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RYAN FLYNN
Cabinet Secretary-Designate

BUTCH TONGATE
Deputy Secretary

Certified Mail - Return Receipt Requested

August 5, 2014

Ms. Kimberly Davis-Lebak, Manager
U.S. DOE National Nuclear Security Administration
Los Alamos Site Office (NA-00-LA)
3747 West Jemez Road
Los Alamos, NM 87544

Ms. Alison Dorries, Associate Director
Environment, Safety, Health and Quality MS K491
Los Alamos National Security, LLC
P.O. Box 1663
Los Alamos, NM 87545

Re: Los Alamos National Laboratory, Major, Individual Permit; SIC 9711; NPDES Compliance Evaluation Inspection; NM0028355; July 7-9, 2014

Dear Ms. Dorries:

Enclosed please find a copy of the report and check list for the referenced inspection that the New Mexico Environment Department (NMED) conducted at your facility on behalf of the U.S. Environmental Protection Agency (USEPA). This inspection report will be sent to the USEPA in Dallas for their review. These inspections are used by USEPA to determine compliance with the National Pollutant Discharge Elimination System (NPDES) permitting program in accordance with requirements of the federal Clean Water Act.

Introduction, treatment scheme, and problems noted during this inspection are discussed in the "Further Explanations" section of the inspection report.

You are encouraged to review the inspection report, required to correct any problems noted during the inspection, and advised to modify your operational and/or administrative procedures, as appropriate. If you have comments on or concerns with the basis for the findings in the NMED inspection report, please contact us (see the address below) in writing within 30 days from the date of this letter. Further, you are encouraged to notify in writing both the USEPA and NMED regarding modifications and compliance schedules at the addresses below:

Racquel Douglas
US Environmental Protection Agency, Region VI
Enforcement Branch (6EN-WM)
1445 Ross Avenue
Dallas, Texas 75202-2733

Bruce Yurdin
New Mexico Environment Department
Surface Water Quality Bureau
Point Source Regulation Section
P.O. Box 5469
Santa Fe, New Mexico 87502

If you have any questions about this inspection report, please contact Sarah Holcomb at 505-827-2798 or at sarah.holcomb@state.nm.us.

Los Alamos National Security, LLC & U.S. Department of Energy

August 5, 2014

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Sincerely,

/s/ Bruce J. Yurdin

Bruce J. Yurdin
Program Manager
Point Source Regulation Section
Surface Water Quality Bureau

cc: Racquel Douglas, USEPA (6EN-AS) by e-mail
Carol Peters-Wagnon, USEPA (6EN-WM) by e-mail
Everett Spencer, USEPA (6EN-WM) by e-mail
Brent Larsen, USEPA (6WQ-PP) by e-mail
Gladys Gooden-Jackson, USEPA (6EN) by e-mail
NMED District 2, Bob Italiano by e-mail
Mike Saladen, Team Leader, LANS ENV-RCRA by e-mail
Marc Bailey, LANS LLC, by e-mail
Gene Turner, USDOE, by e-mail



Form Approved
OMB No. 2040-0003
Approval Expires 7-31-85

NPDES Compliance Inspection Report

Section A: National Data System Coding

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-------|---|---|---|---|----------------------------|---|---|---|---|-----------|----|----|--------------|-----------|----------|---|---|---|---|---|----|----|----|----|---|----|---|
| Transaction Code | NPDES | | | | | | | | | | yr/mo/day | | | Inspec. Type | Inspector | Fac Type | | | | | | | | | | | | |
| 1 | N | 2 | 5 | 3 | N | M | 0 | 0 | 2 | 8 | 3 | 5 | 5 | 11 | 12 | 1 | 4 | 0 | 7 | 0 | 7 | 17 | 18 | C | 19 | S | 20 | 2 |
| Remarks | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N A T I O N A L R E S E A R C H L A B O R A T O R Y | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inspection Work Days | | | | | | Facility Evaluation Rating | | | | | | BI | QA | Reserved | | | | | | | | | | | | | | |
| 67 | | | | | | 70 | | | | | | 71 | 72 | 74 75 | | | | | | | | | | 80 | | | | |

Section B: Facility Data

| | | |
|---|--|-------------------------------------|
| Name and Location of Facility Inspected (<i>For industrial users discharging to POTW, also include POTW name and NPDES permit number</i>) Los Alamos National Laboratory, managed by LANS, LLC and US Department of Energy, Los Alamos, NM: LANL is jointly operated by the U.S. Department of Energy (DOE), National Nuclear Security Administration (NNSA), Los Alamos Site Office (LASO) and Los Alamos National Security, LLC (LANS) | Entry Time /Date 1000 hours / 7-7-2014 | Permit Effective Date 8-1-2007 |
| | Exit Time/Date 1600 hours / 7-9-2014 | Permit Expiration Date 7-31-2012 |
| Name(s) of On-Site Representative(s)/Title(s)/Phone and Fax Number(s) Mr. Mike Saladen, Team Leader, ENV-RCRA, LANS, LLC (505) 665-6085 Mr. Marc Bailey, Environmental Professional, ENV-RCRA, LANS LLC (505) 665-8135 Mr. Gene Turner, Engineer, U.S. DOE, NNA, LASO (505) 667-5794 Mr. Marc Gallegos, LANL DSESH-STO FOD (505) 665-9050 Ms. Stephanie Griego, LANL STO-DO (505) 667-7560 | Other Facility Data SIC 9922, 9711, 9661, 9611 | |
| Name, Address of Responsible Official/Title/Phone and Fax Number Ms. Kimberly Davis-Lebak, Manager, USDOE, NNSA, Los Alamos Field Office (505) 667-5105, 3747 West Jemez Road, Los Alamos, NM 87544 Ms. Alison Dories, Director, Environment, Safety, Health and Quality, Los Alamos National Security, LLC, PO Box 1663, Los Alamos, NM 87545 (505) | Contacted Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | |

Section C: Areas Evaluated During Inspection (S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

| | | | | | | | |
|---|---------------------------|---|-------------------------|---|--------------------------|---|----------------------|
| S | Permit | S | Flow Measurement | M | Operations & Maintenance | N | CSO/SSO |
| S | Records/Reports | M | Self-Monitoring Program | S | Sludge Handling/Disposal | N | Pollution Prevention |
| S | Facility Site Review | M | Compliance Schedules | N | Pretreatment | N | Multimedia |
| S | Effluent/Receiving Waters | S | Laboratory | N | Storm Water | N | Other: |

Section D: Summary of Findings/Comments (Attach additional sheets if necessary)

- Inspectors arrived on site and met with LANS, LLC and USDOE staff for an entrance interview on July 7, 2014. Introductions were made, credentials were presented, and the purpose of the inspection was discussed. LANS staff escorted the NMED inspectors around the facility as each outfall was toured over the three day inspections. An exit interview was held on July 9, 2014 to discuss preliminary findings.
- Please see report for further information.

| | | |
|---|---|------------------|
| Name(s) and Signature(s) of Inspector(s) Sarah Holcomb /s/ Sarah Holcomb | Agency/Office/Telephone/Fax 505-827-2798 | Date 8-5-2014 |
| Signature of Management QA Reviewer Bruce Yurdin /s/ Bruce Yurdin | Agency/Office/Phone and Fax Numbers 505-827-2795 | Date 8-5-2014 |

SECTION A - PERMIT VERIFICATION

PERMIT SATISFACTORILY ADDRESSES OBSERVATIONS
DETAILS:

S M U NA (FURTHER EXPLANATION ATTACHED NO)

1. CORRECT NAME AND MAILING ADDRESS OF PERMITTEE

Y N NA

2. NOTIFICATION GIVEN TO EPA/STATE OF NEW DIFFERENT OR INCREASED DISCHARGES

Y N NA

3. NUMBER AND LOCATION OF DISCHARGE POINTS AS DESCRIBED IN PERMIT

Y N NA

4. ALL DISCHARGES ARE PERMITTED

Y N NA

SECTION B - RECORDKEEPING AND REPORTING EVALUATION

RECORDS AND REPORTS MAINTAINED AS REQUIRED BY PERMIT.
DETAILS:

S M U NA (FURTHER EXPLANATION ATTACHED NO)

1. ANALYTICAL RESULTS CONSISTENT WITH DATA REPORTED ON DMRs.

Y N NA

2. SAMPLING AND ANALYSES DATA ADEQUATE AND INCLUDE.

S M U NA

a) DATES, TIME(S) AND LOCATION(S) OF SAMPLING

Y N NA

b) NAME OF INDIVIDUAL PERFORMING SAMPLING

Y N NA

c) ANALYTICAL METHODS AND TECHNIQUES.

Y N NA

d) RESULTS OF ANALYSES AND CALIBRATIONS.

Y N NA

e) DATES AND TIMES OF ANALYSES.

Y N NA

f) NAME OF PERSON(S) PERFORMING ANALYSES.

Y N NA

3. LABORATORY EQUIPMENT CALIBRATION AND MAINTENANCE RECORDS ADEQUATE.

S M U NA

4. PLANT RECORDS INCLUDE SCHEDULES, DATES OF EQUIPMENT MAINTENANCE AND REPAIR.

S M U NA

5. EFFLUENT LOADINGS CALCULATED USING DAILY EFFLUENT FLOW AND DAILY ANALYTICAL DATA.

Y N NA

SECTION C - OPERATIONS AND MAINTENANCE

TREATMENT FACILITY PROPERLY OPERATED AND MAINTAINED.
DETAILS:

S M U NA (FURTHER EXPLANATION ATTACHED YES)

1. TREATMENT UNITS PROPERLY OPERATED.

S M U NA

2. TREATMENT UNITS PROPERLY MAINTAINED.

S M U NA

3. STANDBY POWER OR OTHER EQUIVALENT PROVIDED.

S M U NA

4. ADEQUATE ALARM SYSTEM FOR POWER OR EQUIPMENT FAILURES AVAILABLE.

S M U NA

5. ALL NEEDED TREATMENT UNITS IN SERVICE

S M U NA

6. ADEQUATE NUMBER OF QUALIFIED OPERATORS PROVIDED.

S M U NA

7. SPARE PARTS AND SUPPLIES INVENTORY MAINTAINED.

S M U NA

8. OPERATION AND MAINTENANCE MANUAL AVAILABLE.

Y N NA

STANDARD OPERATING PROCEDURES AND SCHEDULES ESTABLISHED.

Y N NA

PROCEDURES FOR EMERGENCY TREATMENT CONTROL ESTABLISHED.

Y N NA

SECTION C - OPERATIONS AND MAINTENANCE (CONT'D)

9. HAVE BYPASSES/OVERFLOWS OCCURRED AT THE PLANT OR IN THE COLLECTION SYSTEM IN THE LAST YEAR? Y N NA
 IF SO, HAS THE REGULATORY AGENCY BEEN NOTIFIED? Y N NA
 HAS CORRECTIVE ACTION BEEN TAKEN TO PREVENT ADDITIONAL BYPASSES/OVERFLOWS? Y N NA
10. HAVE ANY HYDRAULIC OVERLOADS OCCURRED AT THE TREATMENT PLANT? Y N NA
 IF SO, DID PERMIT VIOLATIONS OCCUR AS A RESULT? Y N NA

SECTION D - SELF-MONITORING

PERMITTEE SELF-MONITORING MEETS PERMIT REQUIREMENTS. S M U NA (FURTHER EXPLANATION ATTACHED YES).
 DETAILS:

1. SAMPLES TAKEN AT SITE(S) SPECIFIED IN PERMIT. Y N NA
2. LOCATIONS ADEQUATE FOR REPRESENTATIVE SAMPLES. Sigma (Outfall 03A022), and LANSCE (03A048) Y N NA
3. FLOW PROPORTIONED SAMPLES OBTAINED WHEN REQUIRED BY PERMIT. Y N NA
4. SAMPLING AND ANALYSES COMPLETED ON PARAMETERS SPECIFIED IN PERMIT. Y N NA
5. SAMPLING AND ANALYSES PERFORMED AT FREQUENCY SPECIFIED IN PERMIT. Y N NA
6. SAMPLE COLLECTION PROCEDURES ADEQUATE Y N NA
- a) SAMPLES REFRIGERATED DURING COMPOSITING. Y N NA
- b) PROPER PRESERVATION TECHNIQUES USED. Y N NA
- c) CONTAINERS AND SAMPLE HOLDING TIMES CONFORM TO 40 CFR 136.3. Y N NA
7. IF MONITORING AND ANALYSES ARE PERFORMED MORE OFTEN THAN REQUIRED BY PERMIT, ARE THE RESULTS REPORTED IN PERMITTEE'S SELF-MONITORING REPORT? Y N NA

SECTION E - FLOW MEASUREMENT

PERMITTEE FLOW MEASUREMENT MEETS PERMIT REQUIREMENTS. S M U NA (FURTHER EXPLANATION ATTACHED NO).
 DETAILS:

1. PRIMARY FLOW MEASUREMENT DEVICE PROPERLY INSTALLED AND MAINTAINED. Y N NA
 TYPE OF DEVICE various
2. FLOW MEASURED AT EACH OUTFALL AS REQUIRED. Y N NA
3. SECONDARY INSTRUMENTS (TOTALIZERS, RECORDERS, ETC.) PROPERLY OPERATED AND MAINTAINED. Y N NA
4. CALIBRATION FREQUENCY ADEQUATE. Y N NA
 RECORDS MAINTAINED OF CALIBRATION PROCEDURES. Y N NA
 CALIBRATION CHECKS DONE TO ASSURE CONTINUED COMPLIANCE. Y N NA
5. FLOW ENTERING DEVICE WELL DISTRIBUTED ACROSS THE CHANNEL AND FREE OF TURBULENCE. Y N NA
6. HEAD MEASURED AT PROPER LOCATION. Y N NA
7. FLOW MEASUREMENT EQUIPMENT ADEQUATE TO HANDLE EXPECTED RANGE OF FLOW RATES. Y N NA

SECTION F - LABORATORY

PERMITTEE LABORATORY PROCEDURES MEET PERMIT REQUIREMENTS. S M U NA (FURTHER EXPLANATION ATTACHED NO).
 DETAILS:

1. EPA APPROVED ANALYTICAL PROCEDURES USED (40 CFR 136.3 FOR LIQUIDS, 503.8(b) FOR SLUDGES) Y N NA

SECTION F - LABORATORY (CONT'D)

2. IF ALTERNATIVE ANALYTICAL PROCEDURES ARE USED, PROPER APPROVAL HAS BEEN OBTAINED Y N NA
3. SATISFACTORY CALIBRATION AND MAINTENANCE OF INSTRUMENTS AND EQUIPMENT. S M U NA
4. QUALITY CONTROL PROCEDURES ADEQUATE. S M U NA
5. DUPLICATE SAMPLES ARE ANALYZED. 10 % OF THE TIME. Y N NA
6. SPIKED SAMPLES ARE ANALYZED. % OF THE TIME. Y N NA
7. COMMERCIAL LABORATORY USED. Y N NA

LAB NAME /LAB ADDRESS / PARAMETERS PERFORMED

- 1) General Engineering Laboratories LLC (GEL)/2040 Savage Road, Charleston, SC 29407 / TSS, Aluminum
 2) American Radiation Services / 1903 Central Ave., Los Alamos, NM 87544 / E. coli

SECTION G - EFFLUENT/RECEIVING WATERS OBSERVATIONS. S M U NA (FURTHER EXPLANATION ATTACHED NO.)

| OUTFALL NO. | OIL SHEEN | GREASE | TURBIDITY | VISIBLE FOAM | FLOAT SOL. | COLOR | OTHER |
|-------------|-----------|--------|-----------|--------------|------------|-------|-------|
| 001 | NONE | NONE | NONE | NONE | NONE | CLEAR | |
| | | | | | | | |
| | | | | | | | |

RECEIVING WATER OBSERVATIONS

SECTION H - SLUDGE DISPOSAL

SLUDGE DISPOSAL MEETS PERMIT REQUIREMENTS. S M U NA (FURTHER EXPLANATION ATTACHED NO.)
 DETAILS:

1. SLUDGE MANAGEMENT ADEQUATE TO MAINTAIN EFFLUENT QUALITY. S M U NA
2. SLUDGE RECORDS MAINTAINED AS REQUIRED BY 40 CFR 503. S M U NA
3. FOR LAND APPLIED SLUDGE, TYPE OF LAND APPLIED TO: compost (e.g., FOREST, AGRICULTURAL, PUBLIC CONTACT SITE)

SECTION I - SAMPLING INSPECTION PROCEDURES (FURTHER EXPLANATION ATTACHED).

1. SAMPLES OBTAINED THIS INSPECTION. Y N NA
2. TYPE OF SAMPLE OBTAINED
 GRAB _____ COMPOSITE SAMPLE METHOD _____ FREQUENCY _____
3. SAMPLES PRESERVED. Y N NA
4. FLOW PROPORTIONED SAMPLES OBTAINED. Y N NA
5. SAMPLE OBTAINED FROM FACILITY'S SAMPLING DEVICE. Y N NA
6. SAMPLE REPRESENTATIVE OF VOLUME AND MATURE OF DISCHARGE. Y N NA
7. SAMPLE SPLIT WITH PERMITTEE. Y N NA
8. CHAIN-OF-CUSTODY PROCEDURES EMPLOYED. Y N NA
9. SAMPLES COLLECTED IN ACCORDANCE WITH PERMIT. Y N NA

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NPDES Permit No. NM0028355
July 7-9, 2014**

Further Explanations

Introduction

On July 7-9, 2014, Sarah Holcomb of the New Mexico Environment Department (NMED), Surface Water Quality Bureau (SWQB) accompanied by Erin Trujillo, Bruce Yurdin and Daniel Valenta also of NMED SWQB, conducted a Compliance Evaluation Inspection (CEI) at the U.S Department of Energy (DOE), Los Alamos National Laboratory (LANL), jointly operated by Los Alamos National Security, LLC (LANS) and the U.S Department of Energy, National Nuclear Security Administration, Los Alamos Site Office (DOE). This inspection covered all outfalls of this permit.

LANL is classified as a major discharger under the federal Clean Water Act, Section 402, of the National Pollutant Discharge Elimination System (NPDES) permit program. It is assigned NPDES permit number NM0028355. This permit authorizes discharges from eleven (11) outfalls (as of the permit reapplication documentation dated February 2012) to several tributaries, 20.6.4.126 and 20.6.4.128 NMAC, thence to the Rio Grande of the Rio Grande Basin. Segment 20.6.4.126 NMAC includes the designated uses of coldwater aquatic life, livestock watering, wildlife habitat and secondary contact. Segment 20.6.4.128 NMAC includes the designated uses of livestock watering, wildlife habitat, limited aquatic life, and secondary contact.

The NMED performs a certain number of CEIs each year for the U.S. Environmental Protection Agency (USEPA), Region VI. The purpose of this inspection is to provide the USEPA with information to evaluate the Permittee's compliance with the NPDES permit. This inspection report is based on information provided by the Permittee's representatives, observations made by the NMED inspectors, and records and reports kept by the Permittee and/or NMED.

An entrance interview was conducted with LANS and DOE staff at approximately 1000 hours at LANL ENV-RCRA offices on the first day of this inspection. The inspector made introductions, presented credentials and discussed the purpose of this inspection. A tour of each of the facilities at each outfall was conducted over the first two days. Paperwork and other documentation was reviewed on the third, and an exit interview to discuss preliminary findings was conducted at 1530 hours on July 9, 2014 with LANS and DOE staff.

Treatment Scheme

There are eleven permitted outfalls at this facility, some of which discharge only periodically. All eleven outfalls were evaluated during this site inspection. Following is a brief description of these outfalls and their associated operational units:

Outfall 001

Outfall 001 is authorized to discharge power plant waste water from cooling towers, boiler blowdown drains, demineralizer backwash, reverse osmosis (RO) reject, floor and sink drains, and treated sanitary re-use to Sandia Canyon. TA-3-22 is a natural gas (diesel fuel backup) fired steam electric generating station that can provide steam and back-up electricity to various LANL technical areas. Make-up water for the cooling towers can be from either municipal water supply and/or sanitary effluent from the SWWS. Effluent from the SWWS is directed to the SWWS Recycle Tank (296K gallons) located adjacent to the power plant. Recycle tank overflow discharges to manhole "A" and is de-chlorinated with NALCO 7408, a sodium sulfite based oxygen scavenger. Discharge from manhole "A" continues to manhole "B", where tank overflow is combined with the above wastewater flows and discharged to Outfall 001. Make-up water for the boilers is from municipal water supply. Municipal water is treated with a water softener, an RO unit, and demineralizers before use in the boilers. Boiler blowdown is first sent to a dedicated flash tank, then to collection and blowdown tanks where carbon dioxide is used to adjust pH, then to the primary environmental tank prior to discharge via manhole "B" to Outfall 001. The oil water separator shown on flow diagrams for the facility is not used. In the event that secondary containment of oil tanks for equipment in the power plant basement fail, the plant's spill response procedures would be used to prevent or minimize oil from entering drains that lead to the primary environmental tank. Laboratory wastewater is disposed in a

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sink in the plant's basement, called a "trough" by on-site representatives, which discharges to the primary environmental tank. All other sinks at the power plant are reported to discharge to the sanitary sewer to the SWWS. Reject water from the water softener is sent to the SWWS plant while reject water from the RO unit and de-mineralizers is sent to either the primary or secondary environmental tanks where pH, conductivity and TSS are checked prior to discharge via manhole "B" to Outfall 001. Primary flow measurement is conducted using a 9-inch Parshall flume and secondary instrument to measure head and totalizer which is monitored by power plant operators using a supervisory control and data acquisition system. The Permittee does a thorough verification check of the secondary measurement device and primary device head gage using a calibrated block for three flows (0%, 50% and full range) through the flume every 6 months to a year. Comparison of the primary and secondary devices are within 5% to pass the verification check.

Outfall 05A055 – TA-16-1508, High Explosives Waste Water Treatment Plant (HEWTF)

Outfall 05A055 (055) is authorized to discharge treated wastewater from the high explosives wastewater treatment facility. TA-16-1508 treats wastewater from high explosives (HE) research and development, decontamination and decommissioning activities, and various other activities. Wastewater is generated at four contributing Technical Areas, and contained on site in a sump under the building. The facility has a Waste Acceptance Criteria (WAC) and waste is characterized by the generator and documented on a Waste Profile Form (WPF) filled out by the generator for approval before being sent to the facility. An HEWTF operator picks up HE wastewater from LANL generators in 55-gallon drums or by dedicated vacuum truck. All wastewater is received at two small sand filter tanks that discharge into an approximately 500 gallon transfer sump. Wastewater is pumped from the sump to an approximately 3000-gallon equalization holding tank to provide uniform flow through the plant. Wastewater passes through coalescing particulate filters, then a series of two (four total used alternately) activated carbon filters. Following the carbon filters, wastewater is conveyed through an ion-exchange system to remove ammonium, perchlorate and barium, then is directed into two post-treatment holding tanks. From the post-treatment tanks, treated waste is routed to a mechanical evaporator system that evaporates all, approximately 200 gallons per day, of the liquid waste. Occasionally, operational samples of the treated wastewater are collected to determine if quality meets effluent limits, should it be required to batch discharge wastewater from the ion-exchange tanks.

Outfalls 03A048 – TA-53, Los Alamos Neutron Science Center (LANSCE) Cooling Towers

Outfall 03A048 (048) is authorized to discharge cooling tower blowdown and other wastewater. These discharges are cooling tower blowdown from two sets of cooling towers at TA-53 Los Alamos Neutron Science Center (LANSCE). Bromicide for microbiological control is added to the cooling waters. Blowdown from cooling towers TA-53-963 and TA-53-979 is de-chlorinated using sodium/potassium sulfite prior to discharge.

Outfall 03A113 – TA-53, LANSCE Low Energy Demonstration Accelerator (LEDA) Cooling Towers

Outfall 03A113 (113) is authorized to discharge cooling tower blowdown and other wastewater. This discharge is cooling tower blowdown from two sets of cooling towers at TA-53 Low Energy Demonstration Accelerator (LEDA). The discharge from cooling towers TA-53-293 and TA-53-952 blowdown is de-chlorinated using West R-630, a sodium and potassium sulfite, prior to discharge. Discharge from the cooling towers at the LANSCE LEDA was previously co-mingled with stormwater prior to discharge at Outfall 113, however the process water and stormwater pipes were separated and do not discharge together at this time.

Outfall 03A199 – TA-3, Laboratory Data Communications Center (LDCC) Cooling Tower

Outfall 03A199 (199) is authorized to discharge cooling tower blowdown and other wastewater. This discharge is blowdown from two cooling towers at TA-3-1498. Formula 2011 is added to the cooling tower waters. Blow down is de-chlorinated using Formula 159 prior to discharge.

Outfall 03A022 – TA-3-127, Sigma Cooling Towers and Emergency Cooling System

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Outfall 03A022 (022) is authorized to discharge cooling tower blowdown and other wastewater. This discharge is cooling tower blowdown from the Sigma Cooling Tower at TA-3-127 and once through cooling water from an emergency cooling system. Blowdown from the cooling towers is de-chlorinated using Formula 159, an oxygen scavenger of potassium/sodium/bisulfite, prior to discharge. There was no mechanism available for de-chlorination of the once through emergency cooling system.

Outfall 03A160 – TA-35-124, National High Magnetic Field Lab Cooling Towers

Outfall 03A160 (160) is authorized to discharge cooling tower blowdown and other wastewater. This discharge is blowdown from a rooftop cooling tower (for cooling electrical switch equipment) at TA-35-124 National High Magnetic Field Lab. No biocide is used and the discharge is not de-chlorinated. Discharge of blowdown enters a storm water drainage pipe to Ten Site Canyon, which is a tributary to Mortendad Canyon.

Outfall 03A181 – TA-55, Plutonium Facility, Cooling Towers

Outfall 03A181 (181) is authorized to discharge cooling tower blowdown and other wastewater. This discharge is blowdown from three cooling towers at TA-55-6. NALCO® 7408 sodium bisulfate, also noted as a sodium sulfite in literature, and STA°BR°EX® (anti scaler), a liquid bromine based antimicrobial, is added to cooling water. Blowdown is de-chlorinated prior to discharge. Discharge from cooling towers are co-mingled with stormwater, including roof drain sources and paved surfaces from approximately one-fourth of the Plutonium Facility at Outfall 181. Monitoring samples are obtained outside the security fence at the Plutonium Facility.

Outfall 03A027 – TA-3-2327, Strategic Computing Complex (SCC) Cooling Towers

Outfall 03A027 (027) is authorized to discharge cooling tower blowdown and other wastewater. This discharge is cooling tower blowdown at TA-3-2327. The Sanitary Effluent Recovery or Reclamation Facility (SERF) and the reuse of sanitary effluent at the SCC Cooling Towers was on-line during this inspection. Blowdown from cooling towers is de-chlorinated prior to discharge.

Outfall 051 – TA-50, Radioactive Liquid Waste Treatment Facility (RLWTF)

The TA-50 Radioactive Liquid Waste Treatment Facility (RLWTF) discharges into Mortendad Canyon. This facility treats both low-level radioactive liquid waste (low-level RLW) and transuranic waste. These are treated in separate processes.

TA-50 receives the majority of industrial liquid waste via gravity flow through a double-walled Radioactive Liquid Waste Collection System (RLWCS). Approximately 1600 generating points discharge to TA-50 via this collection system. In addition, some waste is trucked to the facility. A Waste Acceptance Criteria (WAC) has been developed to limit, or eliminate, waste materials that the plant may be unable to adequately treat, which is characterized by the generator and documented on a Waste Profile Form (WPF) filled out by the generator. The WPFs are reviewed and if the waste meets with WAC, the generator receives approval from TA-50 staff to ship the waste to TA-50. The WPF is re-submitted and re-approved at least annually, and any time the characteristics of the waste change.

Some major facility equipment changes were completed in 2012. This included taking the primary clarifiers offline, installing new influent tanks and a new microfiltration system, as well as a new reverse osmosis system.

Wastewater entering the facility is initially held in a 75K influent tank, and if necessary, an additional 17K tank to control the flow rate through the treatment system. From the holding tank, influent was previously directed to a primary clarifier. Currently this unit is being bypassed and will eventually be taken out of service and removed. Internal recycle streams such as the daily purge of ultrafilter feed tanks, decant and filtrate from sludge treatment, and membrane cleaning

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solutions are directed to the primary treatment tank. Treatment consists of chemical addition (sodium hydroxide) to precipitate impurities, settling to remove most of these impurities, and gravity filtration of overflow waters through a mixed bed of sand and anthracite to remove additional solids. Solids collected in this step are drummed and disposed of as low level rad waste.

Flow is next passed through a new microfiltration unit that removes most of the remaining solids. Filtrate from the microfiltration can then be directed to ion-exchange columns for removal of perchlorate. The ion-exchange columns were not online at the time of this inspection. Flow from the ion exchange is directed to a reverse osmosis (RO) unit for final treatment. The RO unit removes any remaining suspended solids and almost all of the dissolved solids. RO permeate that meets NPDES permit limits goes to two FRAC tanks, and is then discharged to an evaporation unit. Outfall 051 has not discharged since November 2010. Facility representatives indicated that they plan to utilize the ability to discharge once the new permit is issued.

Reject from the RO process is conveyed back to the main influent tank. The effluent to reject ratio is approximately 3:1. The solids are shipped offsite (Washington) for drying, and then are disposed at a Nevada test site as low level waste.

A new RLWTF is still approximately 4-5 years away. Once the new facility is built, concentrate from the RO system will not be shipped offsite.

Outfall 13S – SWWS Plant

The SWWS facility is a 0.6 mgd design flow wastewater treatment plant. Influent is generated from sanitary waste around the lab, although approximately 10% of the influent is non-domestic, according to facility representatives. The non-domestic waste must have an approved Waste Profile Form (WPF) in accordance with the Waste Acceptance Criteria (WAC). The collection system consists of the sewer and 45 lift stations. Each lift station is equipped with two pumps (generally) and visual and audio alarms.

Influent is pumped into the plant headworks and flows through a mechanical bar screen. Wastewater then enters a grit chamber where rags along with inorganic material are removed. Any grit/solids removed from the wastewater are analyzed and then taken to the Los Alamos County landfill. A splitter box sends the influent into two equalization basins. The equalization basins are used to provide storage during the peak daytime wastewater flow for later treatment at night when little flow is received. Mixers within the basins provide aeration to minimize septic conditions from occurring. Submersible pumps, in response to programmable logic controls (PLC), move the influent into the six aeration basins in a uniform manner.

In the aeration basins, operated in parallel, compressed air is provided by centrifugal blowers on a PLC system that cycles on and off in a manner that promotes the nitrification/denitrification processes.

The effluent flows from the aeration basins into one of two 16 ft. circular clarifiers (North and South). Return activated sludge (RAS) is pumped back to the aeration basins to repeat the waste stabilization cycle.

Flow is then routed to a serpentine chlorine contact basin. Chlorination occurs with the use of a MIOX system. Effluent then passes through a Parshall flume with a Millitronics totalizer and is shunted to a lined holding pond where it may be pumped to a holding tank and re-used at TA-3. If a discharge at Outfall 13S is anticipated, effluent is diverted after the chlorine contact basin to a second Parshall flume, de-chlorinated with sodium bisulfite, then gravity flows to Canada del Buey. If possible, all effluent discharges to Canada del Buey via 13S are reported to EPA and SWQB in advance. Currently, all effluent is being re-used at TA-3. According to facility representatives, the SWWS facility has never discharged to Canada del Buey.

Sludge is wasted to sand filtered drying beds. Previously, after a suitable drying cycle, sludge below 50 ug/L PCBs was hauled to TA-54 where it was disposed in an appropriate manner. The SWWS facility, with the addition of the SERF

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facility's ability to remove PCBs, is now exploring options to compost sludge and reuse it around LANL. The first batch of compost was onsite at the time of this inspection and facility representatives were waiting on analytical testing to evaluate the quality of the compost.

Exit interviews were conducted at the end of each day of the inspection. A final exit interview to discuss the preliminary findings of this inspection was conducted from approximately 1530-1615 hours on July 9, 2014 with LANS and DOE staff at the site.

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Further Explanations

Note: The sections are arranged according to the format of the enclosed EPA Inspection Checklist (Form 3560-3), rather than being ranked in order of importance.

Section C – Operations and Maintenance Evaluation – Overall Rating of “Marginal”

The permit states in Part I.B.1:

The permittee shall comply with the following schedule of activities for the attainment of state water quality standards-based final effluent limitations for

Total Copper Outfall ... 03A022

c. Implement corrective action and attain final effluent limitations no later than three (3) years from the effective date of the permit.

The permit states in Part I.A (page 15):

| | <i>Quantity/Loading</i> | | <i>Quality/Concentration</i> | |
|--------------------------------|------------------------------|-------------------|------------------------------|------------------|
| | <i>Lbs/day unless stated</i> | | <i>mg/L unless stated</i> | |
| | <i>Monthly Average</i> | <i>Daily Max</i> | <i>Monthly Average</i> | <i>Daily Max</i> |
| <i>Flow</i> | <i>Report MGD</i> | <i>Report MGD</i> | *** | *** |
| <i>Total Residual Chlorine</i> | *** | *** | *** | <i>0.011</i> |
| <i>Total Copper</i> | *** | *** | <i>0.019</i> | <i>0.028</i> |

Findings for Operations and Maintenance

Prior to this inspection, there were numerous exceedances of the chlorine limit at Outfalls 03A181 (December 2013), 03A027 (August 2011), 03A113 (June 2012), 03A199 (August 2011, May 2012), and 03A048 (September 2011, April 2012, June 2013). In discussions with facility representatives at the outfalls where these exceedances occurred, it generally appeared that exceedances were due to equipment fouling or malfunction. Generally there were Preventative Maintenance procedures in place, but frequencies may need to be reevaluated to assure that the dechlorination equipment is functioning properly.

The site visit at 03A022 (Sigma Emergency Cooling System) resulted in two findings of a significant nature. There are two types of potential discharges at Sigma – the first being the discharge of sump water, which is treated cooling water. The second possible discharge is from the emergency cooling system. In the event of an activation of the emergency cooling system, potable water is used in a once-through cooling system. There is no dechlorination system present for the emergency cooling water, and the potable water carries a chlorine residual that in turn exceeds the water quality standards at the effluent pipe. **This is a repeat finding from the July 2009 NMED Compliance Evaluation Inspection.** There was an emergency discharge in May 2014 that exceeded the chlorine limitation in the permit.

Additionally, the second issue is compliance with the schedule in the permit to address copper exceedances at this particular outfall. Measures were required to be in place to mitigate copper exceedances by three years from the permit’s effective date (the due date for compliance with the compliance schedule was August 1, 2010). During the visit on site, permittee’s representatives explained that the source of the copper exceedances at this outfall was tracked to the heat exchanger unit (installed around 1969). Representatives indicated that although a meeting with USDOE had recently occurred, there was currently no timeframe established for replacement of this unit.

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The facilities that discharge to Outfall 130 and Outfall 001 had containers on site that were not properly marked, or were double marked. Facility staff should ensure that all containers are labeled properly.

Section D – Self Monitoring Evaluation – Overall Rating of “Marginal”

The permit states in Part I.A (page 17):

...the permittee is authorized to discharge cooling tower blowdown and other wastewater to Sandia Canyon..., in segment number 20.6.4.128 (from Outfall 03A113) of the Rio Grande Basin.

The permit states in Part I.A (page 5):

...the permittee is authorized to discharge treated sanitary waste water to Sandia Canyon in Segment number 20.6.4.126 via outfalls utilizing treated effluent as specified in Outfall 001 and Category 03A, or to Canada del Buey in Segment Number 20.6.4.128 of the Rio Grande Basin.

Findings for Self Monitoring

The permit description of the outfall at 03A022 authorizes discharges of cooling tower blowdown and “other wastewater”. An ISCO sampler was located at the outfall (03A022) and may not be representative of the discharge at the facility due to comingling of process water (emergency cooling discharge) and stormwater. Facility representatives indicated that there may not be a way to sample the emergency discharge further up in the system where it would be representative. The manner in which the ISCO’s intake was located may not collect a representative sample, in part due to the condition of the effluent pipe, which was cracked.

Similarly, the sampling location at 03A113 (LEDA cooling towers in TA 53) may not be representative of the monitored activity during or after a rain event due to the comingling of stormwater and cooling tower blowdown discharge.

The internal compliance monitoring point at the SWWS facility (Outfall 13S) is currently set at the end of the wastewater treatment train (after treatment by dechlorination). In the permittee’s renewal application, a request was made to move the compliance monitoring point at 13S up to Outfall 001. There is nothing in the current permit that requires the compliance monitoring point to be at the current location, but the current compliance point is representative of the activity at SWWS. By moving this compliance point up to Outfall 001, the discharge from SWWS will be comingled with the other process wastewater discharges occurring at Outfall 001.



***Environmental Protection Division
Environmental Compliance Programs (ENV-CP)***

PO Box 1663, K490
Los Alamos, New Mexico 87545
(505) 667-0666

Date: **SEP 04 2014**
Symbol: ENV-DO-14-0253
LAUR: 14-26902
Locates Action No.: U1402059

Ms. Racquel Douglas
U.S. Environmental Protection Agency, Region 6
Enforcement Branch (6EN-WM)
1445 Ross Avenue
Dallas, Texas 75202-2733

Mr. Bruce Yurdin
New Mexico Environment Department
Surface Water Quality Bureau
Point Source Regulation Bureau
P.O. Box 5469
Santa Fe, NM 87502-5469

Dear Ms. Douglas and Mr. Yurdin:

Subject: NPDES Permit No. NM0028355, Response to Compliance Evaluation Inspection, July 7, 2014 through July 9, 2014

The New Mexico Environment Department, Surface Water Quality Bureau (NMED/SWQB) staff conducted an NPDES Compliance Evaluation Inspection (CEI) at NPDES outfall facilities at Los Alamos National Laboratory (Laboratory) on July 7-9, 2014. The Laboratory's Environmental Compliance Programs Group (ENV-CP) is submitting the enclosed (Enclosure 1) information in response to NMED/SWQB's inspection findings

Please contact Marc Bailey at (505) 665-8135 or Mike Saladen at (505) 665-6085 if you have questions regarding this report.

Sincerely,

Anthony R. Grieggs
Group Leader
Environmental Compliance Programs (ENV-CP)
Los Alamos National Security, LLC

ARG:MAB/lm

Enclosures: 1. NPDES Permit No. NM0028355, Response to Compliance Evaluation Inspection, July 7, 2014 through July 9, 2014

Cy: Everett Spencer, USEPA/Region 6, (E-File)
Gladys Gooden-Jackson, USEPA/Region 6, (E-File)
Gene E. Turner, NA-LA, (E-File)
Kirsten Laskey, NA-LA, (E-File)
Carl A. Beard, PADOPS, (E-File)
Michael T. Brandt, ADESH, (E-File)
Raeanna Sharp-Geiger, ADESH, (E-File)
Alison M. Dorries, ENV-DO, (E-File)
Rick A. Alexander, STO-DO, (E-File)
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ENCLOSURE 1

**NPDES Permit No. NM0028355, Response to Compliance
Evaluation Inspection, July 7, 2014 through July 9, 2014**

ENV-DO-14-0253

LAUR-14-26902

U1402059

Date: _____ SEP 04 2014

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Action Item Number (U1402059)

Section C – Operations and Maintenance- Overall Rating of “Marginal”

C.1 Treatment Units Properly Operated- Rated Marginal

Findings

Prior to this inspection, there were numerous exceedances of the chlorine limit at Outfalls 03A181 (December 2013), 03A027 (August 2011), 03A113 (June 2012), 03A199 (August 2011, May 2012), and 03A048 (September 2011, April 2012, June 2013). In discussions with facility representatives at the outfalls where these exceedances occurred, it generally appeared that exceedances were due to equipment fouling or malfunction. Generally there were Preventative Maintenance procedures in place, but frequencies may need to be reevaluated to assure that the dechlorination equipment is functioning properly.

LANL Response:

Historically, cooling towers have been managed by different organizations throughout the Laboratory resulting in inconsistent maintenance of equipment, lack of routine inspections, and improper chemical application. The lack of operator expertise and resources at facilities are contributing factors. As a consequence, the inspection and maintenance program of these cooling towers and water treatment systems was modified.

To facilitate compliance with the requirements in the NPDES permit, Laboratory organizations have taken or are taking the following actions:

- Surveyed all existing cooling tower systems at the Laboratory. Replaced faulty equipment including pumps that inject chlorine neutralizer at specific cooling towers
- Placed chemical feed pumps on more rigorous inspection, maintenance, and replacement schedules
- Installed real-time monitoring at several cooling tower systems
- Installed additional treatment technologies to meet the more stringent standards in the permit (Ion exchange treatment columns)
- Evaluated the need for consistent cooling tower chemical treatment processes at all cooling towers, improved inspection and maintenance of cooling tower systems, and centralized operation and maintenance program to consistently monitor all cooling tower systems. and,
- Drafted a Scope of Work for water treatment contract. This activity is currently under review by LANL

C.3 Standby Power Or Other Equivalent Provided – Rated Unsatisfactory

C.5 All Needed Treatment Units In Service - Rated Unsatisfactory

Findings

The site visit at 03A022 (Sigma Emergency Cooling System) resulted in two findings of a significant nature. There are two types of potential discharges at Sigma – the first being the

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discharge of sump water, which is treated cooling water. The second possible discharge is from the emergency cooling system. In the event of an activation of the emergency cooling system, potable water is used in a once-through cooling system. There is no dechlorination system present for the emergency cooling water, and the potable water carries a chlorine residual that in turn exceeds the water quality standards at the effluent pipe. This is a repeat finding from the July 2009 NMED Compliance Evaluation Inspection. There was an emergency discharge in May 2014 that exceeded the chlorine limitation in the permit.

LANL Response:

Activities completed by Facility personnel to address the dechlorination issue when the Emergency Cooling System is engaged include:

- ISCO sampler set up at outfall to collect discharges from emergency cooling system during off-normal event – **June 5, 2014**
- Facility initiated routine surveillance of outfall to identify if additional discharges were occurring – **June 2014**
- DOE/LANS representatives conducted management assessment and walk through of Sigma facility – **June 12, 2014**
- Facility personnel initiated engineering controls to minimize the amount of time the Emergency Cooling System is engaged. Installation of new variable frequency drive for circulating pumps and new pump installed. -**May 2, 2014.**
- De-chlorination tablets installed at end of outfall pipe – **August 13, 2014**

C.9 Have Bypasses*/Overflows Occurred At The Plant Or In The Collection System In The Last Year, and Has Corrective Action Been Taken To Prevent Additional Bypasses/Overflows?
Rated as 'Yes'- bypasses have occurred over the past year and , 'No'- corrective actions have not been taken.

LANL Response:

The Laboratory responds to all sewer bypass/overflow occurrences. Each event triggers a corrective action. A Decision Tree document was developed jointly between DOE, LANS and NMED (March 10, 2009, copy available upon request) and each event is categorized using this document. Sewer bypasses/overflows are reported to NMED as required by the Decision Tree with a copy being sent to EPA.

Findings

Additionally, the second issue is compliance with the schedule in the permit to address copper exceedances at this particular outfall. Measures were required to be in place to mitigate copper exceedances by three years from the permit's effective date (the due date for compliance with the compliance schedule was August 1, 2010). During the visit on site, permittee's representatives explained that the source of the copper exceedances at this outfall was tracked to the heat

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exchanger unit (installed around 1969). Representatives indicated that although a meeting with USDOE had recently occurred, there was currently no timeframe established for replacement of this unit.

LANL Response:

Information regarding Compliance Schedule at Outfall 03A022:

- Ion exchange (IONX) for cooling tower blowdown in operation July 31, 2010.
- Copper exceedence May 5, 2011: suspected cross contamination from circulation water tank inside (known to have copper). Initiated design to discharge IONX-treated effluent directly to outfall pipe.
- Cooling tower blowdown treated by IONX, then discharged directly to outfall pipe outside via flexible hose on July 25, 2011.
- Cooling tower blowdown piped to sanitary collection system on November 16, 2011. IONX removed. Verification of no flow visits to outfall will continue.
- Discharge at outfall discovered November 26, 2012. Compliance samples collected with total copper exceeding permit limit. Cause was stuck makeup valve on circulation water tank inside. Facility personnel corrected the stuck makeup valve.
- Discharge at outfall discovered May 2, 2014. Compliance samples collected with total copper exceeding permit limit. Cause was stuck makeup valve on circulation water tank inside. Facility personnel submitted a request to replace makeup valve. The makeup valve was replaced on July 7, 2014. Additionally, the facility submitted a request for replacement of the outdated heat exchanger in July 2014 that is the suspected source of elevated copper in the circulation water tank inside the building.

Activities completed/to be completed by Facility personnel to address the copper issue:

- ISCO sampler set up at outfall to collect discharges from emergency cooling system during off-normal event – **June 5, 2014**
- Facility initiated routine surveillance of outfall to identify if additional discharges were occurring – **June 2014**
- DOE/LANS representatives conducted management assessment and walk through of Sigma facility – **June 12, 2014**
- Fact finding critique held to address potential copper exceedance occurring on August 13, 2014 – **August 25, 2014**
- Water in the recirculating water tank will be re-characterized to compare with the data from the STO-Facility's previous characterization. – **October 2014**
- Scope, estimate, design a new heat exchanger – **November 2014**

Section D – Self Monitoring Evaluation- Overall Rating of “Marginal”

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D.2 Locations Adequate For Representative Samples. Sigma (Outfall 03A022), and LANSCE (03A048 [sic] (03A113)) Rated as 'No'

Findings

D.2 (a) *The permit description of the outfall at 03A022 authorizes discharges of cooling tower blowdown and "other wastewater". An ISCO sampler was located at the outfall (03A022) and may not be representative of the discharge at the facility due to comingling of process water (emergency cooling discharge) and stormwater. Facility representatives indicated that there may not be a way to sample the emergency discharge further up in the system where it would be representative. The manner in which the ISCO's intake was located may not collect a representative sample, in part due to the condition of the effluent pipe, which was cracked.*

LANL Response:

Roof drains at the Sigma Facility are tied in to the outfall pipe and cannot be easily separated. The ISCO sampler's intake is located at the point of discharge to the environment for Outfall 03A022. To ensure representative compliance samples are collected, LANL personnel do not collect samples during precipitation events. This eliminates the possibility of samples containing Emergency Cooling System or other industrial process water from being comingled with storm water discharges. Additionally, for samples collected by the automated ISCO sampler, site-wide precipitation data is reviewed to determine if the discharge was from a storm event, or from an industrial source.

During the next precipitation event the Laboratory will collect samples from Outfall 03A022 and evaluate the results against cooling tower/Emergency Cooling System discharge data.

D.2 (b) *Similarly, the sampling location at 03A113 (LEDA cooling towers in TA 53) may not be representative of the monitored activity during or after a rain event due to the comingling of stormwater and cooling tower blowdown discharge.*

LANL Response:

At Outfall 03A113, one of the two cooling towers (TA53-293) discharging to the outfall has been taken out of service (April 23, 2014). The remaining cooling tower (TA53-952, LEDA Cooling Tower) has a designated pipe discharging to Outfall 03A113 that cannot co-mingle with storm water. Therefore the samples are representative of the cooling tower blowdown.

D.2 (c) *The internal compliance monitoring point at the SWWS facility (Outfall 13S) is currently set at the end of the wastewater treatment train (after treatment by dechlorination). In the permittee's renewal application, a request was made to move the compliance monitoring point at 13S up to Outfall 001. There is nothing in the current permit that requires the compliance monitoring point to be at the current location, but the current compliance point is representative*

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of the activity at SWWS. By moving this compliance point up to Outfall 001, the discharge from SWWS will be comingled with the other process wastewater discharges occurring at Outfall 001.

LANL Response:

In the permit issued August 12, 2014 for Outfall 13S it states:

'During the period beginning the effective date of the permit and lasting through the expiration date of the permit (unless otherwise noted), the permittee is authorized to discharge treated sanitary waste water to Sandia Canyon in Segment Numbers 20.6.4.126 via outfalls utilizing treated effluent as specified in Outfall 001 and Category 03A, or to Canada del Buey in Segment Numbers 20.6.128 of the Rio Grande Basin.

Such discharges shall be limited and monitored by the permittee as specified below: '

When treated sanitary effluent is discharged to Outfall 001 or is used at any category 03A outfall, the monitoring requirements for Outfall 13S will be required. Operations staff at the sanitary treatment plant will continue to monitor the treatment train to maintain proper functioning of the plant.

Section F – Laboratory- Overall Rating of “Satisfactory”

F.5 Duplicate Samples Are Analyzed. 10% Of The Time- Rated as ‘No’

Findings:

There were no comments in the ‘Further Explanations’ text.

LANL Response:

Laboratory duplicate samples are analyzed for each chain of custody submitted. Pursuant to Part III, Section 5 of the permit, contract laboratories used by LANL follow the required methods and analyze a duplicate sample for each analytical request submitted. This is performed by the laboratory to ensure an adequate quality control program for all analytical results. Copies of analytical data packages showing laboratory duplicates were submitted to the Inspectors, as requested.