



TA 46

ENTERED



*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 30, 2008  
Refer To: ENV-RCRA-08-080  
LA-UR: 08-2470

Mr. William 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: GROUND WATER DISCHARGE PLAN QUARTERLY REPORT, FIRST QUARTER 2008, SANITARY WASTEWATER SYSTEMS PLANT (DP-857)**

This letter and the attachments are Los Alamos National Laboratory's quarterly report for the TA-46 Sanitary Wastewater Systems (SWWS) Plant Ground Water Discharge Plan (DP-857) for the first quarter (January, February, March) of 2008.

Table 1.0 presents water quality data from sampling at the TA-46 SWWS Plant reuse wet well, Cañada del Buey Observation Well (CDBO)-6, and NPDES Outfalls 001 and 03A027 for the first quarter of 2008. All sample results in Table 1.0 are less than the NM WQCC Regulation 3103 standards for ground water. Attachment 1.0 presents copies of the analytical reports prepared by General Engineering Laboratories, Inc. for the first quarter of 2008.

Table 2.0 presents the water level in CDBO-6 for the first quarter of 2008.

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 2008, 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 Attachment 2.0 present the results from monthly inspections of the four leak collection standpipes at the SERF evaporation basins located on Sigma Mesa. All leak collection standpipes were dry during the first quarter of 2008 with the exception of the West SERF basin's east standpipe.



During the January and February 2008 inspections, the West SERF basin's east standpipe showed minimal amounts of water that were attributed to condensation. However, during the March 2008 inspection, it became evident that a previously patched hole in the primary liner became exposed when its patch broke loose. On March 31, 2008, your agency was notified of the leak (personal communication, Robert Beers, LANL, and Robert George, NMED-GWQB). In accordance with the requirements of DP-857, a corrective action plan was submitted on April 24, 2008 (ENV-RCRA-08-076) for replacement of the failed patch. There is no reason to believe that this leak has resulted in a discharge to the environment; the presence of liquid in the leak collection standpipe is confirmation that the secondary liner functioned as designed to capture water leaking past the primary liner.

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

Sincerely,

A handwritten signature in black ink that reads "Bob B" followed by a long horizontal line extending to the right.

Bob Beers  
Water Quality & RCRA Group

BB/lm

Attachments: a/s

Cy: Marcy Leavitt, NMED/SWQB, Santa Fe, NM, w/att.  
James Bearzi, NMED HWB, Santa Fe, NM, w/att.  
Steve Yanicak, LASO-GOV, w/att., J993  
Matthew Johansen, LASO-EO, w/o att., A316  
Gene Turner, LASO-EO, w/o att., A316  
Michael B. Mallory, PADOPS, w/o att., A102  
Daniel R. Cox, ADNHHO, w/o att., K778  
Richard S. Watkins, ADESHQ, w/o att., K491  
Tori George, ENV-DO, w/o att., J978  
Mike Saladen, ENV-RCRA, w/o att., K490  
Peter J. Rice, FMO-STO, w/o att., E518  
Craig Douglass, RLW, w/o att., E518  
Pete Worland, EWMO-RLW, w/o att., E518  
Steven Hanson, EWMO-RLW, w/o att., E518  
Mell Smithour, SSS-UD-J01, w/att., K718  
Charles Barnett, SSS-UD-M02, w/att., A199  
ENV-RCRA File, w/att., K490  
IRM-RMMSO, w/att., A150

*SWWS Plant Ground Water Discharge Plan (DP-857)  
1st Quarter, 2008*

**Table 1.0 Water Quality Data: SWWS Plant Reuse Water, NPDES Outfalls 001 and 03A027, and CDBO-6. 1st Quarter, 2008.**

Sampling Location	Field Prep <sup>3</sup>	Sample Date	Sample ID No.	TDS (mg/L)	Chloride (mg/L)	NO3+NO2-N (mg/L)	TKN (mg/L)	NH3-N (mg/L)
<b><u>SWWS Plant</u></b>								
SWWS Plant Reuse Wet Well <sup>1</sup>	UF	2/26/2008	GU080200OSWR01	554	175	3.2	0.78	0.05J
<b><u>Sandia Canyon</u></b>								
NPDES Outfall 001	UF	2/26/2008	GU080201A00102	488	130	3.1	0.52	0.05J
NPDES Outfall 03A027	UF	2/26/2008	GU080203A02701	552	19.1	0.68	1.4	0.14J
<b><u>Canada del Buey</u></b>								
CDBO-6	F	2/11/2008	CAMO-08-10635	167	19.9	0.20J	<0.10	<0.05
<i>NM WQCC Regulation 3103 Ground Water Standards (mg/L)</i>				<i>1000</i>	<i>250</i>	<i>10</i>	<i>NA</i>	<i>NA</i>

**Notes:**

<sup>1</sup>Water in the reuse wet well is representative of water in the reuse pond.

<sup>2</sup>J means the reported result was greater than the Method Detection Limit but less than the Reporting Limit.

<sup>3</sup>UF means a non-filtered sample, F means a filtered sample.

All analytical results by General Engineering Laboratories, Inc., Charleston, SC.

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

*SWWS Plant Ground Water Discharge Plan (DP-857) Report  
1<sup>st</sup> Quarter, 2008*

**Table 2.0. Water Level in Cañada del Buey Observation Well (CDBO)-6, 1<sup>st</sup> Quarter 2008.**

Location	Date	Water Level† (ft)
CDBO-6	2/11/08	41.26

**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, NPDES Outfalls 001 and 03A027, and Reuse Water to the SCC Cooling Towers, 1<sup>st</sup> Quarter 2008 (millions of gallons).**

Month	SWWS Plant to TA-3 <sup>1</sup>	NPDES Outfall 001 <sup>2</sup>	Reuse Water to SCC Cooling Towers <sup>3</sup>	NPDES Outfall 03A027 <sup>4</sup>
Jan-2008	8.392	11.074	0	0.562
Feb-2008	9.062	11.421	0	0.570
Mar-2008	9.439	11.637	0	0.772

**Notes:**

<sup>1</sup>In the 1<sup>st</sup> quarter of 2008, all SWWS Plant effluent was pumped via a force main to TA-3 for reuse or discharge.

<sup>2</sup>Power plant wastewater and all SWWS Plant reuse water not used by the SCC cooling towers are discharged at NPDES Outfall 001.

<sup>3</sup>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 1<sup>st</sup> quarter of 2008.

<sup>4</sup>The SCC cooling towers discharge to NPDES Outfall 03A027 at Sandia Canyon.

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

Inspection Date	Inspection Results
January 28, 2008	All standpipes dry except West Basin's east pipe contains minimal quantity
February 20, 2008	All standpipes dry except West Basin's east pipe contains minimal quantity
March 24, 2008	All standpipes dry except West Basin's east pipe contains reportable quantity

**Analytical Reports**

by

**General Engineering Laboratories, Inc**

**Sample Dates:**

**February 11, 2008**

**February 26, 2008**

**Locations:**

**SWWS Plant Reuse Wet Well**

**NPDES Outfall 001**

**NPDES Outfall 03A027**

**CDBO-6**

**Analytes**

**Cl, NO<sub>3</sub>+NO<sub>2</sub>, TDS, TKN, NH<sub>3</sub>**

**GEL LABORATORIES LLC**

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

**Certificate of Analysis**

Company : Los Alamos National Laboratories  
 Address : PO Box 1663  
 TA-03, SM271, Drop Pt. 02U, Rm111  
 Los Alamos, New Mexico 87545  
 Contact: Ms. Joylene Valdez  
 Project: **ENV-WQH Water Samples**

Report Date: March 7, 2008

Client Sample ID: CAMO-08-10635      Project: ESHL00813  
 Sample ID: 202724006      Client ID: LANL008  
 Matrix: Water  
 Collect Date: 11-FEB-08 12:00  
 Receive Date: 13-FEB-08  
 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Conductivity Analysis Federal</b>											
<i>EPA 120.1 Specific Conductivity</i>											
Conductivity		190	1.00	1.00	umhos/cm	1	RXG2	02/18/08	1815	726895	1
<b>Electrode Analysis Federal</b>											
<i>EPA 150.1 pH Federal</i>											
pH at Temp 14.4C	H	7.13	0.010	0.100	SU	1	RXG2	02/14/08	1744	726840	2
<b>Ion Chromatography Federal</b>											
<i>EPA 300.0 Anions Liquid 28 day</i>											
Bromide	U	ND	0.066	0.200	mg/L	1	VXP1	02/15/08	2337	727357	3
Chloride		19.9	0.066	0.200	mg/L	1					
Fluoride		0.215	0.033	0.100	mg/L	1					
Sulfate		10.4	0.100	0.400	mg/L	1					
<b>Nutrient Analysis</b>											
<i>EPA 353.2 Nitrogen, Nitrate/Nitrite</i>											
Nitrogen, Nitrate/Nitrite	J	0.203	0.050	0.250	mg/L	5	AXH3	02/19/08	1416	726694	4
<b>Nutrient Analysis Federal</b>											
<i>EPA 350.1 Nitrogen, Ammonia L</i>											
Nitrogen, Ammonia	U	ND	0.030	0.050	mg/L	1	AXH3	02/14/08	1039	726389	5
<i>EPA 365.4 Phosphorus, Total in</i>											
Phosphorus, Total as P		0.143	0.024	0.050	mg/L	1	AXH3	02/18/08	0921	726690	6
<b>Solids Analysis Federal</b>											
<i>EPA 160.1 Solids, Dissolved-F</i>											
Total Dissolved Solids		167	2.38	10.0	mg/L		NXM	02/15/08	1358	727230	7
<b>Titration Analysis Federal</b>											
<i>EPA 310.1 Total Alkalinity Federal</i>											
Alkalinity, Total as CaCO3		57.2	0.725	1.00	mg/L		TXT1	02/15/08	1613	727263	8
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	AXH3	02/14/08	0953	726388
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid-Fe	SXK1	02/14/08	1326	726689

**The following Analytical Methods were performed**

Method	Description	Analyst Comments
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 Los Alamos, New Mexico 87545  
 Contact: Ms. Joylene Valdez  
 Project: ENV-WQH Water Samples

Report Date: March 7, 2008

Client Sample ID: CAMO-08-10634      Project: ESHL00813  
 Sample ID: 202724005      Client ID: LANL008  
 Matrix: Water  
 Collect Date: 11-FEB-08 12:00  
 Receive Date: 13-FEB-08  
 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Carbon Analysis Federal</b>											
<i>SW 9060 Total Organic Carbon</i>											
Total Organic Carbon Average		1.44	0.330	1.00	mg/L	1	TSM	02/16/08	0408	726430	1
<b>Flow Injection Analysis Federal</b>											
<i>EPA 335.3 Cyanide, Total</i>											
Cyanide, Total	U	ND	1.50	5.00	ug/L	1	KLP1	02/18/08	1235	726718	2
<b>Nutrient Analysis Federal</b>											
<i>Nitrogen, Total Kjeldahl (TKN)</i>											
Nitrogen, Total Kjeldahl	U	ND	0.029	0.100	mg/L	1	AXH3	02/15/08	1111	726688	3

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.3	EPA 335.3 Total Cyanide	AXS5	02/14/08	1440	726713
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	SXK1	02/14/08	1324	726687

**The following Analytical Methods were performed**

Method	Description	Analyst Comments
1	SW846 9060	
2	EPA 335.3	
3	EPA 351.2	

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 Los Alamos, New Mexico 87545  
 Contact: Ms. Joylene Valdez  
 Project: ENV-WQH WQCC Regs

Report Date: March 25, 2008

Client Sample ID: GU080200OSRW01      Project: ESHL00805  
 Sample ID: 203569003      Client ID: LANL008  
 Matrix: Waste Water  
 Collect Date: 26-FEB-08 10:05  
 Receive Date: 27-FEB-08  
 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography Federal</b>											
<i>EPA 300.0 Chloride in Liquid</i>											
Chloride		175	1.32	4.00	mg/L	20	VH1	03/06/08	0146	731363	1
<b>Nutrient Analysis</b>											
<i>EPA 353.2 Nitrogen, Nitrate/Nitrite</i>											
Nitrogen, Nitrate/Nitrite		3.23	0.100	0.500	mg/L	10	KLP1	03/06/08	1215	731760	2
<b>Nutrient Analysis Federal</b>											
<i>Nitrogen as Ammonia</i>											
Nitrogen, Ammonia	J	0.046	0.030	0.050	mg/L	1	AXH3	02/29/08	0926	731176	3
<i>Nitrogen, Total Kjeldahl (TKN)</i>											
Nitrogen, Total Kjeldahl		0.782	0.029	0.100	mg/L	1	AXH3	02/29/08	1026	731163	4
<b>Solids Analysis Federal</b>											
<i>EPA 160.1 Solids, Dissolved-F</i>											
Total Dissolved Solids		554	2.38	10.0	mg/L		NXM	02/28/08	1202	731200	5

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	SXX1	02/28/08	1632	731173
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	SXX1	02/28/08	1311	731162

**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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 Contact: Ms. Joylene Valdez  
 Project: ENV-WQH WQCC Regs

Report Date: March 25, 2008

Client Sample ID: GU080203A02701      Project: ESHL00805  
 Sample ID: 203569002      Client ID: LANL008  
 Matrix: Waste Water  
 Collect Date: 26-FEB-08 13:00  
 Receive Date: 27-FEB-08  
 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography Federal</b>											
<i>EPA 300.0 Chloride in Liquid</i>											
Chloride		19.1	0.660	2.00	mg/L	10	VH1	03/06/08	0125	731363	1
<b>Nutrient Analysis</b>											
<i>EPA 353.2 Nitrogen, Nitrate/Nitrite</i>											
Nitrogen, Nitrate/Nitrite		0.682	0.100	0.500	mg/L	10	KLP1	03/06/08	1213	731760	2
<b>Nutrient Analysis Federal</b>											
<i>Nitrogen as Ammonia</i>											
Nitrogen, Ammonia		0.143	0.030	0.050	mg/L	1	AXH3	02/29/08	0925	731176	3
<i>Nitrogen, Total Kjeldahl (TKN)</i>											
Nitrogen, Total Kjeldahl		1.36	0.029	0.100	mg/L	1	AXH3	02/29/08	1025	731163	4
<b>Solids Analysis Federal</b>											
<i>EPA 160.1 Solids, Dissolved-F</i>											
Total Dissolved Solids		552	2.38	10.0	mg/L		NXM	02/28/08	1202	731200	5

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	SXX1	02/28/08	1632	731173
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	SXX1	02/28/08	1311	731162

**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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 Contact: Ms. Joylene Valdez  
 Project: ENV-WQH WQCC Regs

Report Date: March 25, 2008

Client Sample ID: GU080201A00102      Project: ESHL00805  
 Sample ID: 203569001      Client ID: LANL008  
 Matrix: Waste Water  
 Collect Date: 26-FEB-08 13:08  
 Receive Date: 27-FEB-08  
 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography Federal</b>											
<i>EPA 300.0 Chloride in Liquid</i>											
Chloride		130	1.32	4.00	mg/L	20	VH1	03/06/08	0105	731363	1
<b>Nutrient Analysis</b>											
<i>EPA 353.2 Nitrogen, Nitrate/Nitrite</i>											
Nitrogen, Nitrate/Nitrite		3.12	0.100	0.500	mg/L	10	KLP1	03/06/08	1210	731760	2
<b>Nutrient Analysis Federal</b>											
<i>Nitrogen as Ammonia</i>											
Nitrogen, Ammonia		0.050	0.030	0.050	mg/L	1	AXH3	02/29/08	0917	731176	3
<i>Nitrogen, Total Kjeldahl (TKN)</i>											
Nitrogen, Total Kjeldahl		0.516	0.029	0.100	mg/L	1	AXH3	02/29/08	1021	731163	4
<b>Solids Analysis Federal</b>											
<i>EPA 160.1 Solids, Dissolved-F</i>											
Total Dissolved Solids		488	2.38	10.0	mg/L		NXM	02/28/08	1202	731200	5

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	SXX1	02/28/08	1632	731173
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	SXX1	02/28/08	1311	731162

**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**

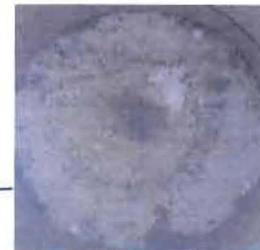
**Inspection Dates:**  
**January 28, 2008**  
**February 20, 2008**  
**March 24, 2008**



East basin 1/28/08



East basin east inspection pipe 1/28/08



East basin west inspection pipe 1/28/08



West Basin east inspection pipe  
1/28/2008



**January '08 Evap Basin Inspection Record**



West Basin west inspection pipe 1/28/08



West Basin 1/28/08



East basin 2/20/08



East basin east inspection pipe 2/20/08



East basin west inspection pipe 2/20/08



West Basin east inspection pipe  
2/20/2008



**February '08 Evap Basin Inspection Record**



West Basin west inspection pipe 2/20/08



West Basin 2/20/08



East basin 3/24/08



East basin east inspection pipe 3/24/08



East basin west inspection pipe 3/24/08



West Basin east inspection pipe  
3/24/2008



**March '08 Evap Basin Inspection Record**



West Basin west inspection pipe 3/24/08



West Basin 3/24/08