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ENTERED



**Environmental Protection Division
Environmental Compliance Programs (ENV-CP)**
PO Box 1663, K490
Los Alamos, New Mexico 87545
(505) 667-0666

**National Nuclear Security Administration
Los Alamos Field Office, A316**
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Los Alamos, New Mexico, 87545
(505) 667-5794/Fax (505) 667-5948

Date: JAN 22 2016
Symbol: ENV-DO-15-0364
LA-UR: 15-29593
Locates Action No.: N/A

GROUND WATER

JAN 22 2016

BUREAU

Ms. Michelle Hunter, 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: DP-857, Modified Corrective Action Plan, Sigma Mesa Evaporation Basins, Primary Liner Leaks

On March 19, 2015, and May 18, 2015, the U.S. Department of Energy and Los Alamos National Security, LLC (DOE/LANS) submitted corrective action plans for the repair of primary liners leaks in the Northeast and 5th Sigma Mesa evaporation basins, respectively. Copies are provided in Enclosure 1. Two attempts in August and November 2015 to repair the primary liner in the Northeast evaporation basin were unsuccessful. Further attempts to repair the Northeast evaporation basin liner were suspended due to ambient air temperatures too low to make repairs. Repairs to the 5th evaporation basins primary liner are contingent on completing repairs to the Northeast evaporation basin. Because repairs could not be completed at the Northeast evaporation basin, DOE/LANS were prevented from draining and repairing the 5th evaporation basin in accordance with the May 18, 2015, corrective action plan. Accordingly, DOE/LANS have modified the corrective actions plans for both the Northeast and 5th evaporation basins to reflect the revised scope and schedule. Enclosure 2 provides a modified corrective action plan for both the Northeast and 5th Sigma Mesa evaporation basins.





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On March 19, 2015, and May 18, 2015, the U.S. Department of Energy and Los Alamos National Security, LLC (DOE/LANS) submitted corrective action plans for the repair of primary liners leaks in the Northeast and 5th Sigma Mesa evaporation basins, respectively. Copies are provided in Enclosure 1. Two attempts in August and November 2015 to repair the primary liner in the Northeast evaporation basin were unsuccessful. Further attempts to repair the Northeast evaporation basin liner were suspended due to ambient air temperatures too low to make repairs. Repairs to the 5th evaporation basins primary liner are contingent on completing repairs to the Northeast evaporation basin. Because repairs could not be completed at the Northeast evaporation basin, DOE/LANS were prevented from draining and repairing the 5th evaporation basin in accordance with the May 18, 2015, corrective action plan. Accordingly, DOE/LANS have modified the corrective actions plans for both the Northeast and 5th evaporation basins to reflect the revised scope and schedule. Enclosure 2 provides a modified corrective action plan for both the Northeast and 5th Sigma Mesa evaporation basins.

Ms. Michelle Hunter
ENV-DO-15-0364

- 2 -

Please call Robert Beers at (505) 667-7969 if you have questions regarding this modified corrective action plan.

Sincerely,



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

Sincerely,



Jody Pugh *JOP*
Assistant Manager
National Security Missions
Los Alamos Field Office
U.S. Department of Energy

AMD:JP:MTS:RSB/lm

- Enclosure: (1) NMED/DOE-LANS Communications RE: Sigma Mesa Evaporation Basins (3)
(2) Modified Corrective Action Plan for the Northeast and 5th Evaporation Basins
(3) Liner Repair Report for the Northeast Sigma Mesa Evaporation Basin

Cy: James Hogan, NMED/SWQB, Santa Fe, NM, (E-File)
John E. Kieling, NMED/HWB, Santa Fe, NM, (E-File)
Stephen M. Yanicak, NMED/DOE/OB, (E-File)
Hai Shen, EM-SG, (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)
Lawrence V. Chavez, UI-OPS, (E-File)
Pablo F. C De Vaca, UI-OPS, (E-File)
Gabriel C. Herrera, ES-UI, (E-File)
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***Date: MAR 19 2015
Symbol: ENV-DO-15-0081
LA-UR: 15-21856
Locates Action No.: NA***

**Ms. Phyllis Bustamante, Acting 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. Bustamante:

Subject: DP-857, Corrective Action Plan, Sigma Mesa Evaporation Basins, Primary Liner Leak

In accordance with the terms and conditions of Discharge Permit DP-857, the U.S. Department of Energy and Los Alamos National Security, LLC (DOE/LANS) are required to conduct monthly inspections of the leak collection ports at the four Sigma Mesa evaporation basins. In the event that liquid is present in a leak collection port, DOE/LANS are required to notify the New Mexico Environment Department (NMED) and submit a corrective action plan for repair or replacement of the liner. On February 18, 2015, DOE/LANS confirmed a leak in the primary liner at the Sigma Mesa Northeast evaporation basin. On February 19, 2015, DOE/LANS provided verbal notification to the NMED. This letter provides the NMED with the required corrective action plan (Enclosure 1).

Ms. Phyllis Bustamante
ENV-DO-15-0081

- 2 -

Please call Robert Beers at (505) 667-7969 if you have questions regarding this information.

Sincerely,



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

AMD:GET:RSB/lm

Sincerely,



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

Enclosures:

(1) Discharge Permit DP-857, SERF Evaporation Basins Corrective Action Plan

Cy: **James Hogan, NMED/SWQB, Santa Fe, NM, (E-File)**
John E. Kieling, NMED/HWB, Santa Fe, NM, (E-File)
Stephen M. Yanicak, NMED/DOE/OB, (E-File)
Hai Shen, NA-LA, (E-File)
Gene E. Turner, NA-LA, (E-File)
Kirsten Laskey, NA-LA, (E-File)
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Pablo F. C De Vaca, UI-OPS, (E-File)
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Date: MAR 19 2015
Symbol: ENV-DO-15-0081
LA-UR: 15-21856
Locates Action No.: NA

GROUND WATER
MAR 19 2015
BUREAU

**Ms. Phyllis Bustamante, Acting Chief
Ground Water Quality Bureau
New Mexico Environment Department
Harold Runnels Building, Room N2250
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P.O. Box 26110
Santa Fe, NM 87502**

Dear Ms. Bustamante:

Subject: DP-857, Corrective Action Plan, Sigma Mesa Evaporation Basins, Primary Liner Leak

In accordance with the terms and conditions of Discharge Permit DP-857, the U.S. Department of Energy and Los Alamos National Security, LLC (DOE/LANS) are required to conduct monthly inspections of the leak collection ports at the four Sigma Mesa evaporation basins. In the event that liquid is present in a leak collection port, DOE/LANS are required to notify the New Mexico Environment Department (NMED) and submit a corrective action plan for repair or replacement of the liner. On February 18, 2015, DOE/LANS confirmed a leak in the primary liner at the Sigma Mesa Northeast evaporation basin. On February 19, 2015, DOE/LANS provided verbal notification to the NMED. This letter provides the NMED with the required corrective action plan (Enclosure 1).

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

Background on the Northeast (NE) Evaporation Basin

On October 4, 2013, a subcontractor to DOE/LANS located and repaired all leaks in the Northeast (NE) evaporation basin. In the months following the repairs the west leak collection port continued to accumulate water at a slow but steady rate. In April, May, June, July, and November 2014 standing water in the west leak collection port was removed (pumped). The total volume of water removed from the west port in 2014 was less than 70 gallons. Water returned to the west port at approximately the same rate following each pumping event. DOE/LANS believed that the water flowing into the west leak collection port was residual water trapped between the primary and secondary liners and not from an active leak in the primary liner. The basis for this argument was the difference in the concentration of total dissolved solids (TDS) between water in the leak inspection port (19,000 mg/L) and water in the evaporation pond (44,500 mg/L). Throughout this period the east inspection port remained effectively dry. DOE/LANS monitored water levels in the west and east ports weekly.

On February 5, 2015, during a routine inspection of the NE evaporation basin it was discovered that water levels in both the west and east inspection ports rose from the previous week at rates not previously observed: West port from 15" to 41"; East port from 0" to 38.5". The pumping of both ports was immediately scheduled.

On February 11, 2015, both the west and east ports were pumped. The volumes pumped from each port were as follows: West port—325 gal; East port—80 gal. In addition, conductivity measurements of the basin water and inspection port water were shown to be identical.

On February 18, 2015, water levels in both the west and east ports had risen back to the pre-pumping levels: West port—43"; East port—44". An active leak in the primary liner was now apparent.

On February 19, 2015, NMED GWQB was provided verbal notification of the apparent primary liner leak in the NE evaporation basin.

Corrective Action Plan

1. Water levels in the west and east leak collection ports will be measured weekly.
2. Both inspection ports will be pumped, as necessary, to maintain water levels below the top of the 4-in horizontal leak collection pipe. Since February 11, 2015, pumping was also conducted on February 20 and March 3.
3. Water in the NE basin will be transferred to other basins in lifts of approximately 1.5 ft. to identify the leak zone.
Expected completion date: June 5, 2015
4. An outside contractor to DOE/LANS will locate and repair the leak in the NE basin.
Expected completion date: September 1, 2015
5. A final completion report will be submitted to the NMED Ground Water Quality Bureau once the leak has been repaired.
Expected submittal date: 30 days following completion of the repair



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***Date: MAY 18 2015
Symbol: ENV-DO-15-0123
LA-UR: 15-23347
Locates Action No.: N/A***

**Ms. Phyllis Bustamante, Acting 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. Bustamante:

Subject: DP-857, Corrective Action Plan, Sigma Mesa Evaporation Basins, Primary Liner Leak

In accordance with the terms and conditions of Discharge Permit DP-857, the U.S. Department of Energy and Los Alamos National Security, LLC (DOE/LANS) are required to conduct monthly inspections of the leak collection ports at five Sigma Mesa evaporation basins. In the event that liquid is present in a leak collection port, DOE/LANS are required to notify the New Mexico Environment Department (NMED) and submit a corrective action plan for repair or replacement of the liner. On April 22, 2015, DOE/LANS confirmed a leak in the primary liner at the recently constructed 5th evaporation basin. On April 23, 2015, DOE/LANS provided verbal notification to NMED (telephone communication, Mr. Gerald Knutson, NMED, and Mr. Robert Beers, LANS). This letter provides the NMED with the required corrective action plan (Enclosure 1).

Ms. Phyllis Bustamante
ENV-DO-15-0123

- 2 -

Please call Robert Beers at (505) 667-7969 if you have questions regarding this information.

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:RSB/lm

Enclosure: (1) Discharge Permit DP-857, SERF Evaporation Basins Corrective Action Plan

Cy: James Hogan, NMED/SWQB, Santa Fe, NM, (E-File)
John E. Kieling, NMED/HWB, Santa Fe, NM, (E-File)
Stephen M. Yanicak, NMED/DOE/OB, (E-File)
Hai Shen, LA-EM, (E-File)
Gene E. Turner, NSM, (E-File)
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Date: MAY 18 2015

Symbol: ENV-DO-15-0123

LA-UR: 15-23347

Locates Action No.: N/A

GROUND WATER

MAY 18 2015

BUREAU

**Ms. Phyllis Bustamante, Acting Chief
Ground Water Quality Bureau
New Mexico Environment Department
Harold Runnels Building, Room N2250
1190 St. Francis Drive
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Dear Ms. Bustamante:

Subject: DP-857, Corrective Action Plan, Sigma Mesa Evaporation Basins, Primary Liner Leak

In accordance with the terms and conditions of Discharge Permit DP-857, the U.S. Department of Energy and Los Alamos National Security, LLC (DOE/LANS) are required to conduct monthly inspections of the leak collection ports at five Sigma Mesa evaporation basins. In the event that liquid is present in a leak collection port, DOE/LANS are required to notify the New Mexico Environment Department (NMED) and submit a corrective action plan for repair or replacement of the liner. On April 22, 2015, DOE/LANS confirmed a leak in the primary liner at the recently constructed 5th evaporation basin. On April 23, 2015, DOE/LANS provided verbal notification to NMED (telephone communication, Mr. Gerald Knutson, NMED, and Mr. Robert Beers, LANS). This letter provides the NMED with the required corrective action plan (Enclosure 1).

**Discharge Permit DP-857
Corrective Action Plan
5th SERF Evaporation Basin**

Background on the 5th SERF Evaporation Basin

On February 19, 2015, DOE/LANS submitted record drawings to the NMED for the recently constructed 5th SERF evaporation basin on Sigma Mesa. Subsequently, on March 17, 2015, the NMED granted DOE/LANS permission to place the 5th evaporation basin into service (email, Mr. Gerald Knutson, NMED, to Mr. Robert Beers, LANS). On March 20, 2015, the 5th evaporation basin was placed into active service.

On March 25, 2015, during a routine inspection of the 5th evaporation basin, water was discovered in the east inspection port. Initially, it was believed that the source of the water in the inspection port was precipitation trapped between the liners during construction. However, over the following four weeks the ports were pumped dry only to have water return. Table 1 below provides information on the inspection and pumping at the 5th evaporation basin. Conductivity and pH measurements taken of the inspection port water and water from the 5th evaporation basin confirmed that the water in the ports originated from the basin and not another source. The 5th evaporation basin was approximately 10% full on April 23, 2015 (~100,000 gal.). The capacity of the 5th evaporation basin is approximately 1.26 million gallons.

Table 1. Inspection Records and Pumping Activity, 5th SERF Evaporation Basin.

Date	West Inspection Port Depth of Standing Water	East Inspection Port Depth of Standing Water
3/20/15	5 th Evaporation Basin placed into active service	
3/25/15	dry	26"
3/27/15	Pumped dry	
4/1/15	dry	8"
4/13/15	Pumped dry	
4/14/15	dry	dry
4/22/15	35"	5"

Corrective Action Plan

1. No additional process water will be added to the 5th evaporation basin.
2. Water levels in the west and east leak collection ports will be measured weekly.
3. Both inspection ports will be pumped, as necessary, to maintain water levels below the top of the 4-in horizontal leak collection pipe.
4. The water level in the 5th evaporation basin will be lowered passively by evaporation. Due to the corrective actions in progress at the Northeast (NE) SERF evaporation basin there is no capacity to actively drain the 5th evaporation basin until the NE evaporation basin is returned to service.
Estimated completion date: June 30, 2015
5. Once the NE evaporation basin is repaired and returned to service the 5th evaporation basin will be actively drained and prepared for repair. **Expected completion date: September 30, 2015**
6. An outside contractor to DOE/LANS will repair the leak in the 5th evaporation basin.
Expected completion date: November 30, 2015
7. A final completion report will be submitted to the NMED Ground Water Quality Bureau once the leak has been repaired.

From: Beers, Bob
To: [Gerald Knutson@state.nm.us](mailto:Gerald.Knutson@state.nm.us)
Cc: Salacer, Michael Thomas; Herrera, Gabriel Clarence; Chavez, Lawrence Valeszuela; Turner, Gene E; Jordan, amswalk@nrsa.doe.gov
Subject: Northeast SERF Evaporation Basin_Corrective Action Plan Update
Date: Thursday, September 24, 2015 3:46:00 PM
Attachments: [ENV-DO-15-0081-F Sustantiva DP-R57 Sigma Mesa Evap Basins Primary Liner Leak.pdf](#)

Dear Mr. Knutson,

In March 2015 the U.S. Department of Energy and Los Alamos National Security, LLC (DOE/LANS) submitted a Corrective Action Plan (CAP) to the New Mexico Environment Department (NMED) for a leak in the primary liner at the Northeast Sanitary Effluent Reclamation Facility (SERF) evaporation basin (copy attached).

The CAP identified the steps necessary to locate and repair the leak. DOE/LANS made a commitment to complete the primary liner repairs 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.

As is typical after a primary liner leak, water that accumulated between the primary and secondary liners during the leak appears in the leak collection ports. After repairs have been completed the accumulated water is pumped from the ports. Often it is necessary to pump the ports on multiple occasions before the ports remain dry.

Unfortunately, it appears that the contractor was not successful in finding all the leaks in the NE evaporation basin because even after pumping the leak collection ports on multiple occasions water continues to accumulate in them.

In summary, the first attempt to repair the primary liner leak at the NE evaporation basin does not appear to have been successful; water continues to accumulate in the leak collection ports.

DOE/LANS has scheduled the contractor to return for a second round of repairs on September 30, 2015.

I will keep you informed of our progress.

Please contact me at 505-667-7969 if you have questions.

Sincerely,

Bob Beers
Los Alamos National Security, LLC

ENCLOSURE 2
Discharge Permit DP-857
Corrective Action Plan
Northeast and 5th SERF Evaporation Basins

Background on the Northeast (NE) Evaporation Basin

In October 2013, a subcontractor to DOE/LANS located and repaired all leaks in the Northeast (NE) evaporation basin. In the months following the repairs the west leak collection port continued to accumulate water at very slow but steady rate. In April, May, June, July, and November 2014 standing water in the west (#1) leak collection port was removed (pumped). Water returned to the west port at approximately the same rate following each pumping event. DOE/LANS believed that the water flowing into the west leak collection port was residual water trapped between the primary and secondary liners and not from an active leak in the primary liner. Throughout this period the east inspection port remained effectively dry. DOE/LANS monitored water levels in the west and east ports weekly.

In February 5, 2015, water levels in both the west and east inspection ports rose at rates not previously observed. Conductivity measurements of the basin water and inspection port water were shown to be identical. Following pumping on February 18, 2015, water levels in both the west and east ports had risen back to the pre-pumping levels. An active leak in the primary liner was now apparent. On February 19, 2015, NMED GWQB was provided verbal notification of the apparent primary liner leak in the NE evaporation basin. A Corrective Action Report was submitted on March 19, 2015 (ENV-DO-15-0081). A copy is provided as Enclosure 1.

The above-referenced CAP for the NE evaporation basin 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. A copy of the Inspection & Repair report is provided as Enclosure 3. 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.

The attempt to repair the primary liner leak at the NE evaporation basin on August 26, 2015, was not successful. As a result, the pond was removed from service, drained, cleaned, and evaluated by LANL Craft personnel. Additional defects were identified. 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. A copy has been provided as Enclosure 1.

A second attempt at repairing the leak in the NE evaporation basin was conducted on November 2-4, 2015. This attempt was also unsuccessful in stopping the leak. Below DOE/LANS present a proposed Corrective Action Plan to address the persistent leak in the NE evaporation basin.

Northeast and 5th SERF Evaporation Basins**Corrective Action Plan for the Northeast (NE) SERF Evaporation Basin**

CAP Overview. The system of five SERF evaporation basins is presently at near-full capacity and cannot afford to remove the NE evaporation basin from service during the winter season of low evaporation rates. Removing the NE evaporation basin from service at this time could result in curtailment of treatment operations at the SERF. The CAP has the following four steps that are discussed in detail below:

- ✓ Monitor water levels in the leak collection ports and pump weekly, as needed.
- ✓ Procure a contract to truck up to 1,000,000 gal of water off-site for disposal.
- ✓ Drain the NE evaporation basin once space becomes available within the system.
- ✓ Once drained, trained LANL crafts will assess the basin for leaks and repair.
- ✓ If repairs cannot be made then procure a contract to reline the basin.

1. Water levels in the west and east leak collection ports will be measured weekly. Weekly water level measurements will be reported to NMED in the DP-857 quarterly reports.
2. Both the west and east inspection ports will be pumped weekly, as needed.
3. On December 14, 2015, the NE evaporation basin was approximately 100% full, containing approximately 1,000,000 gallons of wastewater. Up to 1,000,000 gallons of wastewater contained in the NE evaporation basin will be trucked off-site for disposal. Trucking and disposal will be conducted by an independent contractor to Los Alamos National Security, LLC and will be done in accordance with all applicable local, state, and federal regulations. Trucking and off-site disposal of wastewater from the NE evaporation basin will begin in mid-January 2016 and will be completed by April 2016. The objective of this initiative is to create capacity within the evaporation basin system to ensure that the SERF can operate as required to maintain Outfall 001 compliance during the winter months when evaporation rates are low.
Expected completion date: April 30, 2016
4. **Option No.1.** LANL craft have been trained in the inspection and repair of the synthetic liners used at the SERF evaporation basins. Once evaporation rates increase in the spring and there is sufficient space within the SERF evaporation system then the NE evaporation basin will be drained and LANL craft will attempt to identify the offending leaks and repair them.
Expected completion date: October 30, 2016
5. **Option No. 2:** If the LANL craft cannot find and repair the offending leaks then DOE/LANS will procure an outside contractor to install a new primary liner in the NE evaporation basin. Once a contractor has been selected, DOE/LANS will submit specifications for the replacement primary liner to NMED 30 days prior to installation. The replacement liner shall be equal or better in quality and thickness to the existing primary liner.
Expected completion date: October 30, 2016
6. A final completion report will be submitted to the NMED Ground Water Quality Bureau once LANL craft personnel complete inspection and repairs, or alternatively, the replacement liner has been installed.
Expected completion date: 30 days following completion of the repair

**Discharge Permit DP-857
Corrective Action Plan
Northeast and 5th SERF Evaporation Basins**

Background on the 5th SERF Evaporation Basin

In February 2015 DOE/LANS submitted record drawings to the NMED for the recently constructed 5th SERF evaporation basin on Sigma Mesa. Subsequently, in March 2015 the NMED granted DOE/LANS permission to place the 5th evaporation basin into service. On March 20, 2015, the 5th evaporation basin was placed into active service.

During a routine inspection of the 5th evaporation basin on March 25, 2015, water was discovered in the east (#2) inspection port. Initially, it was believed that the source of the water was precipitation trapped between the liners during construction. However, over the following four weeks the ports were pumped dry only to have water return. Conductivity and pH measurements taken of the inspection port water and water from the 5th evaporation basin confirmed that the water in the ports originated from the basin and not another source.

In May 2015 DOE/LANS submitted to NMED a Corrective Action Plan (CAP) for the leak in the primary liner at the new 5th evaporation basin (ENV-DO-15-0123). A copy is provided as Enclosure 1. 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 DOE/LANS will not complete repairs to the 5th evaporation basin by November 30th. The 5th 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.

Corrective Action Plan for the 5th SERF Evaporation Basin

1. The 5th SERF evaporation basin will remain in service and continue to receive SERF RO reject wastewater until the NE evaporation basin is repaired or relined (step #5 of the NE evaporation basin CAP).
2. Water levels in the west and east leak collection ports will be measured weekly. Weekly water level measurements will be reported to NMED in the DP-857 quarterly reports.
3. Both the west and east inspection ports will be pumped weekly, as necessary.
4. Once the NE evaporation basin is repaired or relined and returned to service the 5th evaporation basin will be actively drained and prepared for repair. Because the 5th evaporation basin is still under warranty, repairs will be made by the subcontractor that originally installed the liner system.
Expected completion date: December 30, 2016
5. 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

ENCLOSURE 3

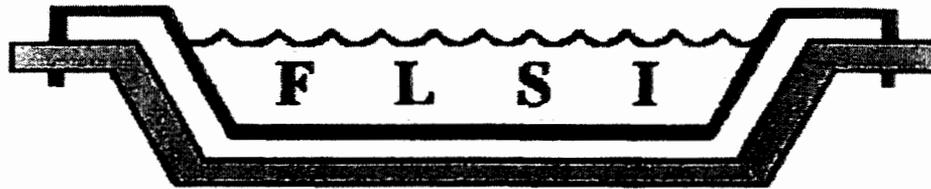
Liner Repair Report for the Northeast Sigma Mesa Evaporation Basin

ENV-DO-15-0364

LA-UR-15-29593

Date: **JAN 22 2016**

FIELD LINING SYSTEMS, INC.



INSTALLERS OF QUALITY LINING SYSTEMS

CONSTRUCTION QUALITY CONTROL DOCUMENTS

FOR

INSPECTION & REPAIRS

FOR

**LOS ALAMOS NATIONAL LABORATORIES
NORTHEAST POND LINER**

09/01/15

FOR

**LOS ALAMOS NATIONAL LABORATORIES
LOS ALAMOS, NM**

CONSTRUCTED BY:

*Field Lining Systems, Inc.
439 South Third Avenue
Avondale, Arizona 85323*

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- **Repair Log – Vacuum Test Log**
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Certificate of Acceptance

Field Lining Systems, Inc.



Installers of Quality Lining Systems

Certificate Of Acceptance

Job Number: 15-187-10	Date: 9-1-15
Project Name: LANL (NORTH EAST POND)	
Location: Los Alamos, NM	

Details of Work Completed & Measured

Inspected North East Pond by method of visual inspection, seam test with flat head screw driver and vacuum testing. A total of one tear was found, repaired and tested for leaks.

I, the undersigned, duly authorized representative _____ do hereby take over and accept the work described above from the date herof, subject to the exceptions detailed below, and confirm that the work has been completed in accordance with the specifications and the terms and conditions of the contract. There is no apparent damage to the geomembrane lining, nor is there any interference within or with the surrounding work.

I have evaluated and measured the work with the FLSI Representative, and agree that the measurements shown above are true and correct, and that the installation has met with our approval.

Exceptions

Authorized Representative

Name:	Title:
Signature:	Date:

FLSI Representative

Name: Joshua Remas	Title: Supervisor
Signature: <i>JR</i>	Date: 9-1-15

Field Start-Up Test Sheet

Geomembrane Seam Test Log

Field Lining Systems, Inc.



Installers of Quality Lining Systems

Geomembrane ^{Seam} Air Test Log

Job Number: 15187-10	Liner Thickness:
Job Name: Los Alamos	Liner Type: HDPE
Job Location: Los Alamos, NM	Pond Name/ Number: North East
Field Supervisor: Josh Ramos →	QC Tech:

Seam No.	Test Date	Technician	Air Pressure Test		Time		Test Result	Location
			PSI Start	PSI Finish	Start	Finish		
P-32/P-1	8/24	M.H						
P1/P-2	1	1						
P2/P3	8/24	M.H						
P3/P4	1	1						
P4/P5	8/24	M.H						
P5/P6	1	1						
P6/P7	8/24	M.H						
P7/P8	1	1						
P8/P9	8/24	M.H						
P9/P10	1	1						
P10/P11	8/24	M.H						
P11/P12	1	1						
P12/P13	8/24	M.H						
P13/P14	1	1						
P14/P15	8/24	M.H						
P15/P16	1	1						
P16/P17	8/24	M.H						
P17/P18	1	1						
P18/P19	8/24	M.H						
P19/P20	1	1						
P20/P21	8/24	M.H						
P21/P22	1	1						
P22/P23	8/24	M.H						
P23/P24	1	1						
P24/P25	8/24	M.H						
P25/P26	1	1						

Field Lining Systems, Inc.



Installers of Quality Lining Systems

Geomembrane ^{Seam} Test Log

Job Number: 15-167-10	Liner Thickness:
Job Name: Los Alamos	Liner Type: HDPE
Job Location: Los Alamos, NM	Pond Name/Number: North East
Field Supervisor: Josh Ramos →	QC Tech:

Seam No.	Test Date	Technician	Air Pressure Test		Time		Test Result	Location
			PSI Start	PSI Finish	Start	Finish		
P26/P27	M.H	8/24						
P27/P28								
P28/P30	M.H	8/24						
P30/P31								
P31/P32	M.H	8/24						
P27/P33	T.L							
P28/		8/24						
P29/	T.L							
P30/↓		8/24						
P2/P33	T.L							
P3/P34		8/24						
P4/P35	T.L							
P5/P36		8/24						
P6/P38	T.L							
P7/P39		8/24						
P11/P39	T.L							
P12/		8/24						
P13/	T.L							
P14/↓		8/24						
P16/P39	T.L							
P14/P38		8/24						
P20/P37	T.L							
P21/P35		8/24						
P23/P32	T.L							
P33/P34		8/24						
P34/P35	M.H							

Repair Log – Vacuum Test Log

Field Lining Systems, Inc.



Installers of Quality Lining Systems

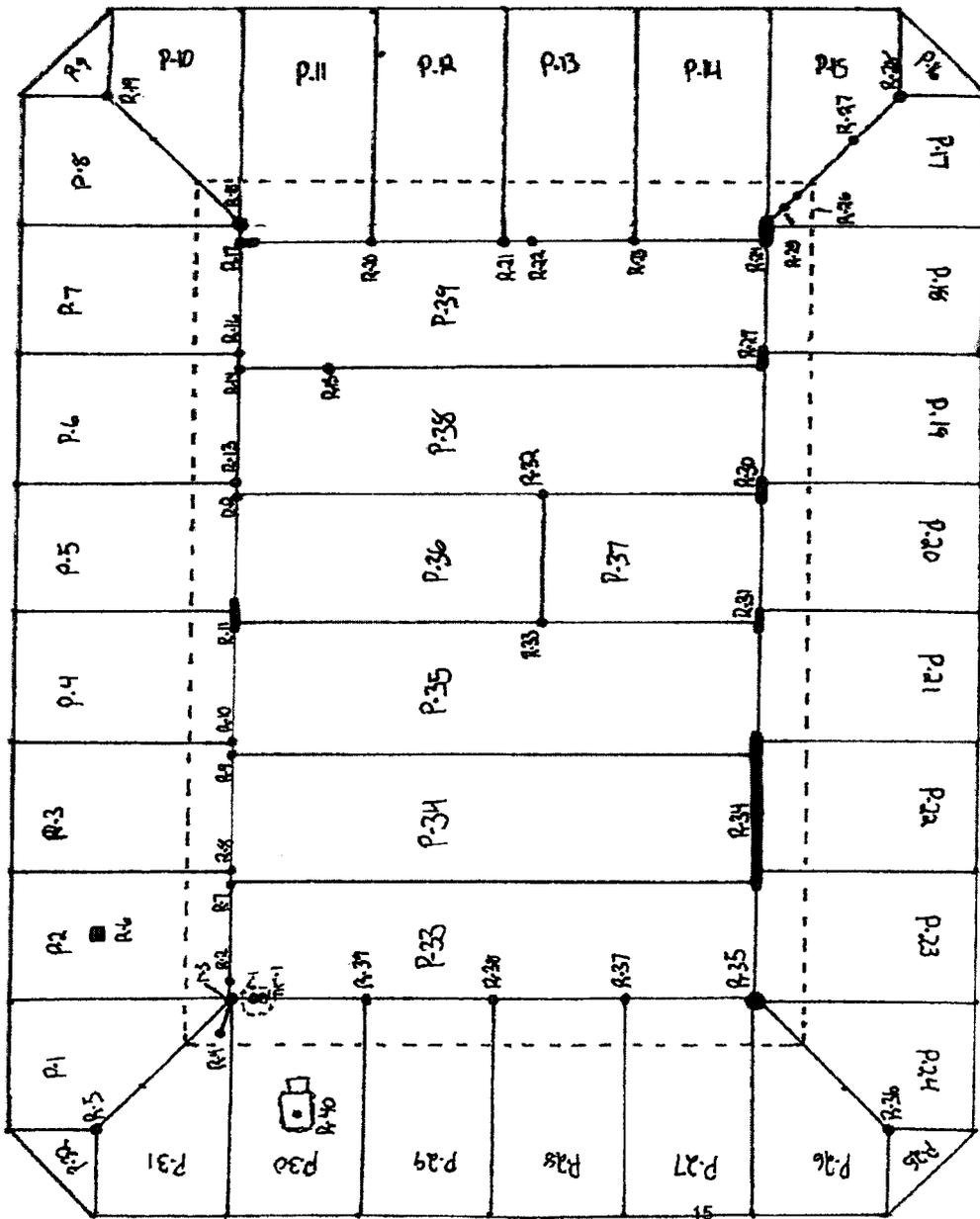
Repair Log - Vacuum Test Log

Job Number: 15-167-10	Liner Thickness: 60 mil
Job Name: Los Alamos Lab	Liner Type: HDPE
Job Location: Los Alamos, NM	Pond Name/ Number: North East Pond
Field Supervisor: Josue Ramos →	QC Tech:

Repair No.	Technician	Machine No.	Date Welded	Location	Date Tested	Technician	Pass/Fail
R-1				P-30/P-33	8/25	M.H	P
R-2				P-2/P-33	1	1	P
R-3				P-1/P-2/P-30/P-31/P-33	8/25	M.H	P
R-4				P-31	1	1	P
R-5				P-31/P-32/P-1	8/25	M.H	P
R-6				P-3 Slope	1	1	P
R-7				P-2/P-33/P-34	8/25	M.H	P
R-8				P-2/P-3/P-34	1	1	P
R-9				P-3/P-34/P-35	8/25	M.H	P
R-10				P-3/P-4/P-35	1	1	P
R-11				P-4/P-5/P-35/P-36	8/25	M.H	P
R-12				P-5/P-36/P-38	1	1	P
R-13				P-5/P-6/P-36	8/25	T.L	P
R-14				P-6/P-38/P-39	1	1	P
R-15				P-38/P-39	8/25	T.L	P
R-16				P-6/P-7/P-39	1	1	P
R-17				P-7/P-39/P-11	8/25	T.L	P
R-18				P-7/P-8/P-10/P-11	1	1	P
R-19				P-8/P-9/P-10	8/25	T.L	P
R-20				P-39/P-11/P-12	1	1	P
R-21				P-39/P-12/P-13	8/25	T.L	P
R-22				P-39/P-13	1	1	P
R-23				P-39/P-13/P-14	8/25	T.L	P
R-24				P-39/P-14/P-15/P-17/P-18	1	1	P
R-25				P-15/P-17	8/25	T.L	P
R-26				1	1	1	P
R-27				P-15/P-17	8/25	T.L	P

As-Built Drawing

North East Pond



- Existing Repairs Tested
- New Repairs (NR)

**Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL - WQH NPDES 160
Workorder #: 386842
SDG # : 2016-455**

December 09, 2015

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The sample arrived at GEL Laboratories LLC, Charleston, South Carolina on December 04, 2015 for analysis. The sample was delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperature was checked, documented, and within specifications. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following sample:

<u>Laboratory ID</u>	<u>Client ID</u>
386842001	NP160-16-106977

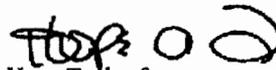
Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Metals.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.


Hope Taylor for
Valerie Davis
Project Manager