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Environmental Protection Division
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Date: **OCT 10 2012**
Refer To: ENV-RCRA-12-0227
LAUR: 12-25203

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 CORRECTIVE ACTION PLAN, SIGMA MESA EVAPORATION BASINS, PRIMARY LINER LEAKS

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. Additionally, in the event that liquid is present in a sump, LANS is required to sample the contents of the sump and submit a corrective action plan to the New Mexico Environment Department (NMED) for repair or replacement of the primary liner. During a routine monthly inspection of the Sigma Mesa evaporation basins on August 29, 2012, LANS identified liquid in five of the evaporation basin's leak collection sumps. This letter provides the NMED with the required corrective action plan (Enclosure 1).

On August 29, 2012, during a routine inspection of the Sigma Mesa evaporation basins the following discoveries were made. See Figure 1 of Enclosure 1 for supporting information.

- Water was discovered in one of the southwest (SW) basin's leak collection sumps. The same sump was dry during the July 18, 2012, inspection. On August 29, 2012, the SW basin was nearly full of water.
- Small quantities of water were discovered in collection sumps of the northwest (NW) and northeast (NE) basins. The NW and NE basins were recently constructed and have never received any wastewater discharges from SERF. On August 29, 2012, the NW and NE basins were essentially empty.

Actions taken following these discoveries are summarized below and in Enclosure 1.

- On August 29, 2012, the inlet valve to the SW basin was closed and all discharges from SERF were directed to the SE basin.
- On August 30, 2012, the SW basin sump containing water was pumped dry to verify the leak.
- The SW basin sump was inspected routinely to monitor for the presence of water. No significant volumes of water were evident in the leak collection sump until September 10, 2012.
- On September 11, 2012, water quality samples were collected from SW basin sump. The conductivity and pH of water in the SW Basin and leak collection sump were essentially identical.
- On October 2, 2012, the contractor to LANS responsible for providing warranty service for the NW and NE basins completed repairs to the primary liners.

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 corrective action plan.

Sincerely,



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

Mr. Jerry Schoeppner
ENV-RCRA-12-0227

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ARG:GET:RSB/lm

Enclosures:

1. Corrective Action Plan, Sigma Mesa Evaporation Basins

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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)
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Mark Trujillo, ES-UI, w/enc., (E-File)
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ENV-RCRA, Correspondence File, w/enc., K490

**Discharge Permit DP-857, SERF Evaporation Basins
Corrective Actions Plan, October 4, 2012**

Background

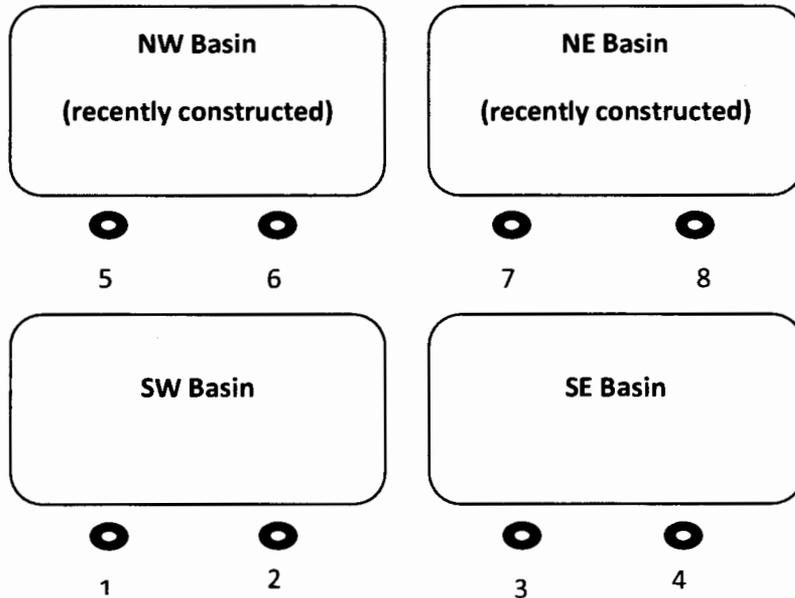
On August 29, 2012, during a routine inspection of the Sanitary Effluent Reclamation Facility's (SERF) Sigma Mesa evaporation basins the following discoveries were made. See Figure 1 below.

- Approximately 2.5 ft of standing water was found in leak collection sump #2 of the SW basin. Sump #2 was dry during the July 18, 2012, inspection. On August 29, 2012, the SW basin was nearly full.
- Small quantities of water (<6") were discovered in leak collection sumps #5, #6, #7, and #8 of the NW and NE basins. The NW and NE basins were recently constructed and have never received any wastewater discharges from SERF. On August 29, 2012, the NW and NE basins were essentially empty.
- Inspection sumps #1, #3, and #4 were dry at the time of inspection.

The Sigma Mesa evaporation basins are permitted by the New Mexico Environment Department (NMED) under Discharge Permit DP-857. In an October 2012 modification to DP-857, the NMED added the following requirement:

In the event that liquid is present in the collection sump(s) at the Sigma Mesa synthetically lined evaporation lagoon, the liquid shall be sampled and analyzed for NO3-N, TKN, Cl, and TDS, in addition to all of the analytes listed under Specific Requirement 2b, as stated in the January 7, 1998, discharge permit renewal. Within 30 days of discovery of the liquid in the collection sump, LANL shall submit a corrective action plan for repair or replacement of the primary liner.

Figure 1. Schematic of Sigma Mesa Evaporation Basins



Key:
 Leak collection sump

**Discharge Permit DP-857, SERF Evaporation Basins
Corrective Actions Plan, October 4, 2012**

Corrective Action Plan

Completed Corrective Actions

1. On Wednesday, August 29, 2012, at approximately 3:00 pm, the inlet valve to the SW basin was closed and the inlet valve to the SE basin was opened. As a result, all discharges from SERF were directed to the SE basin and no additional water will be added to the SW basin.
2. On Thursday, August 30, 2012, the SW basin's leak collection sump #2 was pumped dry to confirm the leak. Pumped water was discharged into the SE basin. Operators reported that there was no immediate filling of the sump after pumping.
3. Beginning Tuesday, September 4, the SW basin's sump #2 was inspected for the presence of water on the following days:
 - Tues, September 4: Sump #2 contains <1" of water
 - Weds, September 5: Sump #2 contains <1" of water
 - Thurs, September 6: Sump #2 contains <1" of water
 - Mon, September 10: Sump #2 contains approx. 30" of standing water
4. On Tuesday, September 11, 2012, water quality samples were collected from sump #2. Samples were submitted for the following analyses: general inorganics, metals, VOA, SVOA, Ra-226/-228, Gross Alpha, and Total Nitrogen. Conductivity and pH measurements collected at the time of sampling from the SW basin and sump #2 were effectively identical, confirming that the source of the water in sump #2 was the SW basin.
5. On Tuesday, October 2, 2012, the contractor responsible for providing warranty service to the NW and NE basins completed repairs to the primary liners.

Planned Corrective Actions

1. DOE/LANS will report to the NMED Ground Water Quality Bureau the analytical results from the September 11, 2012, sampling of the water in the SW basin's sump #2.
Expected Completion Date: 10/30/2012
2. The contents of the SW basin will be transferred to one of the other three Sigma Mesa evaporation basins.
Expected completion date: 10/30/12
3. An outside contractor to DOE/LANS will locate and repair the leak in the SW basin. Note: it is anticipated that a qualified contractor may not be procured until after freezing conditions set in; as a result, the repair may not be completed until spring 2013. Regardless, the SW basin will not be returned to service until the leak has been repaired and tested.
Expected completion date: 4/30/13
4. A final completion report will be submitted to the NMED Ground Water Quality Bureau once the leak has been repaired.
Expected completion date: 30 days following completion of the repair