	U	11.8	ug/L	3.53	11.8

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1551**	**Date Collected:**	**09/11/2012 14:00**	**Matrix:**	**W**
Lab Sample ID:	**311164001**	**Date Received:**	**09/13/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**SWWS50-12-23285**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1246778**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**09/20/2012 18:18**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**09/18/2012 10:05**	**Aliquot:**	**850 mL**	**Final Volume:**	**1 mL**
Data File:	**S092012a.B\s3i2026.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
121-14-2	2,4-Dinitrotoluene	U	11.8	ug/L	3.53	11.8
208-96-8	Acenaphthylene	U	1.18	ug/L	0.353	1.18
83-32-9	Acenaphthene	U	1.18	ug/L	0.353	1.18
51-28-5	2,4-Dinitrophenol	U	23.5	ug/L	5.88	23.5
132-64-9	Dibenzofuran	U	11.8	ug/L	3.53	11.8
58-90-2	2,3,4,6-Tetrachlorophenol	U	11.8	ug/L	3.53	11.8
84-66-2	Diethylphthalate	U	11.8	ug/L	3.53	11.8
100-02-7	4-Nitrophenol	U	11.8	ug/L	3.53	11.8
86-73-7	Fluorene	U	1.18	ug/L	0.353	1.18
7005-72-3	4-Chlorophenylphenylether	U	11.8	ug/L	3.53	11.8
100-01-6	4-Nitroaniline *p-Nitroaniline*	U	11.8	ug/L	3.53	11.8
534-52-1	2-Methyl-4,6-dinitrophenol	U	11.8	ug/L	3.53	11.8
122-39-4	Diphenylamine	U	11.8	ug/L	3.53	11.8
122-66-7	Azobenzene *1,2-Diphenylhydrazine*	U	11.8	ug/L	3.53	11.8
101-55-3	4-Bromophenylphenylether	U	11.8	ug/L	3.53	11.8
118-74-1	Hexachlorobenzene	U	11.8	ug/L	3.53	11.8
87-86-5	Pentachlorophenol	U	11.8	ug/L	3.53	11.8
88-85-7	Dinoseb	U	11.8	ug/L	3.53	11.8
85-01-8	Phenanthrene	U	1.18	ug/L	0.353	1.18
120-12-7	Anthracene	U	1.18	ug/L	0.353	1.18
84-74-2	Di-n-butylphthalate	U	11.8	ug/L	3.53	11.8
206-44-0	Fluoranthene	U	1.18	ug/L	0.353	1.18
129-00-0	Pyrene	U	1.18	ug/L	0.353	1.18
85-68-7	Butylbenzylphthalate	U	11.8	ug/L	3.53	11.8
117-81-7	bis(2-Ethylhexyl)phthalate	U	11.8	ug/L	3.53	11.8
56-55-3	Benzo(a)anthracene	U	1.18	ug/L	0.353	1.18
218-01-9	Chrysene	U	1.18	ug/L	0.353	1.18
117-84-0	Di-n-octylphthalate	U	11.8	ug/L	3.53	11.8
205-99-2	Benzo(b)fluoranthene	U	1.18	ug/L	0.353	1.18
207-08-9	Benzo(k)fluoranthene	U	1.18	ug/L	0.353	1.18
50-32-8	Benzo(a)pyrene	U	1.18	ug/L	0.518	1.18
193-39-5	Indeno(1,2,3-cd)pyrene	U	1.18	ug/L	0.353	1.18
53-70-3	Dibenzo(a,h)anthracene	U	1.18	ug/L	0.353	1.18
191-24-2	Benzo(ghi)perylene	U	1.18	ug/L	0.353	1.18
123-91-1	1,4-Dioxane	U	11.8	ug/L	3.53	11.8
55-18-5	N-Nitrosodiethylamine	U	11.8	ug/L	3.53	11.8
930-55-2	N-Nitrosopyrrolidine	U	11.8	ug/L	3.53	11.8

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**12-1551**	**Date Collected:**	**09/11/2012 14:00**	**Matrix:**	**W**
Lab Sample ID:	**311164001**	**Date Received:**	**09/13/2012 08:55**		
		Client:	**ARSL001**	**Project:**	**ESHL00210**
Client ID:	**SWWS50-I2-23285**	**Method:**	**SW846 8270C**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1246778**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**09/20/2012 18:18**	**Analyst:**	**JLD1**	**Inj. Vol:**	**I uL**
Prep Date:	**09/18/2012 10:05**	**Aliquot:**	**850 mL**	**Final Volume:**	**1 mL**
Data File:	**S092012a.B\s3i2026.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
924-16-3	N-Nitrosodi-n-butylamine	U	11.8	ug/L	3.53	11.8
95-94-3	1,2,4,5-Tetrachlorobenzene	U	11.8	ug/L	3.53	11.8
608-93-5	Pentachlorobenzene	U	11.8	ug/L	3.53	11.8
1912-24-9	Atrazine	U	11.8	ug/L	3.53	11.8
92-87-5	Benzidine	U	11.8	ug/L	3.53	11.8
91-94-1	3,3'-Dichlorobenzidine	U	11.8	ug/L	3.53	11.8
120-82-1	1,2,4-Trichlorobenzene	U	11.8	ug/L	3.53	11.8

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	74.8	118	ug/L	63.6	(26%-131%)
2-Fluorobiphenyl	25.4	58.8	ug/L	43.1	(29%-102%)
2-Fluorophenol	43.6	118	ug/L	37.0	(15%-78%)
Nitrobenzene-d5	31.7	58.8	ug/L	53.8	(36%-125%)
Phenol-d5	26.9	118	ug/L	22.9	(10%-72%)
p-Terphenyl-d14	32.1	58.8	ug/L	54.5	(31%-133%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	1.903	37.3	ug/L	0	J
000110-83-8	Cyclohexene	2.023	21.9	ug/L	93	NJ
000068-12-2	Formamide, N,N-dimethyl-	2.651	10.3	ug/L	91	NJ
	unknown	2.73	8.28	ug/L	0	J
	unknown	2.949	6.44	ug/L	0	J
000112-36-7	Ethane, 1,1'-oxybis[2-ethoxy-]	4.836	4.82	ug/L	90	NJ
	unknown	8.137	10.2	ug/L	0	J
	unknown	8.376	4.73	ug/L	0	J

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METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 12-1551 **METHOD TYPE:** EPA

SAMPLE ID: 311164001 **CLIENT ID:** SWWS50-12-23285

CONTRACT: ESHL00210

MATRIX: W **DATE RECEIVED** 13-SEP-12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439-97-6	Mercury	0.067	ug/L	U		AV	0.067	1	MER536	092512W1-6

***Analytical Methods:**

AV EPA 245.1/245.2

METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 12-1551 **METHOD TYPE:** EPA

SAMPLE ID: 311164002 **CLIENT ID:** SWWS50-12-23287

CONTRACT: ESHL00210

MATRIX: W **DATE RECEIVED** 13-SEP-12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7439-97-6	Mercury	0.067	ug/L	U		AV	0.067	1	MER536	092512W1-6
7429-90-5	Aluminum	68	ug/L	U		P	68	1	OPTIMA5	092512D-2
7440-36-0	Antimony	3.19	ug/L			MS	1	1	ICPMS7	120924-3
7440-38-2	Arsenic	11.2	ug/L			MS	1.7	1	ICPMS7	120924-3
7440-39-3	Barium	42.2	ug/L			P	1	1	OPTIMA5	092512D-2
7440-41-7	Beryllium	1	ug/L	U		P	1	1	OPTIMA5	092512D-2
7440-42-8	Boron	1260	ug/L			P	15	1	OPTIMA5	092512D-2
7440-43-9	Cadmium	1.1	ug/L	U	N	MS	1.1	10	ICPMS7	120926-4
7440-70-2	Calcium	9780	ug/L			P	50	1	OPTIMA5	092512D-2
7440-47-3	Chromium	5.26	ug/L	J		MS	2	1	ICPMS7	120924-3
7440-48-4	Cobalt	1	ug/L	U		P	1	1	OPTIMA5	092512D-2
7440-50-8	Copper	13.4	ug/L			P	3	1	OPTIMA5	092512D-2
7439-89-6	Iron	30	ug/L	U		P	30	1	OPTIMA5	092512D-2
7439-92-1	Lead	0.5	ug/L	U		MS	0.5	1	ICPMS7	120924-3
7439-95-4	Magnesium	6040	ug/L			P	110	1	OPTIMA5	092512D-2
7439-96-5	Manganese	11.6	ug/L			P	2	1	OPTIMA5	092512D-2
7439-98-7	Molybdenum	97.7	ug/L		E	MS	0.825	5	ICPMS7	120926-4
7440-02-0	Nickel	7.13	ug/L			MS	0.5	1	ICPMS7	120924-3
7440-09-7	Potassium	115000	ug/L			P	1000	20	OPTIMA5	092712A-1
7782-49-2	Selenium	12.4	ug/L	J	N	MS	7.5	5	ICPMS7	120926-4
7440-22-4	Silver	0.2	ug/L	U		MS	0.2	1	ICPMS7	120924-3
7440-23-5	Sodium	4620000	ug/L			P	2000	20	OPTIMA5	092712A-1
7440-24-6	Strontium	183	ug/L			P	1	1	OPTIMA5	092512D-2
7440-28-0	Thallium	11.3	ug/L	U		MS	11.3	25	ICPMS7	120927-5
7440-61-1	Uranium	1.68	ug/L	U		MS	1.68	25	ICPMS7	120927-5
7440-62-2	Vanadium	13.1	ug/L			P	1	1	OPTIMA5	092512D-2

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METALS
-1-
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 12-1551 **METHOD TYPE:** EPA

SAMPLE ID: 311164002 **CLIENT ID:** SWWS50-12-23287

CONTRACT: ESHL00210

MATRIX: W **DATE RECEIVED** 13-SEP-12 **LEVEL:** Low **%SOLIDS:**

CAS No	Analyte	Result	Units	C	Qual	M*	MDL	DF	Inst ID	Analytical Run
7440-66-6	Zinc	6.71	ug/L	J		P	3.3	1	OPTIMA5	092512D-2

***Analytical Methods:**

MS	SW846 3005/6020 DOE-AL
P	SW846 3005/6010B
AV	EPA 245.1/245.2

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: September 25, 2012

Company :	Los Alamos National Laboratory		
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545		
Contact:	Keith Greene	Client SDG:	12-1551
Project:	LANL-WQH Water Samples		

Client Sample ID:	SWWS50-12-23287	Project:	ESHL00210
Sample ID:	311164002	Client ID:	ARSL001
Matrix:	W		
Collect Date:	11-SEP-12 14:00		
Receive Date:	13-SEP-12		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA 300.0 Anions Liquid 28 day "As Received"											
Bromide		13.7	0.335	1.00	mg/L	5	MAR1	09/22/12	1515	1245934	1
Fluoride		0.718	0.165	0.500	mg/L	5					
Sulfate		348	2.66	8.00	mg/L	20	MAR1	09/22/12	1642	1245934	2
Chloride		7440	67.0	200	mg/L	1000	MAR1	09/22/12	1809	1245934	3
Nutrient Analysis											
EPA 350.1 Nitrogen, Ammonia L "As Received"											
Nitrogen, Ammonia		0.840	0.017	0.050	mg/L	1	KLP1	09/17/12	1453	1246663	4
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite	J	0.0224	0.017	0.050	mg/L	1	AXH3	09/14/12	0841	1246196	5
EPA 365.4 Phosphorus, Total in "As Received"											
Phosphorus, Total as P		0.127	0.017	0.050	mg/L	1	KLP1	09/18/12	1219	1246659	6
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl		5.55	0.175	0.500	mg/L	5	KLP1	09/18/12	1530	1246630	7
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		14000	3.40	14.3	mg/L		LYG1	09/14/12	0748	1246184	8

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	09/17/12	1220	1246661
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	09/17/12	1700	1246629
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	09/17/12	1700	1246631

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 300.0	
3	EPA 300.0	
4	EPA 350.1	
5	EPA 353.2	
6	EPA 365.4	
7	EPA 351.2	
8	EPA 160.1	

ENCLOSURE 2

GEL LABORATORIES LLC

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Certificate of Analysis

Company : Los Alamos National Laboratory
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

Report Date: September 25, 2012

Contact: Keith Greene
Project: LANL-WQH Water Samples

Client Sample ID: SWWS50-12-23285
Sample ID: 311164001
Matrix: W
Collect Date: 11-SEP-12
Receive Date: 13-SEP-12
Collector: Client

Project: ESHL00210
Client ID: ARSL001

Parameter	Qualifier	Result	Uncertainty	DL	TPU	RL	Units	DF	Analyst	Date Time	Batch	Mtd.
Rad Gas Flow Proportional Counting												
GFPC, Gross Alpha Liquid "As Received"												
Alpha	U	-12.9	+/-11.9	47.5	+/-11.9	3.00	pCi/L		CYH1	09/21/12 1718	1246298	1
GFPC, Ra228, Liquid "As Received"												
Radium-228		1.04	+/-0.232	0.603	+/-0.269	1.00	pCi/L		KDF1	09/19/12 1155	1246299	2
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226	U	0.317	+/-0.208	0.693	+/-0.210	1.00	pCi/L		KSD1	09/20/12 1255	1246139	3

The following Analytical Methods were performed

Method	Description
1	EPA 900.0/SW846 9310
2	EPA 904.0/SW846 9320 Modified
3	EPA 903.1 Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"	1246299	80.3	(50%-105%)

Notes:
TPU and Uncertainty are calculated at the 67% confidence level (1-sigma).