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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) 667-7969/FAX: (505) 665-9344

Date: April 19, 2011
Refer To: ENV-RCRA-11-0072
LA-UR: 11-10368

Mr. William C. Olson, Bureau Chief
Ground Water Quality Bureau
New Mexico Environment Department
Harold Runnels Building, Room N2261
1190 St. Francis Drive
P.O. Box 26110
Santa Fe, NM 87502

Dear Mr. Olson:

SUBJECT: GROUNDWATER DISCHARGE PLAN QUARTERLY REPORT, FIRST QUARTER 2011, SANITARY WASTEWATER SYSTEMS PLANT (DP-857)

This letter and enclosures are Los Alamos National Laboratory's quarterly report for the TA-46 Sanitary Wastewater Systems (SWWS) Plant Groundwater Discharge Plan (DP-857) for the first quarter (January, February, and March) of 2011.

Table 1.0 presents water quality data from sampling conducted at the TA-46 SWWS Plant's reuse wet well, NPDES Outfalls 001 and 03A027, and Cañada del Buey Observation Well (CDBO)-6 for the first quarter of 2011. All sample results presented in Table 1.0 are less than the New Mexico Water Quality Control Commission Regulation 3103 standards for groundwater. Enclosure 1.0 presents copies of the analytical reports prepared by General Engineering Laboratories, Inc.

Table 2.0 presents the water level in CDBO-6 for the first quarter of 2011.

Table 3.0 presents discharge volumes from the SWWS Plant's force main to TA-3, the Power Plant's NPDES Outfall 001, and the Strategic Computing Complex's (SCC) NPDES Outfall 03A027. In addition, Table 3.0 includes the volume of reuse water used by the SCC cooling towers; during the first quarter of 2011, the SCC cooling towers did not use any SWWS Plant reuse water or treated water from the Sanitary Effluent Reclamation Facility (SERF).

Table 4.0 and Enclosure 2.0 present the results from monthly inspections of the four leak collection standpipes at the SERF evaporation basins located on Sigma Mesa. The leak collection standpipes were dry or contained de minimis amounts of water on January 13, 2011. The February 24, 2011, inspection, however, showed water in the west basin's east inspection

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standpipe. The water was removed (pumped) on February 28, 2011. Additional information on corrective actions taken is provided below. All leak collection standpipes were dry or contained de minimis amounts of water during the March 17, 2011, inspection.

Water was discovered in the west basin's east inspection standpipe at a depth of approximately 2 ft on February 24, 2011. The water level in the west basin on February 24th was very low; approximately one-third (1/3) of the of the basin's floor was covered with water. During 2010-2011, the only source of water to the SERF basins was precipitation; no wastewater from the SERF or other Laboratory sources was discharge to the SERF basins in 2010-2011. By April 19, 2011, the dry winter conditions and spring winds had further reduced the water level in the west basin to less than 10%.

Since the discovery of water in the west basin's east inspection standpipe on February 24, 2011, the following corrective actions have been taken:

1. On February 28, 2011, the west basin's east inspection standpipe was pumped dry. The water removed, approximately 25 gal, was transferred to the east SERF basin.

2. The west basin's east inspection standpipe was monitored daily for 10 days after pumping. A minimal amount of water, less than 1-inch, returned to the inspection standpipe.

3. The west basin was taken off-line; wastewater discharges from the SERF will be directed to the east basin (Note: Currently, the SERF is not operating; operations may resume in the 2nd quarter of 2011).

4. On two occasions—March 10th and April 1st—air was injected through the west basin's inspection standpipes into the space between the primary and secondary liners in an attempt to locate the leak; both attempts failed to identify any holes in the primary liner.

5. The liner's installer, the Snow Company, Albuquerque, NM, was contacted for recommendations on finding the leak. Mr. Tom Snow thought that the leak was likely small (pinhole or seam) and he recommended that Los Alamos National Laboratory take the following steps to locate the leak:

   a) Pump all water out of the west basin and allow the west basin's floor to fully dry.

   b) Pump clean water into the west basin's inspection standpipes to fill the space between the primary and secondary liners.

   c) Early in the morning, before the liner heats up, carefully inspect the floor for leaking water or damp spots.

   The Laboratory will implement the Snow Company's recommendations by May 15, 2011. You agency will be notified following completion of this corrective action.

Please call me at (505) 667-7969 if you have questions regarding this report.

Sincerely,

Robert Beers
Water Quality & RCRA Group
BB/lm

Enclosures: a/s

Cy: Glenn Saums, NMED/SWQB, Santa Fe, NM, w/enc.
James Bearzi, NMED HWB, Santa Fe, NM, w/enc.
Hai Shen, LASO-EO, w/enc., A316
Gene Turner, LASO-EO, w/enc., A316
Steve Yanicak, LASO-GOV, w/enc., M894
Michael B. Mallory, PADOPS, w/o enc., A102
J. Chris Cantwell, ADESHQ, w/o enc., K491
Mike Saladen, ENV-RCRA, w/o enc., K490, (E-File)
Walter E. Atencio, ESHQ-DR, w/enc., P908
Mell Smithour, ES-UI, w/enc., K718
Charles Barnett, UI-OPS, w/enc., J972
ENV-RCRA File, w/enc., K490
IRM-RMMSO, w/enc., A150

Table 1.0 Water Quality Data: SWWS Plant Reuse Water, NPDES Outfalls 001 and 03A027, and CDBO-6. 1st Quarter, 2011.

Sampling Location	Field Prep[2]	Sample Date	Sample ID No.	TDS (mg/L)	Chloride (mg/L)	NO3+NO2-N (mg/L)	TKN (mg/L)	NH3-N (mg/L)
SWWS Plant								
SWWS Plant Reuse Wet Well[1]	UF	02/22/11	SWWS46-11-4854	521	152	0.19J	0.74	0.20
Sandia Canyon								
NPDES Outfall 001	UF	02/22/11	SWWS46-11-4852	505	121	0.47J	0.69	0.07
NPDES Outfall 03A027	UF	02/22/11	SWWS46-11-4853	397	14.3	0.86	0.68	0.05
Canada del Buey								
CDBO-6	F	02/24/11	CAPA-11-2952	176	22.7	<0.25		<0.05
CDBO-6	UF	02/24/11	CAPA-11-2951				<0.10	
NM WQCC Regulation 3103 Ground Water Standards (mg/L)				*1000*	*250*	*10*[3]	*NA*	*NA*

Notes:

[1]Water in the reuse wet well is representative of water in the reuse pond.

[2]UF means a non-filtered sample, F means a filtered sample.

[3]The NMWQCC Regulation 3103 Ground Water Standard is for NO_3-N.

[4]Dry means that there was insufficient water in the well for sampling.

J means the reported result was greater than the Method Detection Limit but less than the Reporting Limit.

J- means that the reported value is expected to be more uncertain than usual with a potential negative bias.

J+ means that the reported value is expected to be more uncertain than usual with a potential positive bias.

NA means that there is no NM WQCC Regulation 3103 ground water standard for this analyte.

Table 2.0. Water Level in Cañada del Buey Observation Well (CDBO)-6, 1st Quarter 2011

Location	Date	Water Level† (ft)
CDBO-6	1/24/11	38.80

Notes:
† Measured in feet from the top of the well casing to the surface of the water.

Table 3.0. Discharge Volumes from the SWWS Plant and NPDES Outfall 001, and SWWS Plant Reuse Water to SCC Cooling Towers, 1st Quarter 2011 (in millions of gallons).

Month	SWWS Plant Effluent to TA-3[1]	Discharges to NPDES Outfall 001[2]	Reuse Water to SCC Cooling Towers[3] (estimated)	Discharges to NPDES Outfall 03A027[4]
Jan-2011	8.168	10.656	0	1.441
Feb-2011	7.894	9.985	0	1.257
Mar-2011	8.663	10.443	0	1.586

Notes:
[1]In the 1st quarter of 2011, all SWWS Plant effluent was pumped via a force main to TA-3 for reuse or discharge.
[2]Power plant wastewater and all SWWS Plant reuse water not used by the SCC Cooling Towers are discharged at NPDES Outfall 001.
[3]The SCC cooling towers can use potable or SWWS Plant reuse water. Table 3.0 contains the estimated volume of SWWS Plant reuse water that the SCC cooling towers used during the 1st quarter of 2011.
[4]The SCC cooling towers discharge to NPDES Outfall 03A027 at Sandia Canyon.
NA means that no flow volumes were available at the time this report was prepared.

Table 4.0. Inspection Results, SERF Evaporation Basins, Leak Collection Standpipes.

Inspection Date	Inspection Results
1/13/2011	All standpipes are dry or contain minimal amounts of water
2/24/2011	The west basin's east inspection pipe contains water. See report for details.
3/17/2011	The west basin's east inspection pipe contains less than 1" of water.

Analytical Reports

by

General Engineering Laboratories, Inc

Sample Dates:
2/22/2011
2/24/2011

Locations:
SWWS Plant Reuse Wet Well
NPDES Outfall 001
NPDES Outfall 03A027
CDBO-6

Analytes
Cl, NO_3+NO_2, TDS, TKN, NH_3

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

Certificate of Analysis

Company :	Los Alamos National Laboratory	Report Date:	February 18, 2011
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545	Client SDG:	11-1184
Contact:	Ms. Joylene Valdez		
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAPA-11-2951	Project:	ESHL00210
Sample ID:	270959001	Client ID:	ARSL001
Matrix:	WG		
Collect Date:	24-JAN-11 12:00		
Receive Date:	25-JAN-11		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Carbon Analysis										
SW 9060 Total Organic Carbon "As Received"										
Total Organic Carbon Average		1.82	0.330	1.00	mg/L	1	TSM 01/26/11	2027	1067711	1
Flow Injection Analysis										
WSP-CN(T) "As Received"										
Cyanide, Total	U	ND	1.70	5.00	ug/L	1	SDS 01/27/11	0837	1068257	2
Nutrient Analysis										
Nitrogen, Total Kjeldahl (TKN) "As Received"										
Nitrogen, Total Kjeldahl	U	ND	0.033	0.100	mg/L	1	AXH3 01/26/11	1431	1067938	3

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXS5	01/26/11	1536	1068256
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXH3	01/26/11	0759	1067937

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 335.4	
3	EPA 351.2	

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Contact:	Ms. Joylene Valdez		
Project:	LANL-WQH Water Samples		

Client Sample ID:	CAPA-11-2952	Project:	ESHL00210
Sample ID:	270959002	Client ID:	ARSL001
Matrix:	WG		
Collect Date:	24-JAN-11 12:00		
Receive Date:	25-JAN-11		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Conductivity Analysis										
EPA120.1 Specific Conductivity "As Received"										
Conductivity		221	1.00	1.00	umhos/cm	1	TXT1 02/07/11	1147	1072133	1
Electrode Analysis										
EPA 150.1 pH "As Received"										
pH at Temp 16.6C	H	6.42	0.010	0.100	SU	1	LXA1 01/31/11	1725	1069721	2
Ion Chromatography										
EPA 300.0 Anions Liquid 28 day "As Received"										
Bromide	U	ND	0.066	0.200	mg/L	1	VH1 01/27/11	0132	1067782	3
Fluoride		0.178	0.033	0.100	mg/L	1				
Sulfate		9.69	0.100	0.400	mg/L	1				
Chloride		22.7	0.330	1.00	mg/L	5	VH1 01/31/11	1733	1067782	4
Nutrient Analysis										
EPA 350.1 Nitrogen, Ammonia L "As Received"										
Nitrogen, Ammonia	U	ND	0.016	0.050	mg/L	1	AXH3 01/27/11	1305	1067942	5
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"										
Nitrogen, Nitrate/Nitrite	U	ND	0.050	0.250	mg/L	5	AXH3 01/26/11	0846	1067948	6
EPA 365.4 Phosphorus, Total in "As Received"										
Phosphorus, Total as P		0.188	0.015	0.050	mg/L	1	AXH3 01/26/11	1314	1067940	7
Solids Analysis										
EPA 160.1 Solids, Dissolved-F "As Received"										
Total Dissolved Solids		176	2.38	10.0	mg/L		LYG1 01/27/11	1102	1068843	8
Titration Analysis										
EPA 310.1 Total Alkalinity "As Received"										
Alkalinity, Total as CaCO3		58.0	0.725	1.00	mg/L		LXA1 02/07/11	1034	1071713	9
Carbonate alkalinity (CaCO3)	U	ND	0.725	1.00	mg/L					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXS5	01/26/11	1311	1067941
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	AXH3	01/26/11	0802	1067939

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 120.1	

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Certificate of Analysis

Company :	Los Alamos National Laboratory	Report Date:	March 2, 2011
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545	Client SDG:	11-1425
Contact:	Ms. Joylene Valdez		
Project:	LANL WQH WQCC Regs		

Client Sample ID:	SWWS46-11-4852	Project:	ESHL00110
Sample ID:	272800001	Client ID:	ARSL001
Matrix:	Waste Water		
Collect Date:	22-FEB-11 12:00		
Receive Date:	24-FEB-11		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography											
EPA 300.0 Chloride in Liquid "As Received"											
Chloride		121	0.660	2.00	mg/L	10	GXM3	02/26/11	1205	1077676	1
Nutrient Analysis											
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"											
Nitrogen, Nitrate/Nitrite	J	0.471	0.100	0.500	mg/L	10	KLP1	03/02/11	0906	1077562	2
Nitrogen as Ammonia "As Received"											
Nitrogen, Ammonia		0.069	0.016	0.050	mg/L	1	KLP1	03/01/11	1159	1078139	3
Nitrogen, Total Kjeldahl (TKN) "As Received"											
Nitrogen, Total Kjeldahl		0.688	0.033	0.100	mg/L	1	KLP1	03/01/11	1518	1078131	4
Solids Analysis											
EPA 160.1 Solids, Dissolved-F "As Received"											
Total Dissolved Solids		505	2.38	10.0	mg/L		LYG1	02/25/11	1105	1078087	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXS5	02/28/11	1605	1078138
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXS5	02/28/11	1606	1078129

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 353.2	
3	EPA 350.1	
4	EPA 351.2	
5	EPA 160.1	

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Certificate of Analysis

Company :	Los Alamos National Laboratory	Report Date:	March 2, 2011
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545	Client SDG:	11-1425
Contact:	Ms. Joylene Valdez		
Project:	LANL WQH WQCC Regs		

Client Sample ID:	SWWS46-11-4853	Project:	ESHL00110
Sample ID:	272800002	Client ID:	ARSL001
Matrix:	Waste Water		
Collect Date:	22-FEB-11 12:00		
Receive Date:	24-FEB-11		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Ion Chromatography										
EPA 300.0 Chloride in Liquid "As Received"										
Chloride		14.3	0.066	0.200	mg/L	1	GXM3 02/25/11	1950	1077676	1
Nutrient Analysis										
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"										
Nitrogen, Nitrate/Nitrite		0.855	0.100	0.500	mg/L	10	KLP1 03/02/11	0910	1077562	2
Nitrogen as Ammonia "As Received"										
Nitrogen, Ammonia		0.052	0.016	0.050	mg/L	1	KLP1 03/01/11	1202	1078139	3
Nitrogen, Total Kjeldahl (TKN) "As Received"										
Nitrogen, Total Kjeldahl		0.683	0.033	0.100	mg/L	1	KLP1 03/01/11	1522	1078131	4
Solids Analysis										
EPA 160.1 Solids, Dissolved-F "As Received"										
Total Dissolved Solids		397	2.38	10.0	mg/L		LYG1 02/25/11	1105	1078087	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXS5	02/28/11	1605	1078138
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXS5	02/28/11	1606	1078129

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 353.2	
3	EPA 350.1	
4	EPA 351.2	
5	EPA 160.1	

Certificate of Analysis

Company :	Los Alamos National Laboratory	Report Date:	March 2, 2011
Address :	PO Box 1663 TA-03, SM271, Drop Pt. 02U, Rm111 Los Alamos, New Mexico 87545	Client SDG:	11-1425
Contact:	Ms. Joylene Valdez		
Project:	LANL WQH WQCC Regs		

Client Sample ID:	SWWS46-11-4854	Project:	ESHL00110
Sample ID:	272800003	Client ID:	ARSL001
Matrix:	Waste Water		
Collect Date:	22-FEB-11 12:00		
Receive Date:	24-FEB-11		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Ion Chromatography										
EPA 300.0 Chloride in Liquid "As Received"										
Chloride		152	0.660	2.00	mg/L	10	GXM3 02/26/11	1331	1077676	1
Nutrient Analysis										
EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"										
Nitrogen, Nitrate/Nitrite	J	0.186	0.100	0.500	mg/L	10	KLP1 03/02/11	0911	1077562	2
Nitrogen as Ammonia "As Received"										
Nitrogen, Ammonia		0.200	0.016	0.050	mg/L	1	KLP1 03/01/11	1203	1078139	3
Nitrogen, Total Kjeldahl (TKN) "As Received"										
Nitrogen, Total Kjeldahl		0.739	0.033	0.100	mg/L	1	KLP1 03/01/11	1523	1078131	4
Solids Analysis										
EPA 160.1 Solids, Dissolved-F "As Received"										
Total Dissolved Solids		521	2.38	10.0	mg/L		LYG1 02/25/11	1105	1078087	5

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXS5	02/28/11	1605	1078138
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	AXS5	02/28/11	1606	1078129

The following Analytical Methods were performed

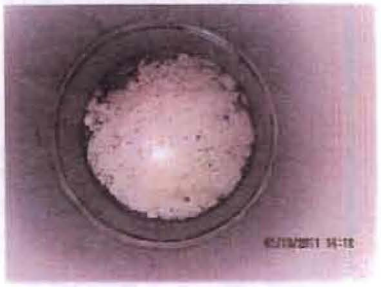
Method	Description	Analyst Comments
1	EPA 300.0	
2	EPA 353.2	
3	EPA 350.1	
4	EPA 351.2	
5	EPA 160.1	

Photographs

SERF Evaporation Basins and Leak Inspection Pipes

Inspection Dates:
1/13/2011
2/24/2011
3/17/2011

West basin, West inspection Pipe. (1-13-2011)

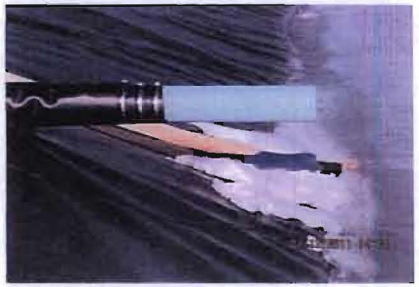


West basin, East inspection Pipe. (1-13-2011)

East basin, West inspection Pipe. (1-13-2011)

East basin, East inspection Pipe. (1-13-2011)

East basin influent pipe (1-13-2011)



East basin overflow pipe. (1-13-2011)

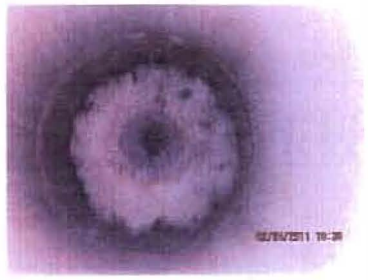
West basin overflow pipe (1-13-2011)

West basin influent pipe. (1-13-2011)

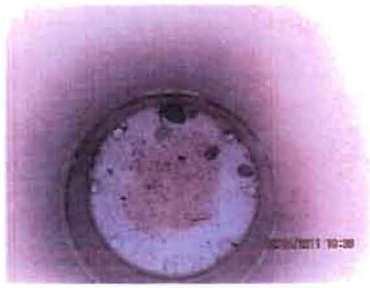
EVAPORATION POND INSPECTION RECORD
JANUARY 13, 2011

West basin, west inspection Pipe. (2/24/2011)

West basin, East inspection Pipe. (2/24/2011)



East basin, West inspection Pipe. (2/24/2011)



East basin, East inspection Pipe. (2/24/2011)

East basin influent pipe. (2/24/2011)

East basin overflow pipe. (2/24/2011)

West basin overflow pipe. (2/24/2011)

West basin influent pipe. (2/24/2011)

EVAPORATION POND INSPECTION RECORD
FEBRUARY 24, 2011

West basin, west inspection Pipe. (3/17/2011)

West basin, east inspection Pipe (3/17/2011)

East basin, west inspection Pipe (3/17/2011)

East basin, east inspection Pipe. (3/17/2011)

East basin influent pipe. (3/17/2011)

East basin overflow pipe. (3/17/2011)

West basin overflow pipe. (3/17/2011)

West basin influent pipe. (3/17/2011)

EVAPORATION POND INSPECTION RECORD
MARCH 17, 2011