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ENTE



**Environmental Protection Division  
Environmental Compliance Programs (ENV-CP)**  
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**National Nuclear Security Administration  
Los Alamos Field Office, A316**  
3747 West Jemez Road  
Los Alamos, New Mexico, 87545  
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*Date:* **OCT 22 2015**  
*Symbol:* ENV-DO-15-0301  
*LA-UR:* 15-27686  
*Locates Action No.:* N/A

Ms. Michelle Hunter, Bureau 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 Ms. Hunter:

**Subject: Discharge Permit DP-857 Quarterly Report, Third Quarter 2015, TA-46 Sanitary Wastewater Systems Plant**

This letter and enclosures from the U.S. Department of Energy and Los Alamos National Security, LLC (DOE/LANS) are the third quarter 2015 Discharge Permit DP-857 report for the Technical Area (TA)-46 Sanitary Wastewater Systems (SWWS) Plant. Quarterly reports are submitted to the New Mexico Environment Department (NMED), Ground Water Quality Bureau, in accordance with the reporting requirements of the January 7, 1998, renewal letter for Discharge Permit DP-857.

Table 1.0 provides water quality data from sampling conducted at the TA-46 SWWS Plant's reuse wet well and National Pollutant Discharge Elimination System (NPDES) Outfalls 001 and 03A027. No sample was collected from Cañada del Buey Observation Well (CDBO)-6 during the third quarter because there was insufficient water in the well. The water level at CDBO-6 is measured each quarter and a sample is collected whenever sufficient water is present. 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 presents copies of the GEL Laboratories LLC analytical reports.

Table 2.0 reports that the water level in CDBO-6 for the third quarter of 2015 was below the top of the pump (dry).



Table 3.0 reports discharge volumes from the SWWS Plant's force main to TA-3, the Power Plant's NPDES Outfall 001, and the Super Computing Complex (SCC) NPDES Outfall 03A027. In addition, Table 3.0 reports the volume of SWWS Plant reuse water used by the SCC cooling towers during the third quarter of 2015.

Table 4.0 and Enclosure 2 present the results from monthly inspections of the leak collection ports at the five SERF evaporation basins located on Sigma Mesa for the third quarter of 2015. All leak collection ports were dry or contained de minimis amounts of water except for three basins: Southeast, Northwest, and the new 5<sup>th</sup>. Details on the status of these basins are provided below.

- **Southeast Basin.** An August 6, 2015, inspection of the east (#2) leak collection port showed approximately 2.1 ft. of standing water. The presence of water in this port was unusual since both ports had been free of water greater than a de minimis quantity for the previous 12 months. Following this discovery the pond was removed from service, drained, and evaluated by a qualified lining contractor. It was determined that a joint around the inlet pipe had failed and was the source of the leak. The entire boot was replaced, and the liner thermally fused to the inlet pipe. Post repair inspection was acceptable and the pond was returned to service on September 1, 2015. The monthly inspection performed on September 23, 2015, showed both ports remain dry.
- **Northeast Basin.** In March 2015 DOE/LANS submitted to NMED a Corrective Action Plan (CAP) for a leak in the primary liner at the Northeast evaporation basin (ENV-DO-15-0081). The CAP identified the steps necessary to locate and repair the leak by September 1, 2015. On August 26, 2015, a contractor completed repairs to the Northeast evaporation basin's primary liner. The basin was immediately returned to service.

Water that accumulated between the primary and secondary liners during the leak was pumped from the leak collection ports on several occasions. Unfortunately, it appears that the contractor was not successful in finding all the leaks in the Northeast evaporation basin because even after pumping the leak collection ports on multiple occasions water continued to accumulate in them.

In summary, the first attempt to repair the primary liner leak at the Northeast evaporation basin was not successful. As a result, the pond was removed from service, drained, cleaned, and evaluated by LANL Craft personnel. Additional defects were identified. A second attempt at repairing the leak is scheduled for October 2015. NMED was informed of this situation in an email from Mr. Robert Beers (ENV-CP) to Mr. Gerald Knutson (NMED GWQB) on September 24, 2015.

- **5<sup>th</sup> Basin.** In May 2015 DOE/LANS submitted to NMED a CAP for a leak in the primary liner at the new 5<sup>th</sup> evaporation basin (ENV-DO-15-0123). The CAP identified the steps necessary to locate and repair the leak by November 30, 2015. The contractor responsible for the liner installation performed an inspection of the pond beginning June 22, 2015, and determined that the source of the leak was a boot joint around the inlet pipe. The leak was repaired and the pond was returned to service on June 29, 2015. The ports remained dry until August 26, 2015, when 28 inches of water was found in the west (#1) inspection port. It appears that the initial repair may not have corrected all possible leaks. Due to the delays in completing repairs to the Northeast evaporation basin there is some potential that DOE/LANS will not complete repairs to the 5<sup>th</sup> evaporation basin by November 30<sup>th</sup>.

The 5<sup>th</sup> basin cannot be drained and prepared for repair until the Northeast evaporation basin is returned to service. NMED was informed of this situation in a telephone call from Mr. Robert Beers (ENV-CP) to Mr. Gerald Knutson (NMED GWQB) on October 8, 2015.

DOE/LANS will provide the NMED GWQB with updates on the status of these three basins, as appropriate.

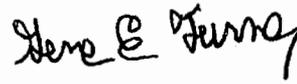
Please contact Robert S. Beers by telephone at (505) 667-7969 or by email at [bbeers@lanl.gov](mailto:bbeers@lanl.gov) if you have questions regarding this quarterly report.

Sincerely,



Alison M. Dorries  
Division Leader  
Environmental Protection Division  
Los Alamos National Security, LLC

Sincerely,



Gene E. Turner  
Environmental Permitting Manager  
National Security Missions  
Los Alamos Field Office  
U.S. Department of Energy

AMD:GET:MTS:RSB/lm

Enclosures:

1. GEL Laboratories LLC Certificate of Analysis Reports
2. Monthly inspection photographs of the SERF evaporation basins

Cy: James Hogan, NMED/SWQB, Santa Fe, NM, (E-File)  
John E. Kieling, NMED/HWB, Santa Fe, NM, (E-File)  
Steven M. Yanicak, NMED/DOE/OB, (E-File)  
Hai Shen, EM-SG, (E-File)  
Gene E. Turner, LASO-NS-LP, (E-File)  
Jordan Arnsward, LASO-NS-PI, (E-File)  
Kirsten Laskey, EM-LA, (E-File)  
Craig S. Leasure, PADOPS, (E-File)  
Amy E. De Palma, PADOPS, (E-File)  
Michael T. Brandt, ADESH, (E-File)  
Raeanna Sharp-Geiger, ADESH, (E-File)  
Alison M. Dorries, ENV-DO, (E-File)  
Andrew W. Erickson, UI-DO, (E-File)  
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Gabriel C. Herrera, ES-UI, (E-File)  
Michael T. Saladen, ENV-CP, (E-File)

Ms. Michelle Hunter  
ENV-DO-15-0301

- 4 -

Cy (continued):

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**COPY**



GROUND WATER  
OCT 22 2015  
BUREAU

**Environmental Protection Division  
Environmental Compliance Programs (ENV-CP)**  
PO Box 1663, K490  
Los Alamos, New Mexico 87545  
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**National Nuclear Security Administration  
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Dear Ms. Hunter:

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Table 1.0 provides water quality data from sampling conducted at the TA-46 SWWS Plant's reuse wet well and National Pollutant Discharge Elimination System (NPDES) Outfalls 001 and 03A027. No sample was collected from Cañada del Buey Observation Well (CDBO)-6 during the third quarter because there was insufficient water in the well. The water level at CDBO-6 is measured each quarter and a sample is collected whenever sufficient water is present. 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 presents copies of the GEL Laboratories LLC analytical reports.

Table 2.0 reports that the water level in CDBO-6 for the third quarter of 2015 was below the top of the pump (dry).

**Discharge Permit DP-857 Quarterly Report**  
**3rd Quarter, 2015**

**Table 1.0 Water Quality Data: SWWS Plant Reuse Water, NPDES Outfalls 001 and 03A027, and CDBO-6. 3rd Quarter, 2015.**

Sampling Location	Field Prep	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 <sup>2</sup>	08/25/2015	SWWS46-15-104068	354	43.3	0.32	0.83	0.19
<b>Sandia Canyon</b>								
NPDES Outfall 001	UF	8/25/2015	SWWS46-15-104066	200	17.5	0.35	0.18	0.06
NPDES Outfall 03A027	UF	8/25/2015	SWWS46-15-104067	527	113	1.8	2.0	0.45
<b>Canada del Buey</b>								
CDBO-6		Dry <sup>5</sup>						
NM WQCC Regulation 3103 Groundwater Standards (mg/L)				1000	250	10 <sup>3</sup>	NA	NA

**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 NM WQCC Regulation 3103 Groundwater Standard is for NO<sub>3</sub>-N.

<sup>4</sup>No Sample means that no sample was collected during the quarter.

<sup>5</sup>Dry means that there was insufficient water in the well for sampling.

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

**Discharge Permit DP-857 Quarterly Report**  
**3<sup>rd</sup> Quarter, 2015**

**Table 2.0. Water Level in Cañada del Buey Observation Well (CDBO)-6, 3<sup>rd</sup> Quarter 2015**

Location	Date	Water Level† (ft)
CDBO-6	8/18/2015	Dry

**Notes:**

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

**Table 3.0. Discharge Volumes from the TA-46 SWWS Plant, NPDES Outfalls 001 and 03A027, and Reuse Water to the SCC Cooling Towers (in millions of gallons).**

Month	SWWS Plant Effluent to TA-3 <sup>1</sup>	Discharges to NPDES Outfall 001 <sup>2</sup>	Reuse Water to SCC Cooling Towers <sup>3</sup> (estimated)	Discharges to NPDES Outfall 03A027 <sup>4</sup>
July	7.541	4.874	3.282	1.051
Aug	7.503	5.251	2.967	0.843
Sept	7.216	4.979	2.303	0.618

**Notes:**

<sup>1</sup>In the 3<sup>rd</sup> quarter of 2015, 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 3<sup>rd</sup> quarter of 2015.

<sup>4</sup>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. SERF Evaporation Basins, Inspection Results, Depth of Water in Inspection Ports (in.)**

SERF Basin	Inspection Date	West Port (#1) Depth of Water (ft)	East Port (#2) Depth of Water (ft)
Northwest	7/8/2015	dry	dry
Northeast	7/8/2015	0.1	dry
Southwest	7/8/2015	dry	dry
Southeast	7/8/2015	dry	dry
5 <sup>th</sup> (new basin)	7/8/2015	0.1	dry
Northwest	8/6/2015	dry	dry
Northeast	8/6/2015	1.0	dry
Southwest	8/6/2015	dry	dry
Southeast	8/6/2015	dry	2.1
5 <sup>th</sup> (new basin)	8/6/2015	0.1	0.3
Northwest	9/23/2015	dry	dry
Northeast	9/23/2015	4.6	4.5
Southwest	9/23/2015	dry	dry
Southeast	9/23/2015	dry	dry
5 <sup>th</sup> (new basin)	9/23/2015	2.4	0.6

# **ENCLOSURE 1**

**GEL Laboratories LLC  
Certificate of Analysis Reports**

**ENV-DO-15-0301**

**LA-UR-15-27686**

**Date:**           OCT 22 2015

# Sample Data Summary

**GEL LABORATORIES LLC**

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

**Certificate of Analysis**

Report Date: September 1, 2015

Company : Los Alamos National Laboratory  
 Address : TA-03, SM271, Drop Pt. 02U, Rm111

Los Alamos, New Mexico 87545  
 Contact: Mr. Keith Greene  
 Project: LANL - WQH NPDES

Client SDG: 2015-2254

Client Sample ID: SWWS46-15-104066  
 Sample ID: 379956001  
 Matrix: Waste Water  
 Collect Date: 25-AUG-15 11:44  
 Receive Date: 26-AUG-15  
 Collector: Client

Project: ESHL00814  
 Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>											
<b>Chloride "As Received"</b>											
Chloride		17.5	0.268	0.800	mg/L	4	MXL2	08/28/15	0338	1503379	1
<b>Nutrient Analysis</b>											
<b>NH3 "As Received"</b>											
Nitrogen, Ammonia		0.0608	0.017	0.050	mg/L	1	KLP1	08/27/15	1328	1503035	2
<b>NO3/NO2 "As Received"</b>											
Nitrogen, Nitrate/Nitrite		0.348	0.017	0.050	mg/L	1	AXH3	08/28/15	0834	1503407	3
<b>TKN "As Received"</b>											
Nitrogen, Total Kjeldahl		0.180	0.033	0.100	mg/L	1	KLP1	08/28/15	1041	1503037	4
<b>Solids Analysis</b>											
<b>TDS "As Received"</b>											
Total Dissolved Solids		200	3.40	14.3	mg/L		MXB3	08/27/15	1043	1503419	5

**The following Prep Methods were performed:**

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.1 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXH3	08/27/15	1059	1503034
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	08/27/15	2030	1503036

**The following Analytical Methods were performed:**

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

**Notes:**

**GEL LABORATORIES LLC**

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

**Certificate of Analysis**

Report Date: September 1, 2015

Company : Los Alamos National Laboratory  
 Address : TA-03, SM271, Drop Pt. 02U, Rm111

Los Alamos, New Mexico 87545

Contact: Mr. Keith Greene  
 Project: LANL - WQH NPDES

Client SDG: 2015-2254

Client Sample ID: SWWS46-15-104067  
 Sample ID: 379956002  
 Matrix: Waste Water  
 Collect Date: 25-AUG-15 11:50  
 Receive Date: 26-AUG-15  
 Collector: Client

Project: ESHL00814  
 Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>											
<b>Chloride "As Received"</b>											
Chloride		113	1.34	4.00	mg/L	20	MXL2	08/28/15	0410	1503379	1
<b>Nutrient Analysis</b>											
<b>NH3 "As Received"</b>											
Nitrogen, Ammonia		0.449	0.017	0.050	mg/L	1	KLP1	08/27/15	1331	1503035	2
<b>NO3/NO2 "As Received"</b>											
Nitrogen, Nitrate/Nitrite		1.80	0.085	0.250	mg/L	5	AXH3	08/28/15	0837	1503407	3
<b>TKN "As Received"</b>											
Nitrogen, Total Kjeldahl		1.98	0.033	0.100	mg/L	1	KLP1	08/28/15	1048	1503037	4
<b>Solids Analysis</b>											
<b>TDS "As Received"</b>											
Total Dissolved Solids		527	3.40	14.3	mg/L		MXB3	08/27/15	1043	1503419	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.1 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXH3	08/27/15	1059	1503034
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	08/27/15	2030	1503036

The following Analytical Methods were performed:

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

Notes:

**GEL LABORATORIES LLC**

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**Certificate of Analysis**

Report Date: September 1, 2015

Company : Los Alamos National Laboratory  
 Address : TA-03, SM271, Drop Pt. 02U, Rm111

Los Alamos, New Mexico 87545

Contact: Mr. Keith Greene  
 Project: LANL - WQH NPDES

Client SDG: 2015-2254

Client Sample ID: SWWS46-15-104068

Project: ESHL00814

Sample ID: 379956003

Client ID: ARSL004

Matrix: Waste Water

Collect Date: 25-AUG-15 11:23

Receive Date: 26-AUG-15

Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
<b>Ion Chromatography</b>											
<b>Chloride "As Received"</b>											
Chloride		43.3	0.670	2.00	mg/L	10	MXL2	08/28/15	0442	1503379	1
<b>Nutrient Analysis</b>											
<b>NH3 "As Received"</b>											
Nitrogen, Ammonia		0.188	0.017	0.050	mg/L	1	KLP1	08/27/15	1332	1503035	2
<b>NO3/NO2 "As Received"</b>											
Nitrogen, Nitrate/Nitrite		0.324	0.017	0.050	mg/L	1	AXH3	08/28/15	0838	1503407	3
<b>TKN "As Received"</b>											
Nitrogen, Total Kjeldahl		0.831	0.033	0.100	mg/L	1	KLP1	08/28/15	1049	1503037	4
<b>Solids Analysis</b>											
<b>TDS "As Received"</b>											
Total Dissolved Solids		354	3.40	14.3	mg/L		MXB3	08/27/15	1043	1503419	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.1 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXH3	08/27/15	1059	1503034
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	08/27/15	2030	1503036

The following Analytical Methods were performed:

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

**Notes:**

## **ENCLOSURE 2**

Monthly inspection photographs of the  
SERF evaporation basins

ENV-DO-15-0301

LA-UR-15-27686

Date:                     OCT 22 2015

**Northwest Evaporation Basin—No Photo Available**

Inspection Sump #1: Dry

Inspection Sump #2: Dry

**Northeast Evaporation Basin—No Photo Available**

Inspection Sump #1: 0.1 ft of standing water

Inspection Sump #2: Dry

**Southwest Evaporation Basin—No Photo Available**

Inspection Sump #1: Dry

Inspection Sump #2: Dry

**Southeast Evaporation Basin—No Photo Available**

Inspection Sump #1: Dry

Inspection Sump #2: Dry

**5<sup>th</sup> Evaporation Basin—No Photo Available**

Inspection Sump #1: 0.1 ft of standing water

Inspection Sump #2: Dry

SERF Evaporation Basins  
Monthly Inspection Record: August 6, 2015

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**Northwest Evaporation Basin (Basin 1)**

Inspection Sump #1: Dry

Inspection Sump #2: Dry



**Northeast Evaporation Basin (Basin 2)**

Inspection Sump #1: 1.0 ft of standing water

Inspection Sump #2: Dry



SERF Evaporation Basins  
Monthly Inspection Record: August 6, 2015

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**Southwest Evaporation Basin (Basin 3)**

Inspection Sump #1: Dry

Inspection Sump #2: Dry



**Southeast Evaporation Basin**

Inspection Sump #1: Dry

Inspection Sump #2: 2.1 ft of standing water



SERF Evaporation Basins

Monthly Inspection Record: August 6, 2015

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**5<sup>th</sup> Evaporation Basin (Basin 5)**

Inspection Sump #1: 0.1 ft of standing water

Inspection Sump #2: 0.3 ft of standing water



SERF Evaporation Basins

Monthly Inspection Record: September 23, 2015

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**Northwest Evaporation Basin (Basin 1)**

Inspection Sump #1: Dry

Inspection Sump #2: Dry



**Northeast Evaporation Basin (Basin 2)**

Inspection Sump #1: 4.6 ft of standing water

Inspection Sump #2: 4.5 ft of standing water



Monthly Inspection Record: September 23, 2015

Southwest Evaporation Basin (Basin 3)

Inspection Sump #1: Dry

Inspection Sump #2: Dry



Southeast Evaporation Basin

Inspection Sump #1: Dry

Inspection Sump #2: Dry



SERF Evaporation Basins

Monthly Inspection Record: September 23, 2015

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**5<sup>th</sup> Evaporation Basin**

Inspection Sump #1: 2.4 ft of standing water

Inspection Sump #2: 0.6 ft of standing water

