



*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 28, 2009  
Refer To: ENV-RCRA-09-066  
LA-UR: 09-02356

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 2009, SANITARY WASTEWATER SYSTEMS PLANT (DP-857)**

This letter and attachments 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 2009.

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 2009. All sample results in Table 1.0 are less than the NM WQCC Regulation 3103 standards for groundwater. Attachment 1.0 presents copies of the analytical reports prepared by General Engineering Laboratories, Inc. for the first quarter of 2009.

Table 2.0 is empty because no water level measurement was available for CDBO-6 for the first quarter of 2009.

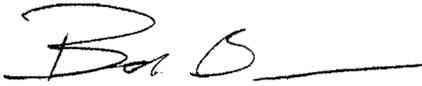
Table 3.0 presents discharge volumes from the SWWS Plant's force main to TA-3, the Power Plant's NPDES Outfall 001, and the Strategic Computing Complex's (SCC) NPDES Outfall 03A027. In addition, Table 3.0 includes the volume of reuse water used by the SCC cooling towers; during the first quarter of 2009, 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. The leak collection standpipes were dry or contained de minimis amounts of water during January, February, and March 2009.



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

Sincerely,



Bob Beers  
Water Quality & RCRA Group

BB/lm

Attachments: a/s

Cy: Glenn Saums, NMED/SWQB, Santa Fe, NM, w/att.  
James Bearzi, NMED HWB, Santa Fe, NM, w/att.  
Steve Yanicak, LASO-GOV, w/att., J993  
Hai Shen, LASO-EO, w/att., A316  
Gene Turner, LASO-EO, w/att., A316  
Michael B. Mallory, PADOPS, w/o att., A102  
J. Chris Cantwell, ADESHQ, w/o att., K491  
Mike Saladen, ENV-RCRA, w/o att., K490  
Walter E. Atencio, ADESHQ, w/att., K760  
Mell Smithour, ES-SE, w/att., K718  
Charles Barnett, UI-DO, w/att., J972  
ENV-DO, w/o att., J978  
ENV-RCRA File, w/att., K490  
IRM-RMMSO, w/att., A150

**SWWS Plant Ground Water Discharge Plan (DP-857)**  
**1st Quarter, 2009**

**Table 1.0 Water Quality Data: SWWS Plant Reuse Water, NPDES Outfalls 001 and 03A027, and CDBO-6. 1st Quarter, 2009.**

Sampling Location	Field Prep <sup>2</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>SWWS Plant</b>								
SWWS Plant Reuse Wet Well <sup>1</sup>	UF	2/24/2009	SWWS46-09-4544	617	217	4.7	0.84	0.05
<b>Sandia Canyon</b>								
NPDES Outfall 001	UF	2/24/2009	SWWS46-09-4454	520	18.5	0.95	1.4	0.23
NPDES Outfall 03A027	UF	2/24/2009	SWWS46-09-4455	521	149	4.5	0.73	0.10
<b>Canada del Buey</b>								
CDBO-6	F	2/11/2009	CAMO-09-2409	173	23.4	<0.25		<0.05
CDBO-6	UF	2/11/2009	CAMO-09-2410				0.04	
<i>NM WQCC Regulation 3103 Ground Water Standards (mg/L)</i>				<i>1000</i>	<i>250</i>	<i>10<sup>3</sup></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>UF means a non-filtered sample, F means a filtered sample.

<sup>3</sup>The NMWQCC Regulation 3103 Ground Water Standard is for NO<sub>3</sub>-N.

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

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)**  
**1st Quarter, 2009**

**Table 2.0. Water Level in Cañada del Buey Observation Well (CDBO)-6, 1<sup>st</sup> Quarter 2009**

<b>Location</b>	<b>Date</b>	<b>Water Level† (ft)</b>
CDBO-6	NA	NA

**Notes:**

† Measured in feet from the top of the well casing to the surface of the water.  
 NA means that no water level measurement was available.

**Table 3.0. Discharge Volumes from the SWWS Plant and NPDES Outfall 001, and SWWS Plant Reuse Water to SCC Cooling Towers, 1<sup>st</sup> Quarter 2009 (in millions of gallons).**

<b>Month</b>	<b>SWWS Plant Effluent to TA-3<sup>1</sup></b>	<b>Discharges to NPDES Outfall 001<sup>2</sup></b>	<b>Reuse Water to SCC Cooling Towers<sup>3</sup> (estimated)</b>	<b>Discharges to NPDES Outfall 03A027<sup>4</sup></b>
Jan-2009	7.507	9.036	0	1.206
Feb-2009	6.258	7.505	0	1.071
Mar-2009	6.942	8.266	0	1.039

**Notes:**

<sup>1</sup>In the 1<sup>st</sup> quarter of 2009, 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 2009.

<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.**

<b>Inspection Date</b>	<b>Inspection Results</b>
1/14/2009	All standpipes are dry or contain minimal amounts of water
2/24/2009	All standpipes are dry or contain minimal amounts of water
3/18/2009	All standpipes are dry or contain minimal amounts of water

**Analytical Reports**

by

**General Engineering Laboratories, Inc**

**Sample Dates:**

**2/11/2009**

**2/24/2009**

**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>**

TANK SWWS PLANT REUSE WELL

**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: LANL-WQH WQCC Regs

Report Date: March 10, 2009

Client Sample ID: SWWS46-09-4544  
 Sample ID: 225213003  
 Matrix: Waste Water  
 Collect Date: 24-FEB-09 12:00  
 Receive Date: 26-FEB-09  
 Collector: Client  
 Project: ESHL00816  
 Client ID: LANL008

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography Federal</b>											
<i>EPA 300.0 Chloride in Liquid "As Received"</i>											
Chloride		217	1.32	4.00	mg/L	20	VXP1	03/05/09	1434	846246	1
<b>Nutrient Analysis</b>											
<i>EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"</i>											
Nitrogen, Nitrate/Nitrite		4.73	0.100	0.500	mg/L	10	AXH3	03/02/09	1607	845747	2
<b>Nutrient Analysis Federal</b>											
<i>Nitrogen as Ammonia "As Received"</i>											
Nitrogen, Ammonia		0.053	0.030	0.050	mg/L	1	AXH3	03/05/09	0726	846054	3
<i>Nitrogen, Total Kjeldahl (TKN) "As Received"</i>											
Nitrogen, Total Kjeldahl		0.836	0.029	0.100	mg/L	1	AXH3	03/03/09	1334	846052	4
<b>Solids Analysis Federal</b>											
<i>EPA 160.1 Solids, Dissolved-F "As Received"</i>											
Total Dissolved Solids		617	2.38	10.0	mg/L		NXM	02/27/09	1057	845973	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	03/03/09	1102	846053
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	SXX1	03/02/09	1043	846051

**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	

NPDES OUTPAID 001

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

Report Date: March 10, 2009

Client Sample ID: SWWS46-09-4454      Project: ESHL00816  
 Sample ID: 225213001      Client ID: LANL008  
 Matrix: Waste Water  
 Collect Date: 24-FEB-09 12:00  
 Receive Date: 26-FEB-09  
 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 "As Received"</i>											
Chloride		18.5	0.066	0.200	mg/L	1	VXP1	03/04/09	1937	846246	1
<b>Nutrient Analysis</b>											
<i>EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"</i>											
Nitrogen, Nitrate/Nitrite		0.950	0.050	0.250	mg/L	5	AXH3	03/02/09	1602	845747	2
<b>Nutrient Analysis Federal</b>											
<i>Nitrogen as Ammonia "As Received"</i>											
Nitrogen, Ammonia		0.232	0.030	0.050	mg/L	1	AXH3	03/05/09	0720	846054	3
<i>Nitrogen, Total Kjeldahl (TKN) "As Received"</i>											
Nitrogen, Total Kjeldahl		1.43	0.029	0.100	mg/L	1	AXH3	03/03/09	1330	846052	4
<b>Solids Analysis Federal</b>											
<i>EPA 160.1 Solids, Dissolved-F "As Received"</i>											
Total Dissolved Solids		520	2.38	10.0	mg/L		NXM	02/27/09	1057	845973	5

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	SXK1	03/03/09	1102	846053
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	SXK1	03/02/09	1043	846051

**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	

NIDES OUTFALL 03/10/27

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 TA-03, SM271, Drop Pt. 02U, Rm111  
 Los Alamos, New Mexico 87545  
 Contact: Ms. Joylene Valdez  
 Project: LANL-WQH WQCC Regs

Report Date: March 10, 2009

Client Sample ID: SWWS46-09-4455      Project: ESHL00816  
 Sample ID: 225213002      Client ID: LANL008  
 Matrix: Waste Water  
 Collect Date: 24-FEB-09 12:00  
 Receive Date: 26-FEB-09  
 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 "As Received"</i>											
Chloride		149	1.32	4.00	mg/L	20	VXP1	03/05/09	1418	846246	1
<b>Nutrient Analysis</b>											
<i>EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"</i>											
Nitrogen, Nitrate/Nitrite		4.52	0.100	0.500	mg/L	10	AXH3	03/02/09	1606	845747	2
<b>Nutrient Analysis Federal</b>											
<i>Nitrogen as Ammonia "As Received"</i>											
Nitrogen, Ammonia		0.100	0.030	0.050	mg/L	1	AXH3	03/05/09	0723	846054	3
<i>Nitrogen, Total Kjeldahl (TKN) "As Received"</i>											
Nitrogen, Total Kjeldahl		0.731	0.029	0.100	mg/L	1	AXH3	03/03/09	1333	846052	4
<b>Solids Analysis Federal</b>											
<i>EPA 160.1 Solids, Dissolved-F "As Received"</i>											
Total Dissolved Solids		521	2.38	10.0	mg/L		NXM	02/27/09	1057	845973	5

**The following Prep Methods were performed**

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.2 Prep	EPA 350.1 Ammonia Nitrogen Prep	SXK1	03/03/09	1102	846053
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	SXK1	03/02/09	1043	846051

**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	

CDBO-6

### 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: LANL-WQH Water Samples

Report Date: March 12, 2009

Client Sample ID: CAMO-09-2409      Project: ESHL00813  
 Sample ID: 224509003      Client ID: LANL008  
 Matrix: Ground Water  
 Collect Date: 11-FEB-09 12:00  
 Receive Date: 13-FEB-09  
 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 "As Received"</i>											
Conductivity		219	1.00	1.00	umhos/cm	1	RXG2	02/18/09	1220	842920	1
<b>Electrode Analysis Federal</b>											
<i>EPA 150.1 pH Federal "As Received"</i>											
pH at Temp 11.5C	H	6.89	0.010	0.100	SU	1	RXG2	02/16/09	1116	842211	2
<b>Ion Chromatography Federal</b>											
<i>EPA 300.0 Anions Liquid 28 day "As Received"</i>											
Bromide	U	ND	0.067	0.200	mg/L	1	VXP1	03/03/09	2053	842362	3
Fluoride		0.233	0.033	0.100	mg/L	1					
Sulfate		10.5	0.100	0.400	mg/L	1					
Chloride		23.4	0.132	0.400	mg/L	2	VXP1	03/04/09	1710	842362	4
<b>Nutrient Analysis</b>											
<i>EPA 353.2 Nitrogen, Nitrate/Nitrite "As Received"</i>											
Nitrogen, Nitrate/Nitrite	U	ND	0.050	0.250	mg/L	5	AXH3	02/19/09	1309	842296	5
<b>Nutrient Analysis Federal</b>											
<i>EPA 350.1 Nitrogen, Ammonia L "As Received"</i>											
Nitrogen, Ammonia	U	ND	0.030	0.050	mg/L	1	AXH3	02/17/09	1520	842060	6
<i>EPA 365.4 Phosphorus, Total in "As Received"</i>											
Phosphorus, Total as P		0.197	0.024	0.050	mg/L	1	AXH3	02/18/09	1303	842302	7
<b>Solids Analysis Federal</b>											
<i>EPA 160.1 Solids, Dissolved-F "As Received"</i>											
Total Dissolved Solids		173	2.38	10.0	mg/L		NXM	02/17/09	1111	842696	8
<b>Titration Analysis Federal</b>											
<i>EPA 310.1 Total Alkalinity Federal "As Received"</i>											
Alkalinity, Total as CaCO3		58.0	0.725	1.00	mg/L		TXT1	02/16/09	1321	842457	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	AXH3	02/17/09	0909	842059
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid-Fe	SXX1	02/16/09	1152	842301

**The following Analytical Methods were performed**

Method	Description	Analyst Comments
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## **Photographs**

### **SERF Evaporation Basins and Leak Inspection Pipes**

#### **Inspection Dates:**

**1/14/2009**

**2/24/2009**

**3/18/2009**



East basin



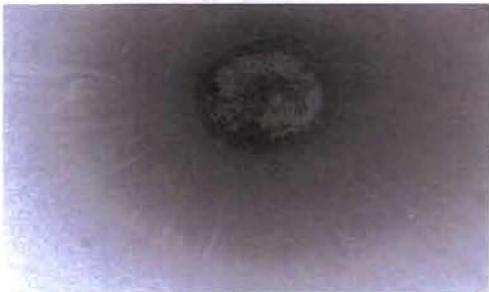
East basin east inspection pipe



West Basin east inspection pipe



East basin west inspection pipe



West Basin west inspection pipe



West Basin

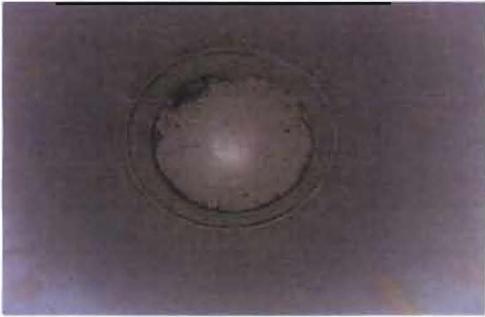
**January 14, 2009 Evap Basin Inspection Record**



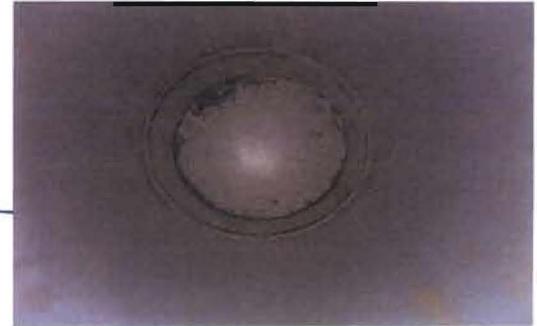
East basin



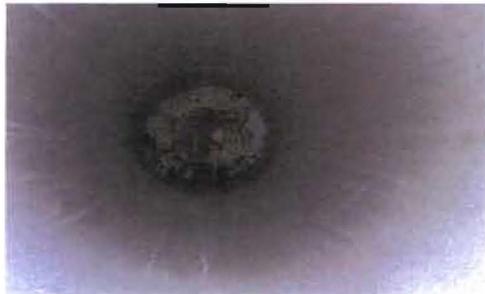
East basin east inspection pipe



West Basin east inspection pipe



East basin west inspection pipe



West Basin west inspection pipe



West Basin

**February 24, 2009 Evap Basin Inspection Record**



East basin



East basin east inspection pipe



West Basin east inspection pipe



East basin west inspection pipe



West Basin west inspection pipe



West Basin

**March 18, 2009 Evap Basin Inspection Record**