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ENTERED



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Date: **JUL 10 2012**
Refer To: ENV-RCRA-12-0151
LAUR: 12-21679

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: RESPONSE TO NMED GWQB INSPECTION REPORT, DP-1132

The U.S. Department of Energy and Los Alamos National Security, LLC (DOE/LANS) are in receipt of the Inspection Report (Enclosure 1) from the New Mexico Environment Department (NMED) Ground Water Quality Bureau's March 20, 2012, inspection of the Technical Area (TA)-50 Radioactive Liquid Waste Treatment Facility (RLWTF) and the TA-52 Zero Liquid Discharge (ZLD) Solar Evaporation Tanks. Upon review, DOE/LANS found both incorrect and incomplete statements that require correction because the report is part of the administrative record for DP-1132. Enclosure 2 contains seven review comments from DOE/LANS.



Mr. Jerry Schoeppner
ENV-RCRA-12-0151

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Please contact Robert S. Beers by telephone at (505) 667-7969 or by email at bbeers@lanl.gov if you have questions regarding this information.

Sincerely,

Sincerely,

*A R Grieggs
for A. Dorries*

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

*Gene E. Turner
for*

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

AMD:GET:BB/lm

Enclosures:

1. NMED GWQB Inspection Report
2. DOE/LANS Review Comments on NMED Inspection Report

Cy: James Hogan, NMED/SWQB, Santa Fe, NM, w/enc.
John Kieling, NMED/HWB, Santa Fe, NM, w/enc.
Hai Shen, LASO-EPO, w/enc., A316, (E-File)
Steve Yanicak, NMED/DOE-OB, w/enc., M894, (E-File)
Gene E. Turner, LASO-EPO, w/enc., A316, (E-File)
Carl A. Beard, PADOPS, w/o enc., A102
Michael T. Brandt, ADESH, w/o enc., K491, (E-File)
Alison M. Dorries, ENV-DO, w/o enc., K491, (E-File)
Randall S. Johnson, ENV-ES, w/enc., E500, (E-File)
Michael T. Saladen, ENV-RCRA, w/o enc., K490, (E-File)
Robert S. Beers, ENV-RCRA, w/enc., K490
Robert C. Mason, TA55-DO, w/enc., E583, (E-File)
Clifford W. Kirkland, TA-55-RLW, w/enc., E505, (E-File)
Victor J. Salazar, TA-55-RLW, w/enc., E518, (E-File)
John C. Del Signore, TA-55-RLW, w/enc., E518, (E-File)
IRM-RMMSO, w/enc., A150, (E-File)
ENV-RCRA Correspondence File, w/enc., K490



New Mexico Environment Department
Ground Water Quality Bureau

Inspection Report

Inspection Date: 03.20.12	DP #: 1132
Facility Name: Los Alamos National Laboratory (LANL)-Radioactive Liquid Waste Treatment Facility (RLWTF)	

Facility Contact Information – Scheduling Inspection

Scheduled Inspection - provide contact information **Unannounced Inspection**

Person Contacted: Bob Beers

Phone Number: 505.667.7969

Facility Description

Waste Type: Other

Directions to Facility: North on 84/285 to SR502 Exit to Los Alamos. Continue through Los Alamos (west) and bear left on to SR501 across bridge. Bear left and then take first right onto West Jemez Rd. Make left at first light onto Diamond Drive. Continue south until Pajarito Road and turn left. Technical Area (TA) 59 (meeting location) will be on right.

Inspection Information

Start Time: 9:00 am **End Time:** 12:00 pm

NMED Inspector(s): See attendees list (attached)

Verify that NMED Identification was presented: Yes No

Facility Representative(s) present during the Inspection/Discussion: See attendees list (attached)

Reason for Inspection: other
Routine inspection pre-permit discussion

Discussion, Observations and Information Obtained

Representatives from LANL and NMED met at TA-59 for a pre-inspection briefing. Introductions were made by both entities and an agenda for the inspection was reviewed. The RLWTF processes both caustic and acidic transuranic waste (TRU) as well as radioactive low-level waste (RLW) from various areas within the Laboratory.

Representatives from LANL escorted NMED to the RLWTF located at TA-50 for a walk-through of the facility. NMED conducted a walk-through inspection of Building 1, the Emergency influent storage facility (WRRM) located within TA-50 and the Solar Evaporation Tanks located within TA-52. LANL stated that influent collection lines span approximately four miles throughout several Technical Areas (TAs). The TRU lines are separate from the RLW lines; all of which are constructed with double containment and accessible inspection vaults with leak detection systems.

Fullam requested clarification regarding the processes for treating the RLW. LANL explained that all RLW



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goes first to TK-13 for neutralization prior to being sent to one of several influent holding tanks (75,000 gallon, 100,000 gallon or 17,000 gallon) from this point the neutralized wastewater is then treated through a number of treatment processes. LANL stated that the 75,000 gallon tank is the default for all neutralized RLW coming into the facility.

Fullam inquired about the fate of the reject water from the primary reverse osmosis units (PRO). Representatives from LANL stated the concentrate from the PRO (reject wastewater) is sent to the secondary reverse osmosis (SRO) unit for further treatment and disposal. The SRO is not in service yet but is planned to be within a week.

LANL explained that the perchlorate ion exchange (PIE) columns can be bypassed and the copper/zinc ion exchange units are only implemented if a planned discharge to the United States Environmental Protection Agency's (EPA's) National Pollutant Discharge Elimination System (NPDES) outfall is expected. LANL stated that there are various processes in the treatment system can be bypassed if needed and not all the processes are used at all times.

LANL has not discharged to the NPDES outfall for over a year and they are not intending to discharge due to the difficulty in treating the effluent to meet the NPDES copper limitations. Currently, the facility has been mechanically evaporating all effluent. The mechanical evaporators were determined not to require an Air Quality Permit.

At the time of inspection, LANL was nearing completion of the uncovered Solar Evaporative Tanks (SET). All treated effluent from the RLWTF will be discharged via a 3,500 foot single-lined gravity fed conveyance pipe (with welds every 500 feet) to the SET. LANL is anticipating having the as-built drawings for the SET completed by mid-May and would be looking at placing the SET on-line and commencing discharge approximately 3-4 months after that.

Fullam noted that the tank does not stand on-ground (as LANL had originally described) but rather is constructed so that the majority of the tank is set below grade and the maximum height of approximately 6" above the surrounding topography. Beers explained that although it is set below grade it is still constructed as a tank with man-made materials as a free-standing unit (as is defined under 40 CFR §264) as opposed to an impoundment which is dependent on earthen materials for structural support. Fullam explained that although LANL is asserting the unit to be defined as a tank under 40 CFR 264, the condition language for the Discharge Permit will be based primarily on 20.6.2. NMAC for the protection of ground water and human health and may differ substantially from what is required under 40 CFR 264, as it pertains to the definition of tank.

The system consists of a single unit with two cells (orientated east and west) which share a center partitioned wall with an emergency overflow outlet at the top of the wall. The discharge to each cell can be controlled manually or through the overflow valve on the shared wall. Fullam noted that the total volume of the SET was not as described in the application. The cells were to have a total depth of 4 feet but upon inspection, it was noted they are only 3.5 feet. Each of the cells has an independent synthetic liner. The synthetic liner is constructed of two sealed sheets of HDPE liner (40 mil and 60 mil from concrete to exposed layer respectively) with an interstitial layer of geo-mesh. The liner is set in a concrete structure with an intermediate layer of geo-net to protect the liner from the concrete. Representatives from LANL explained that the concrete structure was not sealed. There is a leak detection system within the synthetic liner which consists of a single conductive tape. The gradient on the concrete slopes towards the center and then to the north corner. At the time of inspection, LANL was uncertain on the sensor system, Beers stated he would follow-up and provide NMED with additional information. The SET is designed to have a misting system on the north and south sides of each cell to aid in evaporation. The misting system is controlled by individual cell and not by orientation to prevailing winds. NMED expressed concerns with being able to contain the misting during times of high southwest prevailing winds. LANL stated that the fencing (proposed to be 7 feet chainlink fencing with wind slats) will be constructed to minimize overtopping due to wind waves and the misting system could be turned off entirely if

ENCLOSURE 1

NMED Inspection Report

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there were issues.

Upon completion of the field inspection, representatives from LANL and NMED met for a de-briefing discussion. NMED stated they have been working on the application for the RLWTF and would probably be sending a Request for Additional Information on technical items which require clarification. NMED also explained that the language for specific condition requirements is still be drafted and further discussions with LANL would be appropriate at a later time. LANL and NMED discussed the leak detection system for the SET. There are some concerns that there is no ability to test or inspect the system as it is sealed, nor is there the ability to test the constituents should a leak be detected within the interstitial space of the liner to ensure it is not a result of a failure in the system. The concrete containment has not been treated or sealed and there may be concerns of infiltration from the bottom into the intermediate space between the concrete and the synthetic liner. Some of these issues may be addressed as conditions in the draft Discharge Permit, but NMED will follow-up with questions in the request for additional information.

Photographic Documentation

Photos Taken? Yes - see attached No

Sample Information

Samples Collected? Yes No

Monitoring Well Camera Inspection

Monitoring well camera inspection conducted? Yes - see attached report(s)
 No

Initials of Report Preparer: JF

Water Quality & RCRA Group (ENV-RCRA)

Meeting Topic: NMED GWQB INSPECTION OF DP-1132 & DP-857 FACILITIES

Meeting Date: TUESDAY, MARCH 20, 2012

Place: LOS ALAMOS NATIONAL LABORATORY

Meeting Called By: NMED GWQB

Name	Org	Phone	EMAIL
JENNIFER FULLAN	NMED-GWQB	505-827-2909	jennifer.fullan@state.nm.us
CLINT MARSHALL	NMED-GWQB	505-690-4102	clint.marshall@state.nm.us
Gerald Knutson	NMED-GWQB	505-827-2996	gerald.knutson@state.nm.us
GERARD A. SCHAEPPNER	NMED-GWQB	505-827-2919	jerry.schaeppner@state.nm.us
Alison Dornis	LANL ENV-DO	505-699-1979	adornis@lanl.gov
Scotty Jones	ENV-DO	500 2077	SJones
Edward Artiglia	ES-TE	505-664-0351	eartiglia@lanl.gov
CHRIS DEL SIGNORE	TA-50 RLWTF	665-5956	icds@lanl.gov
Cliff Kirkland	TA-50 RLWTF	606-0576	clwkirk@lanl.gov
JOHN NARANJO	TA-50 RLWTF	665-8507	johnn@lanl.gov
MARK TRUJILLO	SERF	667-4643	trujiillo_mark@lanl.gov
RICK CONNER	MANAGER OF 2D Project	665-3091	rpconner@lanl.gov

Meeting Agenda Items and Topics

BOB BEERS	ENV-RCRA	667-7969	bbeers@lanl.gov
ROBERT GEORGE	NMED-GWQB	476-3648	robert.george@state.nm.us
STEVE HANSON	TA-50 RLWTF	665-6511	hanson@lanl.gov
GENE TURNER	DOE/IABO	667-5794	gturner@doeal.gov

ENCLOSURE 2

Comments From DOE/LANS Review of the NMED Inspection Report

ENV-RCRA-12-0151

LAUR-12-21679

Date: **JUL 10 2012**

**US Department of Energy/Los Alamos National Security, LLC
Review Comments on the NMED's Inspection Report for DP-1132
From the March 20, 2012, Inspection of the TA-50 RLWTF**

1. **NMED Statement:** *LANL has not discharged to the NPDES outfall for over a year and they are not intending to discharge due to the difficulty in treating the effluent to meet the NPDES copper limitations.*

DOE/ LANS Comment: Discharging treated effluent to the NPDES outfall is one of the following three options available to the US Department of Energy/Los Alamos National Security, LLC (DOE/LANS) for managing treated effluent from the RLWTF: (1) NPDES outfall 001 in Mortandad Canyon, (2) mechanical (thermal) evaporator at TA-50, and (3) TA-52 ZLD Solar Evaporation Tanks. The strategic plan for DOE/LANS is to maintain all three effluent management options, including the capability of treating radioactive liquid waste to meet all NPDES limitations.

As a result of discussions with representatives of the Environmental Protection Agency (EPA), Region 6, DOE/LANS are conducting tests to determine the effect of restoring hardness to treated water prior to discharge to the environment. If tests demonstrate that restoring hardness enables discharges to meet the Whole Effluent Toxicity (WET) bioassay, the National Pollutant Discharge Elimination System (NPDES) discharge limits for copper and zinc may be modified. This modification will allow DOE/LANS to resume discharges via the NPDES outfall. (Tests have thus far demonstrated that restoring hardness reduces the toxicity of the resulting effluent allowing treated water to pass the WET bioassay.)

2. **NMED Statement:** *.....it is still constructed as a tank with man-made materials as a free-standing unit (as is defined under 40 CFR §264).*

DOE/ LANS Comment: The definition of a tank is found in 40 CFR §260.10, not 40 CFR §264.

3. **NMED Statement:** *LANL is anticipating having the as-built drawings for the SET (Solar Evaporation Tanks) completed by mid-May and would be looking at placing the SET on-line and commencing discharge approximately 3-4 months after that.*

DOE/ LANS Comment: As-built drawings will not be available until July 2012.

4. **NMED Statement:** *Fullam noted that the total volume of the SET was not described in the application.*

DOE/ LANS Comment: The capacity, at a depth of 3-feet, of the TA-52 Solar Evaporation Tanks is 762,000 gallons.

5. **NMED Statement:** *The cells were to have a total depth of 4 ft but upon inspection, it was noted that they are only 3.5 ft.*

DOE/ LANS Comment: The total depth of each tank is 4 ft; the maximum operating height is 3 ft with an allowance for a 1 ft freeboard.

6. **NMED Statement:** *At the time of the inspection, LANL was uncertain on the sensor system, Beers stated that he would follow-up and provide NMED with additional information.*

DOE/ LANS Comment: When representatives from DOE/LANS and NMED met for a post-inspection de-briefing Ed Artiglia—the SET Project Engineer—attended to provide the NMED with additional information on the leak detection sensor system. Mr. Artiglia explained that the interstitial spaces between (1) the concrete floor/walls and secondary liner and (2) between the primary and secondary liners cannot be accessed for sampling. DOE/LANS are not currently aware if there are additional unanswered questions by the NMED concerning the liner/sensor systems.

7. **NMED Statement:** *LANL stated that the fencing (proposed to be 7 feet chain link fencing with wind slats) will be constructed to minimize overtopping due to wind waves and the misting system could be turned off entirely if there were issues.*

DOE/LANS Comment: The NMED was given incorrect information during the field inspection of the SET. An 8-foot chain link fence has been installed around the SET and there are no current plans to install wind slats on the chain link fence.