Los Alamos
NATIONAL LABORATORY
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EXHIBIT
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Date: January 27, 2012
Refer To: ENV-DO-12-0002

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FEB 02 2012
SURFACE WATER
QUALITY BUREAU

Ms. Claudia Hosch, Chief
NPDES Permits and TMDL Branch (6WQ)
U.S. Environmental Protection Agency, Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Dear Ms. Hosch:

SUBJECT: LOS ALAMOS NATIONAL LABORATORY, NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT NO. NM0028355, 2012 NPDES PERMIT RE-APPLICATION

Enclosed are one original and one copy of the application (Volumes I and II) for renewal of the National Pollutant Discharge Elimination System (NPDES) reference Permit No. NM0028355 for the Los Alamos National Laboratory (LANL). This Permit Re-Application is being submitted by the U.S. Department of Energy (DOE) and the Los Alamos National Security (LANS), LLC in accordance with the requirements of 40 CFR 122.21 and the current NPDES permit. This Permit Re-Application includes: (1) an introduction addressing environmental and other conditions at LANL; (2) completed U.S. Environmental Protection Agency (EPA) Form 1- "General Information"; (3) completed EPA Form 2C – "Existing Manufacturing, Commercial, Mining and Silvicultural Operations" covering 11 outfalls; and (4) other information submitted in support of this Permit Re-Application.

The information used in preparation of this Permit Re-Application was collected at affected outfalls over a 5-year period and represents the best information available to the applicants at the present time.

DOE/LANS appreciate the assistance provided by Mr. Isaac Chen, Region 6 Permit Writer, regarding the preparation of this Permit Re-Application. DOE/LANS will continue to work closely with EPA during the Permit development process in order to provide a new Permit, which meets all applicable regulatory requirements under the Clean Water Act.

If you need additional information regarding the Permit Re-Application, please contact Gene Turner, DOE, at (505) 667-5794 or Mike Saladen, LANS, at (505) 665-6085.

Sincerely,

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

Sincerely,

Kevin W. Smith
Manager
Department of Energy
Los Alamos Site Office

AD:GT:MS/lm

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IRM-RMMSO, w/enc., A150

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Environmental Protection Division – Water Quality and RCRA Group (ENV-RCRA)

LOS ALAMOS NATIONAL LABORATORY

NPDES Permit Re-Application
Permit No. NM0028355
Volume I

February 2012

LA-UR-12-00359

Los Alamos
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Environmental Protection Division – Water Quality and RCRA Group (ENV-RCRA)

LOS ALAMOS NATIONAL LABORATORY

LA-UR-12-00359
2012 NPDES Permit Re-Application
Permit No. NM 0028355

For
Los Alamos National Laboratory
Los Alamos, NM

Submitted By
U.S. Department of Energy– Los Alamos Site Office and Los Alamos National Security, LLC

Prepared By
Los Alamos National Laboratory
Water Quality & RCRA Group (ENV-RCRA)

February 2012

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ACRONYMS/ABBREVIATIONS

CGP	Construction General Permit
CWA	Clean Water Act
DOE	U.S. Department of Energy
DP	Discharge Plan
EA	Environmental Assessment
ENV-DO	Environmental Protection Division
EPA	Environmental Protection Agency
ft	Feet/foot
HEWTF	High Explosives Wastewater Treatment Facility
IP	Individual Permit
LANL	Los Alamos National Laboratory
LANS	Los Alamos National Security
LDCC	Laboratory Data Communications Center
MSGP	Multi-Sector General Permit
NEPA	National Environmental Policy Act
NMED	New Mexico Environment Department
NPDES	National Pollutant Discharge Elimination System
RCRA	Resource Conservation and Recovery Act
RLWTF	Radioactive Liquid Waste Treatment Facility
SAP	Sampling and Analysis Plan
SERF	Sanitary Effluent Reclamation Facility
SMO	Sample management office
SWEIS	Site Wide Environmental Impact Statement
SWWS	Sanitary Waste Water System
TA	Technical Area
TRU	Transuranic
WAC	Waste Acceptance Criteria
WCATS	Waste Compliance and Tracking System
WMC	Waste Management Coordinator
WPF	Waste Profile Form
ZLD	Zero Liquid Discharge

1.0 INTRODUCTION

The current Los Alamos National Laboratory (LANL or Laboratory), National Pollutant Discharge Elimination System (NPDES) Industrial Discharge Permit No. NM0028355 will expire July 31, 2012. The NPDES permit and regulations require the Permittees to submit a re-application 180 days prior to the expiration of the existing permit, February 2, 2012. This document serves as the 2012 NPDES Permit Re-Application package for the renewal of NPDES Permit No. NM0028355 submitted to the U.S. Environmental Protection Agency (EPA) by the U.S. Department of Energy (DOE) and the Los Alamos National Security (LANS) LLC. The DOE/NNSA and LANS are hereinafter referred to as the "co-permittees or permittees."

This 2012 NPDES Permit Re-Application package has been prepared and is submitted in accordance with the provisions of the Clean Water Act (CWA) (33 U.S.C. 1251 – 1387) and the NPDES Permit Program requirements provided in 40 CFR 122.21. It is the intent of the package to provide the EPA permit writer, New Mexico Environment Department (NMED) and others with adequate background information concerning each outfall, the surrounding environmental conditions, and associated future activities at the Laboratory to promote review of the technical data and preparation of the permit. The Permittees would like to invite EPA representatives to visit the Laboratory during the review process to gain firsthand knowledge and understanding of the information provided, identify potential issues, and answer any questions regarding proposed changes to the permitted outfalls and NPDES facilities presented in this re-application package.

Due to the complex nature of the NPDES Permit Re-Application and potential need for supplemental information, the applicant requests that all previous applications, modifications, maps, data, and pertinent correspondence submitted in reference to NPDES Permit No. NM0028355 transmitted to the EPA up to the time the new permit is issued, be considered part of this re-application. The applicant will continue to provide copies of all such information to the EPA Permit Writer as new information becomes available.

2.0 BACKGROUND

The existing NPDES Industrial Discharge Permit became effective on August 1, 2007. It originally included 17 outfalls located at seven (7) Technical Areas (TAs) spread out over a approximately 40 square mile area within the Laboratory boundaries. The LANL NPDES Industrial Discharge Permit has been historically administered through categorical classification of wastewater discharges. The remaining 11 outfalls currently permitted are grouped into the following five (5) major waste stream categories:

- Power Plant/Sanitary Effluent Reclamation Facility (SERF) Discharge (001)
- Treated Cooling Water Discharges (03A)
- High Explosives Wastewater Discharge (05A)
- Sanitary Wastewater Discharge (13S)
- Radioactive Liquid Wastewater Discharge (051)

NPDES Permit No. NM0028355 is currently the only active NPDES Industrial Outfall Discharge permit at the Laboratory. Table 1 summarizes the permit activities associated with Permit No. NM0028355 over the last 21 years.

Table 2.1
Summary of NPDES Permit Activity at the Laboratory

Application		NPDES Permit		Outfalls Eliminated and/or Removed
Date	No. Outfalls	Effective Date	No. Remaining Outfalls	
Prior to 1990	141	NA	NA	• 24 outfalls eliminated prior to the effective date of the first permit.
1990	117	Sept 1, 2003	34	• 83 outfalls were eliminated due to the completion of the Waste Stream Characterization and Corrections Project and the Outfall Reduction Project.
1998	35	Feb 1, 2001	21	• 14 outfalls were not permitted because the supply wells associated with them were transferred from DOE to Los Alamos County before the permit was issued. • Request made to EPA to delete 4 outfalls (03A024, 03A047, 03A049, and 05A097) in August of 2004 because they were no longer in use.
2004	17	Aug 1, 2007	15	• 03A158 was not permitted because the TA-21-209 cooling tower was decommissioned and the outfall eliminated before the permit was issued. • 03A028 was not permitted because the TA-15-185 and TA-15-202 Phermex facilities were decommissioned before the permit was issued. • 03A021 and 03A185 were tied to the Sanitary Waste Water System (SWWS) Plant in 2010 as part of the Outfall Reduction Project. Outfalls 02A129 (TA-21 Steam Plant) and 03A130 (TA-11 cooling tower) no longer discharge to the environment. EPA deleted these 4 outfalls from the Laboratory's permit on October 11, 2011.

Appendix A provides a list of all historical and existing outfalls and provides a status summary.

2.1 NPDES Outfall Reduction Projects

In December 2007 DOE/LANS completed LA-UR-07-8312, *NPDES Permit Compliance and Outfall Reduction Strategy,* which provided recommendations and options for the treatment, reduction, and/or elimination of the outfalls at LANL. The report was prepared to assess the potential for outfall reductions in response to the more stringent effluent discharge limits provided in the NPDES Permit that became effective on August 1, 2007. The report recommended projects to eliminate thirteen (13) outfalls. Six of them have since been removed either due to decontamination and decommissioning activities at the Laboratory or the implementation of one of the Outfall Reduction Projects identified in LA-UR-07-8312. There are four (4) additional outfalls identified for elimination/reduction over the next 2 – 5 years. These include 03A027, 03A160, 03A181, and 03A199, which will likely be connected to the Sanitary Waste Water System (SWWS) Plant or directly to the SERF. This permit re-application package describes the strategy for each outfall in Section 4.0.

A National Environmental Policy Act (NEPA) categorical exclusion for the Waste Stream Corrections Project (i.e., Outfall Reduction Project) was issued by DOE in January 1996 and an *Environmental Assessment (EA) for Effluent Reduction* was completed by the Permittees in September 1996.

This categorical exclusion and EA support the reduction/elimination of the discharges from all of the Laboratory outfalls except the following:

- Outfall 001, TA-3-22 Power Plant
- Outfall 05A055, TA-16 High Explosives Wastewater Treatment Facility (HEWTF)
- Outfall 13S, TA-46 SWWS Plant
- Outfall 051, TA-50 Radioactive Liquid Waste Treatment Facility (RLWTF)
- Outfall 03A199, Laboratory Data Communications Center (LDCC) Cooling Tower

The TA-16 HEWTF (Outfall 05A055) was analyzed separately and was determined to be covered under an existing DOE-approved categorical exclusion for Safety and Environmental Improvements at LANL. The outfall reduction project for RLWTF (Outfall 051) was included as an option in the 2008 Site Wide Environmental Impact Statement (SWEIS) (DOE, 2008). In September 2008, NNSA issued the first Record of Decision for the 2008 SWEIS. The DOE chose to implement the No Action Alternative with the addition of some elements of the Expanded Operations Alternative. Final design of a new RLWTF and design and construction of the Zero Liquid Discharge (ZLD) component were part of the elements of the Expanded Operations Alternative that were approved to move forward. Mitigation commitments associated with this project are included in the Mitigation Action Plan for the 2008 SWEIS.

In 2008, the PR-ID documentation was submitted for the proposed actions reducing or eliminating discharges from the LDCC Cooling Tower (Outfall 03A199); TA-46 SWWS (13S); and the TA-3 Power Plant (Outfall 001). In August 2010, an EA for the Expansion of the SERF and Environmental Restoration of Reach S-2 of Sandia Canyon at LANL (DOE EA-1736) and associated Finding of No Significant Impacts was issued by the NNSA. The NNSA determined that by using adaptive management practices in the implementation of specific resource mitigation commitments, the potential for adverse environmental effects from the proposed actions would be minimal.

2.2 Notices of Changed Conditions/Planned Changes

The existing permit requires the Permittees to give notice to the EPA of any planned physical alterations or additions that could significantly change the nature or increase the quantity and/or quality of pollutants discharged from any of its permitted outfalls. The existing permit at LANL was implemented in August 2007 and includes 23 Notices of Changed Condition/Planned Change. Appendix B provides a copy of each Notice of Changed Condition/Planned Change that was submitted to the EPA from August 2007 through December 2011.

2.3 Other Environmental Permits

The EPA and NMED regulate Laboratory operations under various environmental statutes (e.g., Clean Air Act, Clean Water Act, etc.) through operating permits, construction approvals, and the DOE/NMED Consent Order. These permits are designed by the regulatory agencies to allow Laboratory operations to be conducted while assuring that the public, air, land, soils, water, and biota are protected. Appendix C provides a detailed list of the other environmental permits at LANL.

The following bullets provide a summary:

- **NPDES Construction General Permit**: The Construction General Permit (CGP) regulates storm water discharges from construction activities disturbing one or more acres, including those construction activities that are part of a larger common plan of development collectively disturbing one or more acres. LANS and the general contractor apply individually for NPDES CGP coverage and are co-permittees at most construction sites. Compliance with the NPDES CGP includes developing and implementing a Storm Water Pollution Prevention Plan before soil disturbance can begin, conducting site inspections once soil disturbance has commenced and continues through final stabilization. There are currently 16 Active Construction General Permit Notice of Intent documents at LANL (Appendix C).

- **NPDES Storm Water Multi-Sector General Permit (MSGP):** The NPDES Industrial Storm Water Permit Program regulates storm water discharges from identified regulated industrial activities and their associated facilities. These activities include metal fabrication; hazardous waste treatment and storage; vehicle and equipment maintenance; recycling activities; electricity generation; warehousing activities; and asphalt manufacturing. LANS and DOE are co-permittees under the EPA 2008 NPDES Storm Water MSGP for Industrial Activities (MSGP-2008). The current MSGP was effective September 29, 2008.

- **NPDES Permit No. NM0030759 – Storm Water Individual Permit:** The Individual Permit (IP) authorizes the discharge of storm water associated with industrial activities at the Laboratory from specified solid waste management units and areas of concern. It contains non-numeric technology-based effluent limitations, coupled with a comprehensive, coordinated monitoring program, to minimize pollutants in storm water discharges. It requires the Permittees to implement site-specific control measures (including best management practices) to address the non-numeric technology-based effluent limits as necessary to minimize pollutants in their storm water discharges. The current NPDES IP Permit, incorporating the latest modifications, became effective on November 1, 2010.

- **U.S. Army Corps of Engineer, Section 401/404 Dredge and Fill Permits:** DOE/LANS are responsible for making sure that it is in compliance with the CWA Sections 401 and 404. Section 401 requires state certification when applying for a federal permit to either build or operate a facility that has a potential to discharge pollutants into any body of water. The purpose of these requirements and subsequent permits are to ensure that the surface water quality is protected from unregulated discharge of dredged or fill material. Appendix C identifies the Section 404 Dredge and Fill Permits that LANL currently has on file with the U.S. Army Corps of Engineers.

- **Septic Tank Permits:** Historically, LANL septic systems were either registered or permitted by the State of New Mexico, Environmental Improvement Division, under the Liquid Waste Disposal and Treatment Regulations (20.7.3 NMAC). DOE/LANS originally submitted a Discharge Plan (DP) application for the LANL septic systems on April 28, 2006. On June 22, 2010 DOE/LANS resubmitted an up-to-date Discharge Plan Application (DP-1589) for the domestic septic tanks/leachfield systems currently in operation at the Laboratory. Appendix C provides a list of the current septic systems covered under DP-1589.

- **NM0890010515-1 Resource Conservation and Recovery Act (RCRA) Hazardous Waste Facility Permit:** The RCRA permit regulates storage and treatment of hazardous wastes; the Laboratory disposes all hazardous waste off-site. The Laboratory's hazardous waste facility permit was initially granted in 1989 for storage and treatment operations. The current RCRA Hazardous Waste Permit became effective on December 30, 2010. Appendix D provides maps of the Hazardous Waste Management Facilities and a listing of the Hazardous Waste Treatment Process Codes.

- **P100R1 Air Quality Operating Permit:** The Federal Clean Air Act Operating Permit provides the terms and conditions that must be followed in order to operate applicable air emission sources (i.e., boilers, electric generators, power plant, a combustion turbine generator, a data disintegrator, two carpenter shops, a degreaser, and an asphalt plant) at the Laboratory. The Laboratory also reports emissions from chemical use associated with research and development and permitted beryllium activities. The current Air Quality Operating Permit became effective on August 7, 2009.

- **Groundwater Discharge Plans:** New Mexico Water Quality Control Commission regulations control liquid discharges onto or below the ground surface to protect all groundwater in New Mexico. Under the regulations, when required by NMED, a facility must submit a discharge plan and obtain a permit from the NMED (or approval from the New Mexico Oil Conservation Division for energy/mineral-extraction activities). Subsequent discharges must be consistent with the terms and conditions of the discharge permit. The Laboratory has one discharge permit (TA-46 SWWS Plant Discharge Permit [DP-857]) and two discharge plans are pending NMED approval (TA-50 RLWTF Discharge Plan [DP-1132] and Domestic Septic Tank/Leachfield Systems Discharge Plan [DP-1589]).

3.0 FACILITY DESCRIPTION

The Laboratory and the associated residential and commercial areas of Los Alamos and White Rock are located in Los Alamos County, in north-central New Mexico, approximately 60 miles north-northeast of Albuquerque and 25 miles northwest of Santa Fe (see Figure 3.1). The 40-square-mile Laboratory is situated on the Pajarito Plateau, which consists of a series of finger-like mesas separated by deep east-to-west- oriented canyons cut by streams. Mesa tops range in elevation from approximately 7,800 feet (ft) on the flanks of the Jemez Mountains to about 6,200 ft at the edge of White Rock Canyon. Most Laboratory and community developments are confined to the mesa tops. The surrounding land is largely undeveloped and large tracts of land north, west, and south of the Laboratory site are held by the Santa Fe National Forest, the US Bureau of Land Management, National Park Service, the US General Services Administration, and Los Alamos County. The Pueblo de San Ildefonso borders the Laboratory to the east. The Laboratory is divided into 48 TAs (not including TA-0, which comprises leased space within the Los Alamos town site) covering 25,600 acres (see Figure 3.2).

3.1 Laboratory Research Activities

The Laboratory is a complex organization comprised of multiple disciplines and programs that include stockpile stewardship and extensive basic research in physics, chemistry, metallurgy, mathematics, computers, earth sciences, and electronics. Its original mission to design, develop, and test nuclear weapons has broadened and evolved as technologies, priorities, and the world community have changed. The Laboratory defines its vision as: "Los Alamos, the premier national security science laboratory." The current mission is to develop and apply

science and technology to ensure the safety and reliability of the United States' nuclear deterrent; reduce global threats; and solve other emerging national security challenges.

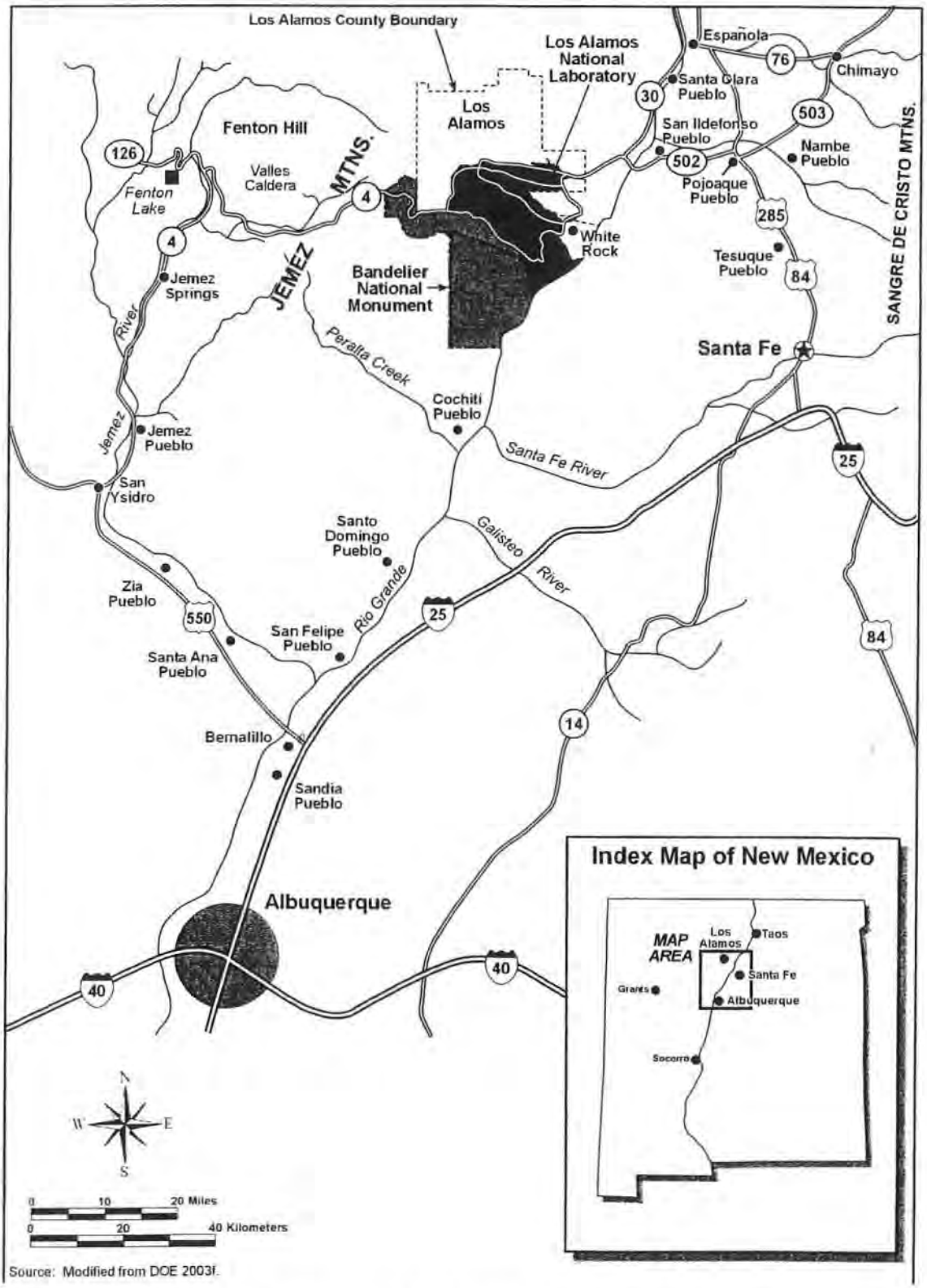


Figure 3.1 - Location of Los Alamos National Laboratory

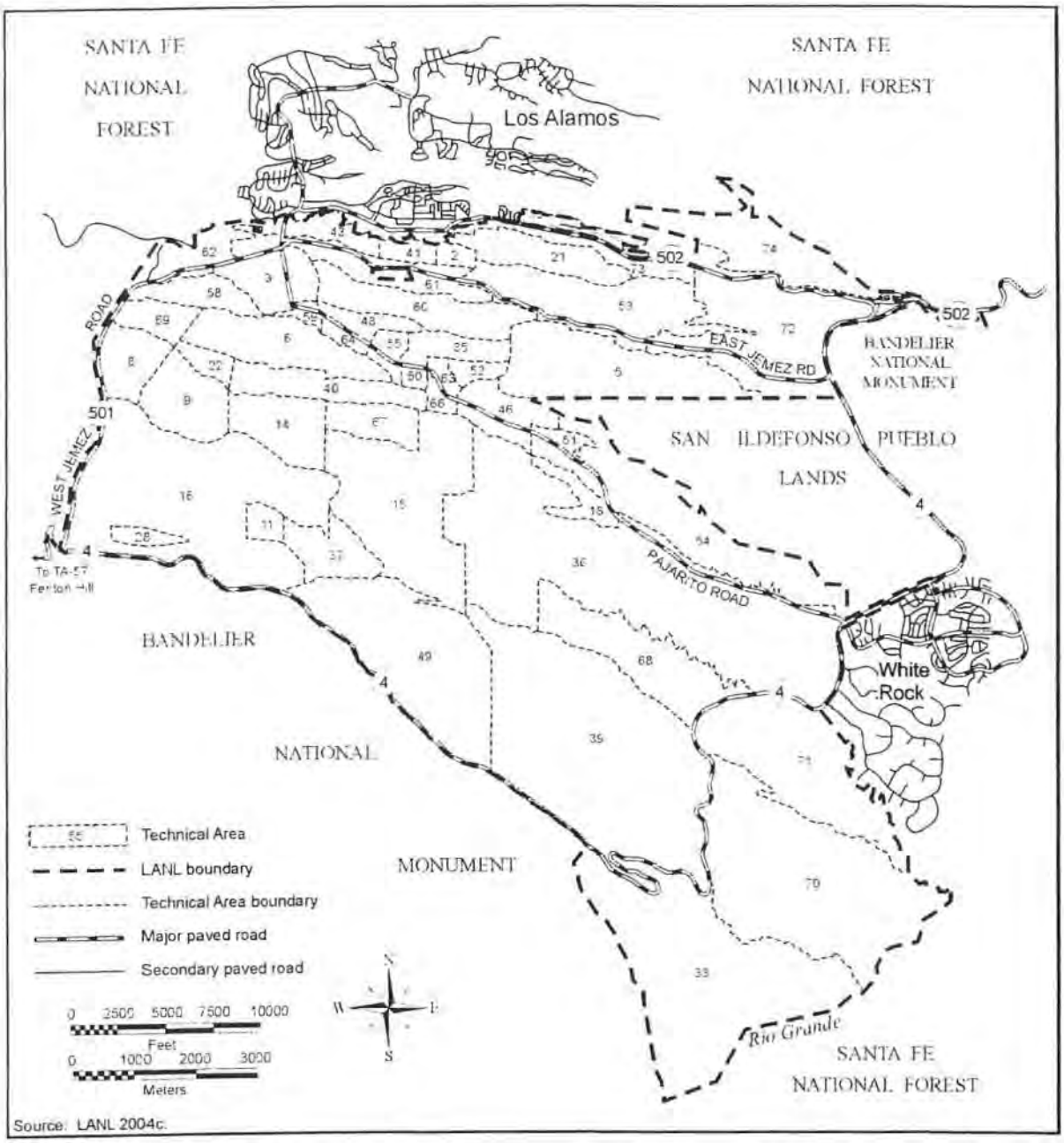


Figure 3.2 - Technical Areas of Los Alamos National Laboratory

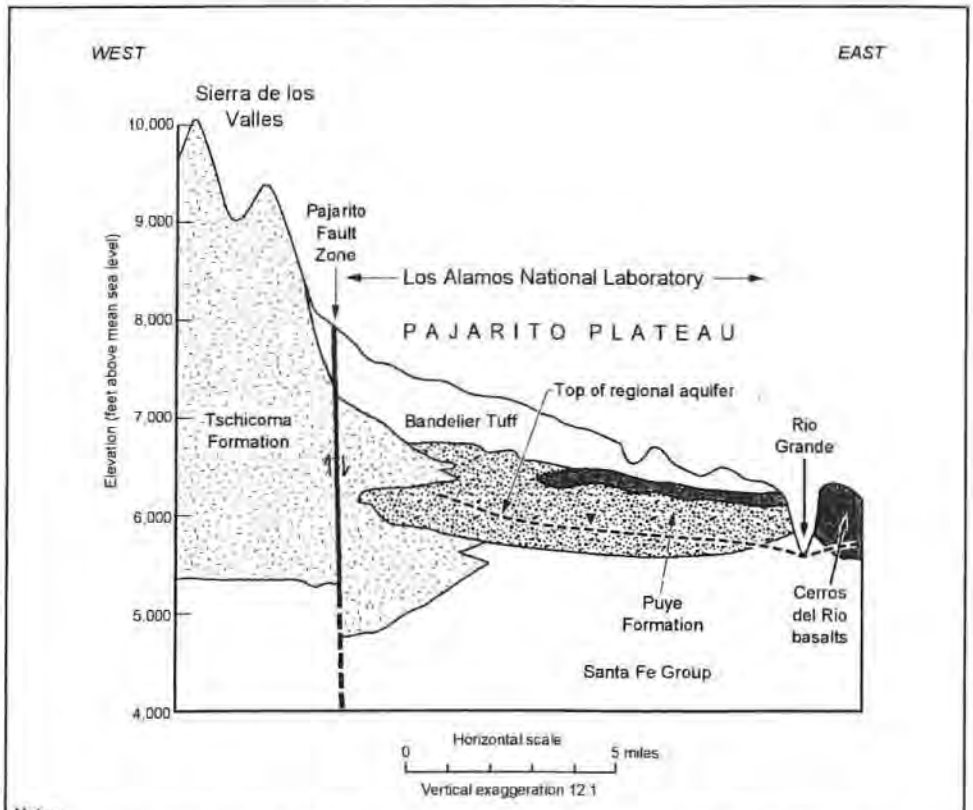
3.2 Organization

The Laboratory is currently operated by LANS on behalf of the DOE and thus is a co-permittee of the NPDES Permit. LANS is responsible for all Laboratory site compliance. The Environmental Protection Division (ENV-DO) provides environmental protection leadership, service, and support to meet the Laboratory's environmental protection obligations and public

assurance needs. LANS senior management has delegated the authority and responsibility to the ENV-DO Division Leader (Appendix E) to act as the certifying official for environmental compliance permits and documents. The ENV Division Leader will be a signatory on the final 2012 NPDES Permit Re-Application.

3.3 Geological Setting

The Laboratory is located in northern New Mexico on the Pajarito Plateau, which is formed of volcanic tuff (welded volcanic ash) deposited by past volcanic eruptions from the Jemez Mountains to the west (see Figure 3.3). The geology of the LANL region is the result of complex faulting, sedimentation, volcanism, and erosion over the past 20 to 25 million years (DOE, 1999). The Jemez Mountains are a broad highland built up over the last 13 million years through volcanic activity. Late in the volcanic period, cataclysmic eruptions from calderas in the central part of the Jemez Mountains deposited the thick blankets of tuff that form the Pajarito Plateau (Broxton and Vaniman, 2004). Volcanic activity culminated with the eruption of the rhyolitic Bandelier Tuff from 1.6 to 1.22 million years ago. During emplacement, intense heat and hot volcanic gases welded portions of these tuffs into the hard, resistant deposits that make up the upper surface of the plateau. Most of the bedrock on LANL property is composed of the salmon-colored Bandelier Tuff (DOE, 1999).



Notes:
1. The thickness of geologic units has been exaggerated on this figure to illustrate unit relationships and topography.
2. Offset of the Tschicoma formation on the Pajarito Fault zone is schematic due to the variation along the trace of the fault.
3. To convert feet to meters, multiply by 0.3048.

Source: LANL 2005h

Figure 3.3 - Generalized Cross-Section of the Los Alamos National Laboratory Area

3.4 Climate

The Los Alamos area has a temperate, semiarid mountain climate. Large differences in locally observed temperature and precipitation exist because of the 1,000-ft elevation change across the Laboratory site and the complex topography. Four distinct seasons occur in Los Alamos County. Winters are generally mild, with occasional winter storms. Spring is the windiest season. Summer is the rainy season, with occasional afternoon thunderstorms. Fall is typically dry, cool, and calm. Daily temperatures are highly variable (a 23°F range on average). On average, winter temperatures range from 30°F to 50°F during the daytime and from 15°F to 25°F during the nighttime. The Sangre de Cristo mountains to the east of the Rio Grande Valley act as a barrier to wintertime arctic air masses that descend into the central United States, making the occurrence of local subzero temperatures rare. On average, summer temperatures range from 70°F to 88°F during the daytime and from 50°F to 59°F during the nighttime. From 1981 to 2010, the average annual precipitation (which includes both rain and the water equivalent of frozen precipitation) was 18.95 inches and the average annual snowfall amount was 58.7 inches The months of July and August account for 36% of the annual precipitation and encompass the bulk of the rainy season, which typically begins in early July and ends in early September. Afternoon thunderstorms yield short, heavy downpours and an abundance of lightning. Local lightning density, among the highest in the United States, is estimated at 15 strikes per square mile per year. Lightning is most commonly observed between May and September (about 97% of the local lightning activity).

3.5 Hydrologic Setting

The Laboratory property contains parts or all of seven primary watersheds that drain directly into the Rio Grande, each defined by a master canyon (Los Alamos, Sandia, Mortandad, Pajarito, Water, Ancho, and Chaquehui) as shown on Figure 3.4. Each of these watersheds includes tributary canyons of various sizes. Los Alamos, Pajarito, and Water Canyons have their headwaters west of the Laboratory in the eastern Jemez Mountains (the Sierra de los Valles), mostly within the Santa Fe National Forest, while the remainder head on the Pajarito Plateau. Only the Ancho Canyon watershed is entirely located on Laboratory land. Canyons that drain Laboratory property are dry for most of the year, and no perennial surface water (i.e., water that is present all year) extends completely across Laboratory land in any canyon. Approximately three miles of canyon in the western part of the Laboratory have streams that are naturally perennial and fed by springs. These perennial segments are located in Water Canyon, Canon de Valle (a major tributary to Water Canyon), and Pajarito Canyon and its tributaries. Approximately four miles of canyon on Laboratory land have perennial streams created by discharges of sanitary effluent from the wastewater treatment plants in Pueblo and Sandia Canyons. Spring-fed perennial stream segments are also located in lower Ancho and Chaquehui Canyons on Laboratory land near the Rio Grande, as well as in other canyons upstream and downstream from the Laboratory.

The remaining stream channels are dry for varying lengths of time. The driest segments flow only after local precipitation events or during snowmelt periods, and flow in these streams is ephemeral. Other stream segments sometimes have alluvial groundwater that discharges into the stream bed and/or experience extensive snowmelt runoff and are considered intermittent. Intermittent streams may flow for several weeks to a year or longer.

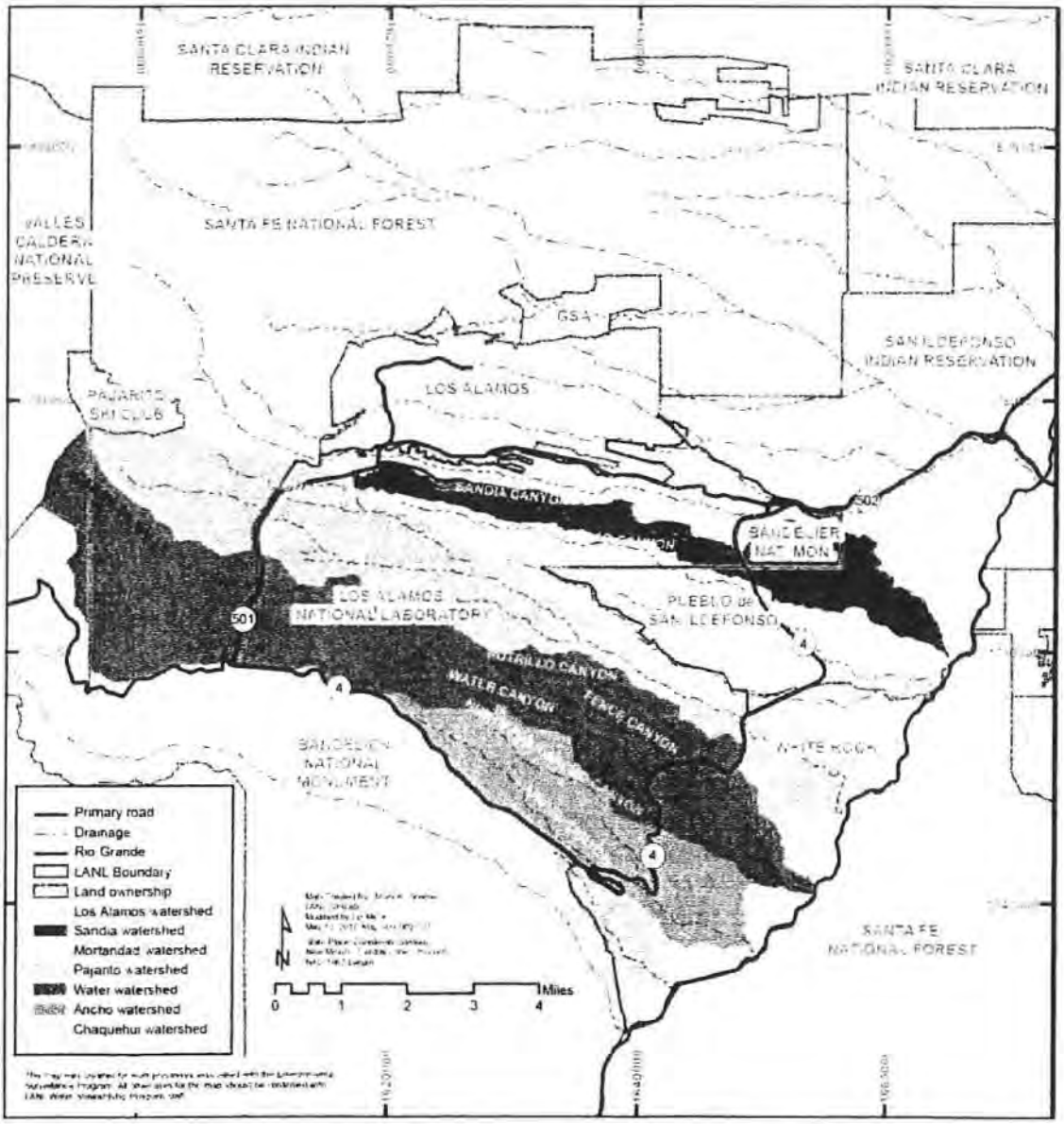


Figure 3.4 - Primary Watersheds at Los Alamos National Laboratory

To aid in water quality interpretation, we consider three basic types of stream flow. At times, the flow might represent a combination of several of these flow types:

- **Base flow**—persistent stream flow but not necessarily perennial water. This type of flow is generally present for periods of weeks or longer. The water source may be springs, effluent discharge, or alluvial groundwater that emerges along stream beds.

- **Snowmelt runoff**—flowing water present because of melting snow. This type of water may be present for up to a month or more and in some years may not be present at all.

- **Storm water runoff**—flowing water present in response to rainfall. These flow events are generally very short-lived, with flows lasting from less than an hour to—rarely—several days. Base flow and snowmelt runoff can be present for extended periods of time. Storm water runoff may provide a short-term water source for wildlife, particularly

when it collects in bedrock pools or other local depressions, and water quality will improve at these locations over time as the suspended sediment settles out. Storm water is capable of transporting sediment off site.

Except during major runoff events, the cumulative flow of wastewater discharges does not reach the Rio Grande. The intermittent runoff leaving Laboratory property is measured at gage stations located in each watershed. These flow measurements are periodically published in the Watershed Periodic Monitoring Reports or in reports for a given water year. Appendix F provides the Surface Water Data report for Water Year 2009. Appendix G provides a scaled full size map showing the location of the springs/baseflow associated with each watershed and the locations of the outfalls associated with this re-application document.

3.6 Groundwater Occurrence

The Laboratory is located on top of a thick zone of mainly unsaturated rock, with the primary aquifer found 600 - 1,200 ft below the ground surface. Groundwater occurs beneath the Pajarito Plateau in three modes: (1) perched alluvial groundwater in canyon bottoms; (2) zones of intermediate-depth perched groundwater whose location is controlled by availability of recharge and by subsurface changes in permeability; and (3) the regional aquifer beneath the Pajarito Plateau as shown on Figure 3.5.

Stream runoff may be supplemented or maintained by Laboratory discharges. Many relatively dry canyons have little surface water flow and little or no alluvial groundwater. Streams have filled some parts of canyon bottoms with alluvium up to a thickness of 100 ft. In wet canyons, stream runoff percolates through the alluvium until downward flow is impeded by less permeable layers, maintaining shallow bodies of perched groundwater within the alluvium. Contaminant distributions in the groundwater under the Pajarito Plateau suggest that the three systems may be in communication under certain conditions (Robinson, McLin, and Viswanathan, 2005). The hydrogeology of the Pajarito Plateau is typical of the semi-arid, sediment-filled basins along the Rio Grande Rift in that the basins receive recharge from mountain ranges along the margins (Broxton and Vaniman, 2005). The following bullets briefly discuss alluvial, perched, and regional groundwater:

- **Alluvial Groundwater:** Alluvial groundwater primarily occurs in canyons that originate in the Sierra de los Valles or in the Pajarito Plateau watersheds. Groundwater in the canyons is supported by seasonal runoff from the mountains, by episodic precipitation events on the plateau, perennial springs, and by discharge from LANL outfalls. The wastewater also plays a part in the hydrogeology of the canyons.

- **Deep Perched Groundwater:** Perched water is defined "as a hydrologic condition in the rock or sediment above the regional aquifer in which the rock pores are completely saturated with water." Perched water bodies are important elements of the hydrogeology of the site for several reasons. There is a probability that the zones can intercept contaminants being transported downward through the vadose zone. The perched water can be a permanent or long-term residence for contaminants because the chemical makeup of the rocks may result in adsorption. Perched water can also serve as a place where dilution occurs, lowering the concentration of contaminants. There is a possibility that perched zones may be intersected by streams in the lower parts of the canyons, resulting in lateral flow under the influence of gravity out of the canyon walls into the alluvial aquifer and subsequently to the Rio Grande.

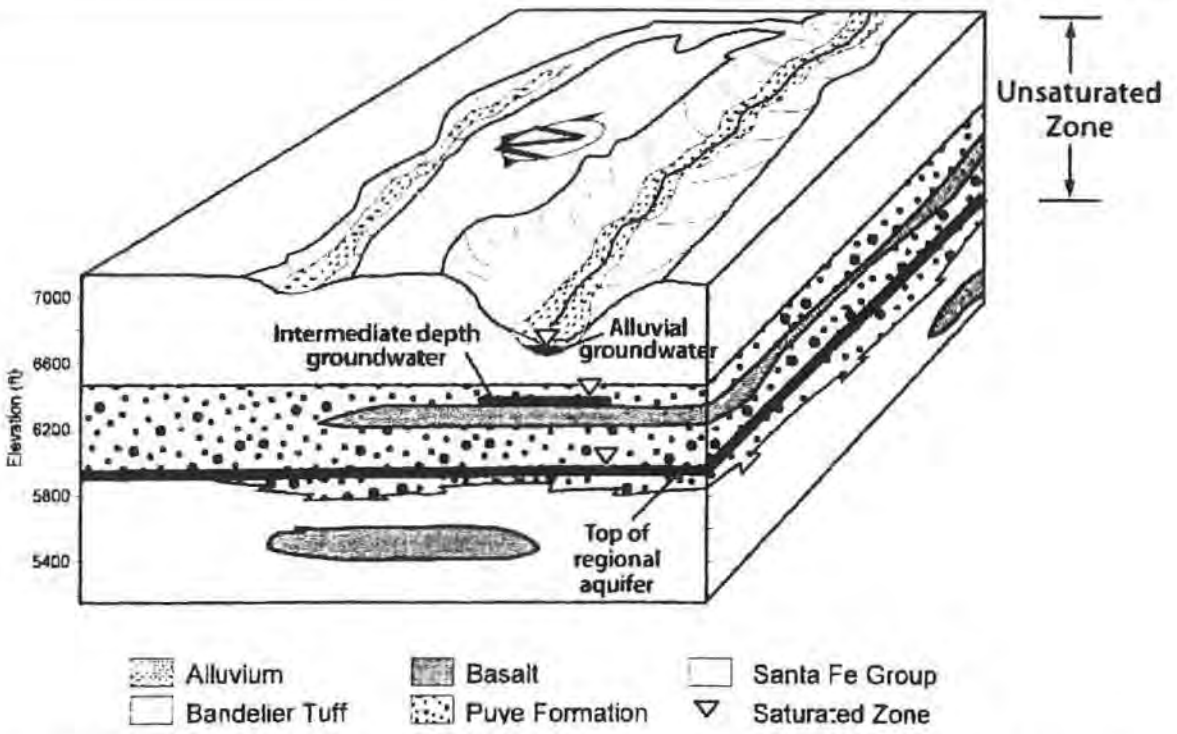


Figure 3.5 – Illustration of Geological and Hydrological Relationships on the Pajarito Plateau

- **Regional Groundwater:** The regional aquifer located below LANL is very deep (up to 1,200 feet [360 meters]) and is separated from the surface by a thick vadose zone with some perched water zones (Keating, Robinson, and Vesselinov, 2005). The depth to the water of the regional aquifer on the eastern part of the plateau near the rim of White Rock Canyon is about 614 feet (200 meters), about 210 feet (65 meters) above the level of the Rio Grande (Broxton and Vaniman, 2005). It has been reported that a well drilled in the lower Los Alamos Canyon near the Rio Grande flowed to the surface when installed in the regional aquifer, indicating confined or semi-confined conditions, and that there are seeps and springs in White Rock Canyon (Broxton and Vaniman, 2005).

The Laboratory uses groundwater for its potable water supply to laboratory facilities, sanitary facilities, and operations support facilities (cooling towers, power plant etc.). This groundwater contains various levels of natural elements that are dissolved as the water passes through the sub-surface geology. Appendix H provides the sampling results for well water as collected by the Los Alamos County Safe Drinking Water Act Sampling Program for 2010.

3.7 Soil Conditions

Most of the Laboratory facilities are located on mesa tops, where the soils are generally well-drained and thin. The parent materials are approximately 95% Bandelier Tuff, volcanic rocks of the tschicoma and Puye Formations, and the Cerros de Rio Basalts of the Chino Mesa, and the remnants of the El Cajete pumice. The remaining 5% was formed from colluviums, alluvium, andesitic rocks of the Paliza Canyon Formation, Cerro Rubio Quartz Latites, and tuffs associated with the sediments of the Cerro Toledo Rhyolite. The textures of the these soils range from very fine sandy loams and clay loams to gravelly, sandy loams and stony, silty clay loams.

3.8 Wild Fires - Cerro Grande and Las Conches

There have been two major forest fires in the vicinity of the Laboratory over the last 10 years. In May 2000, the Cerro Grande Fire burned approximately 47,000 acres, including about 7,700 acres of Laboratory lands (Balice, Bennett, and Wright, 2004). This fire severely burned much of the mountainside that drains onto the Laboratory (Gallaher and Koch, 2004). On June 26, 2011 a second major forest fire started due to an aspen tree collapsing a power line. The Las Conchas Fire burned 156,000 acres surrounding the Laboratory and the Los Alamos town site. Most of the fire burned on the Bandelier National Monument, Pueblo Land, and the Valle Caldera Preserve. It did include, however, a 2 acre spot fire on Laboratory property along the south boundary of TA-49. An additional 90 acres of Laboratory property were also burned due to fire-fighting efforts that included back burns west of State Road 501. In general, the effects of both fires included increased soil erosion due to loss of vegetative cover, formation of hydrophobic soils, and soil disturbance during construction of fire breaks, access roads, and staging areas used to support the fire-fighting efforts.

4.0 OUTFALL DESCRIPTIONS AND CLASSIFICATIONS

This 2012 NPDES Permit Re-Application Package includes 11 outfalls located at seven (7) Technical Areas (TAs) spread out over approximately a 40 square mile area within the Laboratory boundaries as shown in Table 4.1 and the map provided as Appendix G. These outfalls discharge into 4 of the watersheds in the LANL region, with the amount of discharge varying from year to year. Detailed treatment descriptions and future proposed changes to NPDES permitted facilities and outfalls are found in the EPA Form 2C Applications and Fact Sheets for each outfall.

Table 4.1
National Pollutant Discharge Elimination System Industrial Point Source Outfalls

No. Outfall	Outfall Category	ID No.	Location/ Facility	Watershed
1	Power Plant/SERF Discharge (001)	001	TA-3-22	Sandia
1	Sanitary Waste Water Treatment (13S)	13S	TA-46-347	Canada del Buey*
1	Radioactive Liquid Waste Treatment (051)	051	TA-50-1	Mortandad
7	Treated Cooling Water (03A)	03A022	TA-3-66	Mortandad
		03A027	TA-3-2327	Sandia
		03A048	TA-53-964, 979	Los Alamos
		03A113	TA-53-293, 952	Sandia
		03A160	TA-35-124	Mortandad
		03A181	TA-55-6	Mortandad
		03A199	TA-3-1837	Sandia
1	High Explosive Waste Water Treatment (05A)	05A055	TA-16-1508	Water/CdV

*Treated effluent from Outfall 13S is pumped to the TA-3 Re-Use tank, thence Outfall 001. The TA-46 SWWS Plant has never discharged into Canada del Buey. Canada del Buey is a tributary to Mortandad Canyon.

5.0 WASTE ACCEPTANCE, CHARACTERIZATION, AND CERTIFICATION PROGRAM

The Laboratory's waste management requirements are consistent with the applicable DOE orders, and state and federal regulations. All waste generators at the Laboratory are required to properly identify and document the characterization of any solid, hazardous, radioactive, or mixed waste pursuant to P409, *Waste Management* (Appendix M). This includes compliance

with the appropriate facility Waste Acceptance Criteria (WAC) and the preparation of a Waste Profile Form (WPF).

The Laboratory has ten recycling, waste storage, treatment, and disposal paths with specific WACs provided as attachments to P930-1, LANL Waste Acceptance Criteria. The following P930-1 attachments (Appendix N) are applicable to this 2012 NPDES Permit Re-Application:

- Attachment 16, P930-1: SWWS WAC
- Attachment 1, P930-1: RLWTF WAC

P930-1 does not include the WAC for some small specialty waste streams generated at the Laboratory. These waste streams have a site/facility specific WAC. The following site/facility specific WACs (Appendix N) are applicable to this 2012 NPDES Permit Re-Application:

- EP-RLW-AP-2902, Waste Acceptance Criteria for Transuranic (TRU) Radioactive Liquid Waste (RLWTF TRU WAC)
- LA-UR-08-1520, TA-16 Waste Acceptance Criteria (HEWTF WAC)

The WACs for the wastewater treatment facilities that may discharge to an NPDES permitted outfall are based on the NPDES effluent limits, New Mexico Water Quality Standards, RCRA Universal Treatment Standards, and/or other federal and state requirements. The treatment processes and capacities of these facilities are also considered during the development of the WACs.

The Laboratory utilizes the WPF to provide a complete and concise description of each waste stream including the details of the generating process. The WPF process provides generators with guidance to help make the determination of the physical, chemical, and radiological characteristics of the waste with sufficient accuracy to permit proper segregation, treatment, and disposal appropriate facility WAC. A WPF is required for all waste streams to be discharged or transported to the SWWS, RLWTF, and/or HEWTF. They are typically prepared by the generator with the assistance of a Waste Management Coordinator (WMC) who then enters the WPF information into the Waste Compliance and Tracking System (WCATS). The WCATS system automatically routes the WPF for approval by the appropriate organizations/personnel and allows for the generator to attach characterization data, acceptable knowledge data and other information necessary to properly document the waste stream. The WMCs serve as the primary contact between the waste generator and the treatment/disposal facility and are generally responsible for ensuring the following:

- Wastewater discharged/transported to the SWWS, RLWTF, or HEWTF is acceptable under the current NPDES Permit requirements.
- Operating personnel are familiar with the pertinent administrative requirements and waste management regulations.
- Wastewater discharged/transported to the SWWS, RLWTF, or HEWTF meets the requirements of the respective WAC for each facility.
- RCRA-Listed hazardous wastewater is not discharged/transported to the SWWS, RWLTF, or HEWTF.

- The operations personnel at the SWWS, RLWTF, or HEWTF are notified of any unusual or accident discharge that may violate the waste management requirements/regulations.

6.0 2012 NPDES RE-APPLICATION PROJECT

The data and information used to prepare this 2012 NPDES Permit Re-Application document was prepared by a project team that consisted of representatives from DOE, ENV-RCRA, Outfall owners, and Facility Operations Directors/Managers. The project team responsibilities and activities were outlined in a project Implementation Plan (Appendix O). The following sections provide a brief discussion of the work activities and the procedures and processes that were utilized by personnel to ensure that the information provided in this re-application document is complete and accurate.

6.1 Outfall Survey

The purpose of the outfall survey was to accumulate records, logs, operating procedures, sampling data, compliance inspection reports, topography maps, chemical inventories, WPFs, MSDSs, Notice of Change/Plans to Change, and previous Laboratory discharge non-compliance records and reports to support completion of the Form 2C for each outfall. The outfall survey included site visits to each of the 11 outfalls and their associated treatment facilities to take photographs, provide confirmation of the sources and processes, verify the outfall location, and collect documentation. The site visits were conducted in accordance with ENV-RCRA-QP-037, *Performing NPDES Reapplication Surveys.*

6.2 Outfall Effluent Sampling and Analysis

The Permittees prepared a project specific Sampling and Analysis Plan (SAP) (Appendix P) to ensure that representative samples were collected, preserved, and managed in accordance with the EPA application Form 2C. All samples were collected in accordance with the project specific SAP, ENV-RCRA-IWD-005, *NPDES Outfall Compliance Sampling; and* ENV-RCRA-QP-005, *Sampling at NPDES Permitted Outfalls.* The samples were shipped by the Sample Management Office (SMO) to a LANL approved analytical laboratory required to use EPA approved methods and follow DOE contract requirements. The analytical laboratory was also required to provide Level 4 Quality Data Packages.

All analytical data, upon receipt from the laboratory, was formally validated by an independent subcontractor prior to its use in the re-application (Level 4). After the data was validated it was forwarded to ENV-RCRA from the Sample Management Office (SMO) and hand entered onto the Form 2C. The accuracy of the hand entered data was independently verified and the review documented, forwarded to the appropriate record series, and a hard copy sent to ENV-RCRA.

6.3 Document Control/Records Management

Effective document control, record keeping, and data management was conducted in accordance with ENV-DO-QP-106, *Document Control*; ENV-DO-QP-110, *Records Management*; and ENV-DO-POL-QAP, *ENV Quality Assurance Plan.*

6.4 Quality Assurance

The quality assurance for the project was performed in accordance with SD330, *Los Alamos National Laboratory Quality Assurance Program;* ENV-DO-POL-QAP, *ENV Quality Assurance Plan;* and ENV-RCRA-QAPP-NPDES IPSP, *Quality Assurance Project Plan for the NPDES Industrial Point Source Permit (IPSP) Self-Monitoring Program.* Quality assurance reviews for

data accuracy were conducted throughout the project to ensure that data collected from the outfall surveys, site visits, and sampling activities were reasonable and adequately documented. These QA reviews were initially be conducted by project personnel as the data was collected and/or received. Questionable or undocumented data initiated additional investigations with outfall owners/operators. To ensure accuracy, all collected or compiled data was compared and evaluated against existing data obtained from other internal and external entities.

Formal reviews were also conducted by subject matter experts, the outfall owners; and the quality assurance specialist assigned to ENV-RCRA. These included formal comment review and response to ensure that all changes were documented.

7.0 NPDES PERMIT RE-APPLICATION FORMS

The NPDES Permit Re-application requires detailed information be provided for each point source outfall. The information required includes the location of the outfall, a detailed description of all sources and processes that contribute to the discharged waste stream, the volume and frequency of the discharge, and analytical data on the waste stream. A "fact sheet" which provides a brief biography of the required information has be created and provided for each Form 2C for each of the 11 outfalls included in the reapplication.

7.1 General Form 1

Form 1 is used to present general information such as the nature of business, name, mailing address, location, and existing permit numbers regarding EPA programs that apply to LANL. The information in the General Form 1 of the 2012 re-application did not vary significantly from that which was provided in the 2004 NPDES Re-Application. The following bullets summarize the deviations and/or considerations (if any) that are applicable to this 2012 NPDES Permit Re-Application:

- EPA deleted four (4) NPDES Outfalls (02A129, 03A021, 03A130 and 03A185) from the DOE/LANS permit on October 11, 2011. Additional outfalls are being evaluated for elimination.
- Appendix G provides a topographic map showing the locations of the 11 Outfalls to be permitted with respect to the Springs located in the area around the Laboratory.
- Appendix I provides a topographic map showing the sanitary waste collection system that delivers wastewater to the SWWS for treatment
- Appendix J provides a topographic map showing the RLWCS that delivers wastewater to the RLWTF for treatment.

Attachment Form 1 provides the completed General Form 1 with its associated footnotes and certifications.

7.2 Standard Form A

Standard Form A is the section of the application used for documenting discharges from a publicly or privately owned activity or wastewater treatment system or facility. The Laboratory does not own or operate a municipal wastewater system or publically owned treatment works. Communication with the EPA Region 6 Permit Writer in May 2011 indicated that the applicant would not be required to submit a Standard Form A with the submitted permit re-application package.

7.3 Form 2C

The Form 2 C is the section of the application used for renewal of expiring NPDES industrial permits. It provides detailed information regarding the location of the outfall, sources of influent water, production levels, and the analytical data for potential contaminants in the effluent discharged from the outfall. The Form 2C for each outfall is as an attachment to this permit re-application that corresponds to the respective outfall ID number. In addition to the Form 2C, the applicant has provided supporting documentation for each of the 11 outfalls. This supporting documentation includes:

- Fact Sheet
- Outfall Summary Discharge Monitoring Report
- Process Flow Diagram
- Outfall Location Map

8.0 REFERENCES

Balice, R. G., K. D. Bennett, and M. A. Wright, 2004, *Burn Severities, Fire Intensities, and Impacts to Major Vegetation Types from the Cerro Grande Fire,* LA-14159, Los Alamos National Laboratory, Los Alamos, New Mexico, December.

Broxton, D. E., and D. T. Vaniman, 2004, "Geologic Framework of a Groundwater System on the Margin of a Rift Basin, Pajarito Plateau, North-Central New Mexico," Vadose Zone Journal, Vol. 4, p. 522-550, April 28.

Broxton, D. E., and D. T. Vaniman, 2005, "Geologic Framework of a Groundwater System on the Margin of a Rift Basin, Pajarito Plateau, North-Central New Mexico," *Vadose Zone Journal,* 4:522-550, July 18.

DOE,1999, "Site-Wide Environmental Impact Statement for Continued Operation of the Los Alamos National Laboratory," DOE/EIS-0238, Albuquerque, NM (01/99).

DOE, 2008, "Final Site-Wide Environmental Impact Statement for Continued Operation of Los Alamos National Laboratory," DOE/EIS-0380, Albuquerque, NM (05/2008).

ENV-DO-POL-QAP, *ENV Quality Assurance Plan*

ENV-RCRA-QAPP-NPDES IPSP, *Quality Assurance Project Plan for the NPDES Industrial Point Source Permit (IPSP) Self-Monitoring Program*

ENV-DO-QP-106, *Document Control*

ENV-DO-QP-110, *Records Management*

ENV-DO-POL-QAP, *ENV Quality Assurance Plan*

ENV-RCRA-IWD-005, *NPDES Outfall Compliance Sampling*

ENV-RCRA-QP-005, *Sampling at NPDES Permitted Outfalls*

ENV-RCRA-QP-037, *Performing NPDES Reapplication Surveys*

NPDES Permit No. NM0028355, effective August 1, 2007

Gallaher, B. M., and R. J. Koch, 2004, *Cerro Grande Fire Impacts to Water Quality and Stream Flow Near Los Alamos National Laboratory: Results of Four Years of Monitoring*, LA-14177, Los Alamos National Laboratory, Los Alamos, New Mexico, September

Keating, E. H., B. A. Robinson, and V. V. Vesselinov, 2005, "Development and Application of Numerical Models to Estimate Fluxes through the Regional Aquifer beneath the Pajarito Plateau," *Vadose Zone Journal*, 4:653-671, August 16.

LA-UR-07-8312, Los Alamos National Laboratory NPDES Permit Compliance and Outfall Reduction Strategy, December 20, 2007

Robinson, B. A., S. G. McLin, and H. S. Viswanathan, 2005, "Hydrologic Behavior of Unsaturated, Fractured Tuff: Interpretation and Modeling of a Wellbore Injection Test," *Vadose Zone Journal*, 4:694-707, August 16.

SD330, *Los Alamos National Laboratory Quality Assurance Program*

Please print or type in the unshaded areas only.

Form Approved. OMB No. 2040-0086.

FORM 1 GENERAL

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER: F NM0890010515 (T/A: ; C: D)

LABEL ITEMS	
I.	EPA I.D. NUMBER
III.	FACILITY NAME
V.	FACILITY MAILING ADDRESS
VI.	FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of **bold-faced terms**.

SPECIFIC QUESTIONS	Mark "X" YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A)		X	
B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B)		X	
C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C)	X		X
D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)	X		
F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X	
H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)	X		
J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP: LOS ALAMOS NATIONAL LABORATORY

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*
2 TURNER, GENE, Environmental Permitting Manager	(505) 667-5794

V. FACILTY MAILING ADDRESS

A. STREET OR P.O. BOX: 3 U.S. DOE LOS ALAMOS SITE OFFICE

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 LOS ALAMOS	NM	87544

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER: 5 3747 WEST JEMEZ ROAD

B. COUNTY NAME: LOS ALAMOS

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
6 LOS ALAMOS	NM	87544	NA

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

VII. SIC CODES *(4-digit, in order of priority)*

A. FIRST	B. SECOND
9711 (specify) NATIONAL SECURITY	9661 (specify) SPACE RESEARCH & TECHNOLOGY
C. THIRD	**D. FOURTH**
9922 (specify) SCIENTIFIC RESEARCH	9611 (specify) ENERGY DEVELOPMENT

VIII. OPERATOR INFORMATION

A. NAME: LOS ALAMOS NATIONAL SECURITY

B. Is the name listed in Item VIII-A also the owner? ☐ YES ☑ NO

C. STATUS OF OPERATOR *(Enter the appropriate letter into the answer box. If "Other," specify.)*

F = FEDERAL; S = STATE; P = PRIVATE; M = PUBLIC *(other than federal or state)*; O = OTHER *(specify)*

P (specify)

D. PHONE *(area code & no.)*: A (505) 667-4218

E. STREET OR P.O. BOX: P.O. BOX 1663

F. CITY OR TOWN: LOS ALAMOS

G. STATE: NM

H. ZIP CODE: 87544

IX. INDIAN LAND: Is the facility located on Indian lands? ☐ YES ☑ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES *(Discharges to Surface Water)*: N NM0028355

D. PSD *(Air Emissions from Proposed Sources)*: P P100R1 (See Footnote B)

B. UIC *(Underground Injection of Fluids)*: U NA

E. OTHER *(specify)*: (See Footnotes C - G)

(specify) NPDES Construction General Permit; NPDES Individual Permit; & NPDES Multisector General Permit; Septic Tank Permits; Groundwater Discharge Permits

C. RCRA *(Hazardous Wastes)*: R NM0890010515-1 (A)

E. OTHER *(specify)*: (See Footnote H)

(specify) Dredge and Fill Permits

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS *(provide a brief description)*

The Los Alamos Ntaional Laboratory is a multidisciplinary/multiprogram laboratory. The Laboratory's central mission is to reduce the nuclear danger through evaluation and stockpile stewardship. It also provides significant programmatic support to many civilian efforts. Because of evolving technolgies and changing national and international priorities, the Laboratory increasingly uses its multidisciplinary research and development capabilities to solve civilian problems in the areas of health, national infrastructure, energy, education, aeronautics, and the environment. Extensive basic research programs in physics, chemistry, metallurgy, mathematics and computers, earth sciences, and electronics support these efforts.

XIII. CERTIFICATION *(see instructions)*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE *(type or print)*	B. SIGNATURE	C. DATE SIGNED
Kevin W. Smith, Manager, DOE/Los Alamos Site Office	K W Smith	1/27/2012

COMMENTS FOR OFFICIAL USE ONLY

EPA Form 3510-1 (8-90)

CONTINUED FROM THE FRONT

VII. SIC CODES *(4-digit, in order of priority)*

A. FIRST	B. SECOND
C 7	C 7 9661 (specify)
C. THIRD	D. FOURTH
C 7	C 7 9611 (specify)

VIII. OPERATOR INFORMATION

A. NAME: C 8

B. Is the name listed in Item VIII-A also the owner? ☐ YES ☐ NO

C. STATUS OF OPERATOR *(Enter the appropriate letter into the answer box; if "Other," specify.)*

F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC *(other than federal or state)*
O = OTHER *(specify)*

(specify)

D. PHONE *(area code & no.)*: A

E. STREET OR P.O. BOX

F. CITY OR TOWN: C B

G. STATE

H. ZIP CODE

IX. INDIAN LAND

Is the facility located on Indian lands? ☐ YES ☐ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES *(Discharges to Surface Water)*	D. PSD *(Air Emissions from Proposed Sources)*
C T I 9 N	C T I 9 P
B. UIC *(Underground Injection of Fluids)*	E. OTHER *(specify)*
C T I 9 U	C T I 9 (specify)
C. RCRA *(Hazardous Wastes)*	E. OTHER *(specify)*
C T I 9 R	C T I 9 (specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS *(provide a brief description)*

EXTRA PAGE FOR SIGNATURE

XIII. CERTIFICATION *(see instructions)*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE *(type or print)*	B. SIGNATURE	C. DATE SIGNED
Alison M. Dorries, Division Leader, Environmental Protection Division		1/27/12

COMMENTS FOR OFFICIAL USE ONLY: C

EPA Form 3510-1 (8-90)

Form 1
General Footnotes

A **NM0890010515-1 Resource Conservation and Recovery Act (RCRA) Hazardous Waste Facility Permit:** The RCRA permit regulates the management of hazardous wastes based on a combination of the facility's status, the quantities of waste generated, and the types of waste management conducted by the facility. The Laboratory's hazardous waste facility permit was initially granted in 1989 for storage and treatment operations. The current RCRA Hazardous Waste Permit became effective on December 30, 2010. Appendix D provides maps of the Hazardous Waste Management Facilities and a listing of the Hazardous Waste Treatment Process Codes.

B **P100R1 Air Quality Operating Permit:** The Federal Clean Air Act Operating Permit provides the terms and conditions that must be followed in order to operate applicable air emission sources (i.e., boilers, electric generators, power plant, a combustion turbine generator, a data disintegrator, two carpenter shops, a degreaser, and an asphalt plant) at the Laboratory. The Laboratory also reports emissions from chemical use associated with R&D and permitted beryllium activities. The current Air Quality Operating Permit became effective on August 7, 2009.

C **NPDES Construction General Permit**: The Construction General Permit (CGP) regulates storm water discharges from construction activities disturbing one or more acres, including those construction activities that are part of a larger common plan of development collectively disturbing one or more acres. The Laboratory and the general contractor apply individually for NPDES CGP coverage and are co-permittees at most construction sites. Compliance with the NPDES CGP includes developing and implementing a Storm Water Pollution Prevention Plan before soil disturbance can begin and conducting site inspections once soil disturbance has commenced. There are currently 16 Active Construction General Permit Notice of Intent documents at LANL (Appendix C).

D **NPDES Permit No. NM0030759 - Industrial Point Source Permit:** The Individual Permit (IP) authorizes the discharge of storm water associated with industrial activities at the Laboratory from specified solid waste management units (SWMUs) and areas of concern (AOCs). It contains non-numeric technology-based effluent limitations, coupled with a comprehensive, coordinated monitoring program, to minimize pollutants in storm water discharges. It requires the Laboratory to implement site-specific control measures (including best management practices) to address the non-numeric technology-based effluent limits as necessary to minimize pollutants in their storm water discharges. The current NPDES IP Permit, incorporating the latest modifications, became effective on November 1, 2010.

E **NPDES Storm water Multi-Section General Permit (MSGP):** The NPDES Industrial Storm Water Permit Program regulates storm water discharges from identified regulated industrial activities and their associated facilities. These activities include metal fabrication; hazardous waste treatment and storage; vehicle and equipment maintenance; recycling activities; electricity generation; warehousing activities; and asphalt manufacturing. LANS and the DOE are co-permittees under the EPA 2008 NPDES Storm Water MSGP for Industrial Activities (MSGP-2008). The current MSGP was effective September 29, 2008.

F **Septic Tank Permits:** LANL is responsible for requesting septic tank permits and creating and maintaining septic tank designs and installation to comply with the NMED Liquid Waste Disposal Program. Appendix C provides a list of the current septic tank permits at the Laboratory.

2012 NPDES PERMIT RE-APPLICATION
OUTFALL FACT SHEET

Outfall ID No.	Outfall Location	Outfall Category	Receiving Stream
051	TA-50-1	Radioactive Liquid Waste Treatment Facility (RLWTF)	Effluent Canyon, a Tributary to Mortandad Canyon

SOURCE OF DISCHARGE

Outfall 051 is located at TA-50 and discharges treated radioactive liquid wastewater effluent from the Radioactive Liquid Waste Treatment Facility (RLWTF) at TA-50-1 into Effluent Canyon, a tributary of Mortandad Canyon. Table 1 identifies the location of the RLWTF and provides a description of influent sources that it receives.

Table 1
Sources for Discharge to Outfall 051

TA	Bldg	Description
50	1	Radioactive Liquid Waste Treatment Facility - Process water from radiochemistry laboratories, duct washing systems, radiological areas, boilers, and process areas. - Cooling water from systems located in radiological areas. - Storm and surface water (including samples) collected from sumps, manholes, and vaults. - Environmental Restoration (ER) waste water generated by groundwater monitoring and sampling activities at performed at LANL.

Figure 1 provides a process flow diagram for the RLWTF.

WATER TREATMENT PROCESS

The RLWTF treats low-level and transuranic (TRU) radioactive liquid wastewater delivered from processes at various generator facilities to TA-50 by underground collection system or by tanker truck. All wastewater discharged into the RLWTF must comply with the facility's Waste Acceptance Criteria and must have a completed/approved Waste Profile Form (Appendix N). The NPDES sample point for this outfall allows for the collection of a sample after the final treatment process. The RLWTF includes two different treatment processes as follows:

- **Low-Level Radioactive Liquid Waste (RLW) Treatment Process** - Low-level influent is received at the facility through the Radioactive Liquid Waste Collection System (see Appendix J, K) where it is routed through a pH adjustment chamber and collected in the influent tanks. RLW is fed from the influent tanks to the clarifiers where it is treated by chemical precipitation and flocculation (sodium hydroxide, magnesium hydroxide, ferric chloride, sulfate, or other chemicals) to remove silica and radionuclides. The clarified water is drawn off and filtered. The RLW may then be treated by ion exchange or is sent to a Reverse Osmosis (RO) unit. The RO permeate (treated water) is routed to effluent storage tanks prior to being discharged to the effluent evaporator, TA-52 solar evaporation tanks (anticipated to be operational within the next 5 years), or the NPDES outfall. If the effluent is to be discharged to Outfall 051 it is further treated with ion exchange to remove copper/zinc and may have magnesium/calcium salts added to adjust the hardness prior to discharge. Secondary waste treatment processes are also included for RO concentrate (Secondary RO) and sludge (vacuum filter/dewatering). These processes result in recycle streams back to the influent tanks and to other process units, and concentrated and solid waste streams shipped as low-level radioactive waste.

- **TRU RLW Treatment Process -** TRU RLW is received at the facility through an underground, doubled walled pipe collection system from TA-55 (see Appendix J, K) and is collected at the TA-50-66 influent tanks. The TRU influent is routed from TA-50-66 to the treatment tank in Room 60 where it is treated by chemical precipitation (sodium hydroxide) to remove radionuclides. Solids from the tank are collected in a sludge tank, allowed to settle, and are then solidified with cement in a drum tumbler. The cement drums are shipped and disposed of as TRU waste. The treated water is routed to the low-level treatment plant for either additional treatment or for storage pending shipment off-site for LLW disposal.

The water treatment codes provided in Table 2 have been assigned to this outfall.

Table 2
Water Treatment Codes Assigned to the RLWTF and Outfall 051

Treatment Code	Treatment Process	Description
1F	Evaporation	Waste Reduction Evaporator, Mechanical Evaporator, and/or Solar Evaporation Tanks
1G	Flocculation	Clarifiers
1O	Mixing	Various
1S	Reverse Osmosis (Hyperfiltration)	RO Units
1U	Sedimentation (Settling)	Sludge
1Q	Multi[illegible]a Filtration	Pressure and Cartridge Filters used for Particulate Removal
1R	Rapi[illegible]d Filtration	Gravity Media Filter for Particulate Removal
2C	Chemic[illegible] Precipitation	Sodium hydroxide, magnesium hydroxide, magnesium sulfate, sodium aluminate, co-polymer, and ferric sulfate are used to promote precipitation of radionuclides and silica removal
2G	Coagu[illegible]ion	Clarifiers
2J	Ion Exchange	Perchlorate, copper, and zinc removal
2K	Neutralization	Influent and Room 60 Neutralization
5Q	Landfill	Drums of TRU and LLW Waste
5U	Vacuum Filtration	Vacuum filter for LLW sludge

TREATMENT CHEMICALS AND POTENTIAL CONTAMINANTS

The water treatment processes identified in Table 2 utilize chemicals to control pH, promote precipitation, and flocculation. Table 3 identifies the treatment chemicals that are used at the RLWTF.

Table 3
Treatment Chemicals Used at the RLWTF

Source	Reason for Use/Frequency	Hazardous Substances from Form 2C, Table 2C-4
Sodium Hydroxide 25%	pH Adjustment, Promote Precipitation/Flocculation, and Membrane Cleaning	Sodium Hydroxide
Ferric Sulfate	Promote Precipitation/Flocculation	Ferric Sulfate
Magnesium Hydroxide	Promote Precipitation/Flocculation	NA
Carbon Dioxide	Adjust pH	NA
Magnesium Sulfate	Precipitation/Flocculation	NA

Table 3 (continued)
Treatment Chemicals Used at the RLWTF

Source	Reason for Use/Frequency	Hazardous Substances from Form 2C, Table 2C-4
EDTA	Membrane Cleaning	EDTA
Sodium bisulfite	Membrane Cleaning	Sodium Bisulfite
Dishwashing Soap	Membrane Cleaning	NA
Ionac SR-6	Ion Exchange Resin	NA
Hydrochloric Acid	Reduce pH	Hydrochloric Acid
Solid Sodium Hydroxide	Precipitation/Flocculation	Sodium Hydroxide
SCU	Ion Exchange Media	NA
SCP	Ion Exchange Media	NA
Sodium Aluminate	Precipitation/Flocculation	NA
WEST W-126	Ionic Co-polymer used as a Flocculent	2-Propanoic Acid

Table 4 identifies the contaminants listed on the Waste Profile Forms for the influent waste streams received by the RLWTF for treatment.

Table 4
Potential Contaminants Associated with the RLWTF Influent

Waste Stream Type	Description	Hazardous Substances from Form 2C, Table 2C-4 Identified on WPFs[1]		Detected in Outfall 051 Discharge (Aug 07 – Jun 10)
Process	Discharged from laboratories, radiological areas and process areas.	acetic acid ammonia ammonium bifluoride ammonium carbonate ammonium chloride ammonium fluoride ammonium hydroxide benzene chloroform chromic acid cupric chloride cupric sulfate endrin EDTA ferric chloride ferric nitrate ferric sulfate ferrous ammonium sulfate ferrous chloride ferrous sulfate formaldehyde formic acid	heptachlor hydrochloric acid hydrofluoric acid lead nitrate nitric acid phenol phosphoric acid potassium dichromate potassium hydroxide potassium permanganate sodium dodecylbenzenesulfonate sodium fluoride sodium hydroxide sodium hypochlorite sodium nitrite sodium phosphate (dibasic) sulfuric acid uranyl nitrate zinc chloride zinc nitrate zinc sulfate	Chloroform [2] Chromium [3] Copper [4] Lead [5]
ER	Discharged from groundwater drilling and remediation projects.	acrolein ammonia aniline benzoic acid Dieldrin endosulfan	endrin ethyl benzene Naphthalene Phenol Toluene xylene	Naphthalene [6] Phenol [7]

Table 4 (continued)
Potential Contaminants Associated with the RLWTF Influent

Waste Stream Type	Description	Hazardous Substances from Form 2C, Table 2C-4 Identified on WPFs[1]		Detected in Outfall 051 Discharge (Aug 07 – Jun 10)
Storm Water	Discharged from sumps, manholes, and vaults. [8, 9]	Ammonia chloroform	nitric acid trichloroethylene	Chloroform [2]

1. NOTE: The wastewater influent received by the RLWTF is not Resource Conservation and Recovery Act (RCRA) listed hazardous waste.
2. Chloroform was detected twelve (12) times at concentrations ranging from 0.000283 – 0.0546 mg/L.
3. Chromium was detected one (1) time at a concentration of 0.001 mg/L.
4. Copper was detected thirty five (35) times at concentrations ranging from 0.0102 – 0.24 mg/L.
5. Lead was detected on (1) time at a concentration of 0.0076 mg/L.
6. Naphthalene was detected two (2) times at concentrations of 0.000372 – 0.000933 mg/L.
7. Phenol was detected on (1) time at a concentration of 0.0177 mg/L.
8. Ammonia, chloroform, and trichloroethylene were detected in storm water collected from TRU Low Level Waste (LLW) storage dome sumps located at TA-54 and sent to the RLWTF for treatment. These detections are likely due to residual cleaning chemicals and/or the presence of asphalt.
9. The nitric acid is used as a preservation chemical for storm water and surface water samples that are managed at TA-59. Unused sample material is poured down the RLW drain to the collection system.

POTENTIAL POLLUTANTS

The treatment chemicals and treated RLWTF effluent constitute the pollutant load that could potential discharge to Outfall 051. Table 5 identifies the Table 2C-4 constituents that will potentially be discharged to the outfall.

Table 5
Potential Pollutants Discharged to Outfall 051

Description	Hazardous Substances Required to be Listed on the NPDES Permit Application Form 2C		
TA-50 RLWTF Treated Effluent, Outfall 051	acetic acid	EDTA	potassium hydroxide
	acrolein	ferric chloride	potassium permanganate
	ammonia	ferric nitrate	sodium bisulfite
	ammonium bifluoride	ferric sulfate	sodium dodecylbenzenesulfonate
	ammonium carbonate	ferrous ammonium sulfate	sodium fluoride
	ammonium chloride	ferrous chloride	sodium hydroxide
	ammonium fluoride	ferrous sulfate	sodium hypochlorite
	ammonium hydroxide	formaldehyde	sodium nitrite
	aniline	formic acid	sodium phosphate (dibasic)
	benzene	heptachlor	sulfuric acid
	benzoic acid	hydrochloric acid	toluene
	chloroform	hydrofluoric acid	trichloroethylene
	chromic acid	lead nitrate	uranyl nitrate
	cupric chloride	naphthalene	xylene
	cupric sulfate	nitric acid	zinc chloride
	dieldrin	phenol	zinc nitrate
	endosulfan	phosphoric acid	zinc sulfate
	endrin	potassium bichromate	2-propanoic acid
	ethylbenzene		

DISCHARGE RATE AND FREQUENCY

The average daily flow rates for the sources that discharge to Outfall 051 are provided in Table 6.

Table 6
Source Flow Rates/Frequencies to Outfall 051

Operation/Source	Average Flow (Gallon/Day)	Treatment Code
RLWTF	19,700	1G, 1O, 1S, 1Q, 1R 1U, 2J, 1F, 2K, 2C, 5Q, 5U

SAMPLING AND ANALYSIS FOR RE-APPLICATION

The RLWTF has not discharged to Outfall 051 since November 2010. LANL requests to re-permit the outfall so that the RLWTF can maintain the capability to discharge to the outfall should the Mechanical Evaporator and/or Zero Liquid Discharge (ZLD) Solar Evaporation Tanks become unavailable due to maintenance, malfunction, and/or there is an increase in treatment capacity caused by changes in LANL scope/mission.

A grab sample for the Form 2C Constituents will be collected for Outfall 051 when/if the RWLTF discharges effluent through the outfall. See the attached Discharge Monitoring Report Outfall Summary for the analytical data collected prior to November 2010.

ANALYTICAL RESULTS PROVIDED

- NPDES Discharge Monitoring Reports (DMRs) from August 2007 – December 2011.
- Material Safety Data Sheets for treatment chemicals.

ADDITIONAL INFORMATION

- Latitude – 35°51'54"
- Longitude – 106°17'54"

Form 2C Section IV.B - Improvements

ZERO LIQUID DISCHARGE (ZLD) PROJECT

The configuration of the RLWTF and Outfall 051 will be changing in the next 5 years due to the construction of two new Concrete Evaporation Tanks at Technical Area (TA) 52 under the Zero Liquid Discharge (ZLD) Project. These evaporation tanks will receive treated effluent from the RLWTF and will reduce the volume of treated effluent discharged to Outfall 051. The evaporation tanks will be connected to the RLWTF by a transfer pipe line that will be approximately 0.75 miles long. Figures 2 and 3 provide copies of the 90% review design drawings for the transfer line and evaporation tanks.

Please print or type in the unshaded areas only.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*): NM0890019515

Form Approved.
OMB No. 2040-0086.
Approval expires 3-31-98.

FORM 2C NPDES

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURE OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (*list*)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (*name*)
	1. DEG.	2. MIN.	3. SEC.	1. DEG.	2. MIN.	3. SEC.	
051	35.	51.	54.00	106.	17.	54.00	Mortandad Canyon, an Ephemeral Tributary to the Rio Grande (NMAC 28.6.4.128)

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (*e.g., for certain mining activities*), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (*list*)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT		
	a. OPERATION (*list*)	b. AVERAGE FLOW (*include units*)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
051	Effluent from the RLWTF	19,700 GPD	Neutralization	2	K
	- Process Water (Rad Lab Waste)	(18,150)	Mixing	1	O
	- Cooling Water (Rad Areas)	(1,232)	Chemical Precipitation	2	C
	- Environmental Water (ER Waste)	(50)	Flocculation	1	G
	- Storm Water (sumps etc.)	(268)	Sedimentation (Settling)	1	U
			Rapid Sand Filtration	1	r
			Multimedia Filtration	1	Q
			Reverse Osmosis	1	S
			Ion Exchange	2	J
			Coagulation	2	G
			Vacuum Filtration	5	U
			Evaporation	1	F
			Landfill	5	q

OFFICIAL USE ONLY (*effluent guidelines sub-categories*)

CONTINUED FROM THE FRONT

C. Except for storm runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?

☑ YES (*complete the following table*) ☐ NO (*go to Section III*)

1. OUTFALL NUMBER (*list*)	2. OPERATION(s) CONTRIBUTING FLOW (*list*)	3. FREQUENCY		4. FLOW				
		a. DAYS PER WEEK (*specify average*)	b. MONTHS PER YEAR (*specify average*)	a. FLOW RATE (*in mgd*)		B. TOTAL VOLUME (*specify with units*)		C. DURATION (*in days*)
				1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	
051	TA-50-1 - RLWTF Effluent Normal operating days = 260 days/year	5	12	0.0197 GPD	0.020 GPD	19,700 Gallons	20,000 Gallons	270

III. PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

☐ YES (*complete Item III-B*) ☑ NO (*go to Section IV*)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (*or other measure of operation*)?

☐ YES (*complete Item III-C*) ☑ NO (*go to Section IV*)

C. If you answered "yes" to Item III-B, list the quantity which represents an actual measurement of your level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

1. AVERAGE DAILY PRODUCTION			2. AFFECTED OUTFALLS (*list outfall numbers*)
a. QUANTITY PER DAY	b. UNITS OF MEASURE	c. OPERATION, PRODUCT, MATERIAL, ETC. (*specify*)	
NA	NA	NA	NA

IV. IMPROVEMENTS

A. Are you now required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operations of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

☐ YES (*complete the following table*) ☑ NO (*go to Item IV-B*)

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS		3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
	a. NO.	b. SOURCE OF DISCHARGE		a. REQUIRED	b. PROJECTED
NA	NA	NA	NA	NA	NA

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs (*or other environmental projects which may affect your discharges*) you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction.

☒ MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED

CONTINUED FROM PAGE 2

V. INTAKE AND EFFLUENT CHARACTERISTICS

A, B, & C: See instructions before proceeding – Complete one set of tables for each outfall – Annotate the outfall number in the space provided.
NOTE: Tables V-A, V-B, and V-C are included on separate sheets numbered V-1 through V-9.

D. Use the space below to list any of the pollutants listed in Table 2c-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE
Table 2C-4 Sodium Hydroxide	Treatment Chemical - Adjust pH and Promote Precipitation and Flocculation	acetic acid, ammonia, ammonium bifluoride, ammonium carbonate, ammonium chloride, ammonium hydroxide, benzene, chloroform, chromic acid, cupric chloride, cupric sulfate, endrin, EDTA, ferric chloride, ferric nitrate, ferric sulfate, ferrous ammonium sulfate, ferrous chloride, ferrous sulfate, formaldehyde, formic acid, heptachlor, hydrochloric acid, hydrofluoric acid, lead nitrate, nitric acid, Phenol, phosphoric acid, potassium dichromate, potassium hydroxide, potassium permanganate, sodium dodecylbenzenesulfonate, sodium fluoride, sodium hydroxide, sodium hypochlorite,sodium nitrite, sodium phosphate (dibasic), sulfuric acid, uranyl nitrate, zinc chloride, zinc nitrate, zinc sulfate	RLWTF Influent (Based on Waste Profile Form Data) - Process Water
Ferric Sulfate	Treatment Chemical - Promote Precipitation and Flocculation		
EDTA	Treatment Chemical - Clean membranes		
Sodium bisulfite	Treatment Chemical - Clean membranes		
Hydrochloric Acid	Treatment Chemical - Adjust pH		
2-propanoic acid	Treatment Chemicals WEST W-126 - Co-Polymer/Flocculation		
Ammonia, chloroform, nitric acid, trichloroethylene	RLWTF Influent (Based on Waste Profile Form Data) - Storm Water		
Acrolein, ammonia, aniline, benzoic acid, dieldrin, enosulfan, endric, ethylbenzne, naphthalene, phenol, toluene, xylene	RLWTF Influent (Based on Waste Proform Data) - Environmental Restoration Water		NOTE: There were no Table 2C-3 Contaminates Identified

VI. POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

Is any pollutant listed in Item V-C a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☐ YES (*list all such pollutants below*) ☑ NO (*go to Item VI-B*)

NA

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VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☑ YES (*identify the test(s) and describe their purposes below*) ☐ NO (*go to Section VIII*)

Whole Effluent Toxicity 48 hr Acute Toxicity - FAILED
Daphnia Pulex, 3-hr composite (2 samples, collected ~24 hours apart), Quarterly

See the DMR Outfall Data Summary Report for the detailed results.

Currently Conducting Toxicity Identification Evaluations TIE) and Toxicity Reduction Evolutions (TRE)

VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

☑ YES (*list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below*) ☐ NO (*go to Section IX*)

A. NAME	B. ADDRESS	C. TELEPHONE (*area code & no.*)	D. POLLUTANTS ANALYZED (*list*)
GEL General Engineering Labs	2040 Savage Rd. Charleston, SC 29407	843-556-8171	Metals, VOC, SVOC, Pesticides, Radiological, Water Quality Parameters
SWRI Southwest Research Institute	Division 01 6220 Culebra Rd San Antonio, TX 78238	210-522-3867	Arsenic, Selenium
Cape Fear Analytical	3306 Kitty Hawk Rd Suite 120 Wilmington, NC 28405	910-795-0421	Dioxins and Furans
Pacific EcoRisk	2250 Cordelia Rd Fairfield, CA 94534	707-207-7760	WET Testing
New Mexico Water Testing Laboratory INC	401 N. Coronado Ave. Espanola, NM 87532	505-929-4545	E-Coli

IX. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. NAME & OFFICIAL TITLE (*type or print*)	B. PHONE NO. (*area code & no.*)
Kevin W. Smith, Manager, DOE/Los Alamos Site Office	(505) 606-2004
C. SIGNATURE: Kevin W. Smith	D. DATE SIGNED: 1/27/2012

CONTINUED FROM THE FRONT

VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☐ YES (*identify the test(s) and describe their purposes below*) ☐ NO (*go to Section VIII*)

EXTRA PAGE FOR SIGNATURE

VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

☐ YES (*list the name, address, and telephone number of, and pollutants analyzed by each such laboratory or firm below*) ☐ NO (*go to Section IX*)

A. NAME	B. ADDRESS	C. TELEPHONE (*area code & no.*)	D. POLLUTANTS ANALYZED (*list*)

IX. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. NAME & OFFICIAL TITLE (*type or print*)	B. PHONE NO. (*area code & no.*)
Alison M. Dorries, Division Leader, ENV Protection Division	(505) 665-6952
C. SIGNATURE	D. DATE SIGNED
	1/30/13

EPA Form 3510-2C (8-90) PAGE 4 of 4

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (*use the same format*) instead of completing these pages.
SEE INSTRUCTIONS.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*): NM0890019515

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO. 051

PART A –You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT							3. UNITS (*specify if blank*)		4. INTAKE (*optional*)		
	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Biochemical Oxygen Demand (*BOD*)												
b. Chemical Oxygen Demand (*COD*)												
c. Total Organic Carbon (*TOC*)												
d. Total Suspended Solids (*TSS*)												
e. Ammonia (*as N*)												
f. Flow	VALUE											
g. Temperature (*winter*)	VALUE											
h. Temperature (*summer*)	VALUE											
i. pH	MINIMUM											

The RLWTF has not discharged to Outfall 051 since November 2010. LANL requests to re-permit the outfall so that the RLWTF can maintain the capability to discharge to the outfall should the Effluent Evaporator and/or ZLD Evaporation Tanks become unavailable due to maintenance, malfunction, and/or there is an increase in treatment capacity caused by changes in LANL scope/mission.

A composite sample for the Form 2C Constituents will be collected from Outfall 051 when/if the RWLTF discharges effluent to Mortandad Canyon. See the DMR Outfall Summary for the analytical data collected prior to November 2010.

PART B – Mark "X" in column 2-a for each p … directly, or indirectly but express … quantitative data or an explanatio … nt which is limited either … n 2a, you must provide …

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X"		a. MAXIMUM DAILY VALUE		(*if available*)		(*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	… AVERAGE VALUE		b. NO. OF ANALYSES
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Bromide (24959-67-9)	X													
b. Chlorine, Total Residual	X													
c. Color		X												
d. Fecal Coliform		X												
e. Fluoride (16984-48-8)	X													
f. Nitrate-Nitrite (*as N*)	X													

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (as N)	X													
h. Oil and Grease	X													
i. Phosphorus (as P), Total (7723-14-0)	X													
j. Radioactivity														
(1) Alpha, Total	X													
(2) Beta, Total	X													
(3) Radium, Total	X													
(4) Radium 226, Total	X													
k. Sulfate (as SO_4) (14808-79-8)	X													
l. Sulfide (as S)		X												
m. Sulfite (as SO_3) (14265-45-3)		X												
n. Surfactants	X													
o. Aluminum, Total (7429-90-5)		X												
p. Barium, Total (7440-39-3)		X												
q. Boron, Total (7440-42-8)	X													
r. Cobalt, Total (7440-48-4)		X												
s. Iron, Total (7439-89-6)		X												
t. Magnesium, Total (7439-95-4)	X													
u. Molybdenum, Total (7439-98-7)	X													
v. Manganese, Total (7439-96-5)	X													
w. Tin, Total (7440-31-5)	X													
x. Titanium, Total (7440-32-6)		X												

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CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (*secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions*), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (*all 7 pages*) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)			X												
2M. Arsenic, Total (7440-38-2)			X												
3M. Beryllium, Total (7440-41-7)			X												
4M. Cadmium, Total (7440-43-9)			X												
5M. Chromium, Total (7440-47-3)			X												
6M. Copper, Total (7440-50-8)		X													
7M. Lead, Total (7439-92-1)			X												
8M. Mercury, Total (7439-97-6)			X												
9M. Nickel, Total (7440-02-0)		X													
10M. Selenium, Total (7782-49-2)			X												
11M. Silver, Total (7440-22-4)			X												
12M. Thallium, Total (7440-28-0)			X												
13M. Zinc, Total (7440-66-6)		X													
14M. Cyanide, Total (57-12-5)			X												
15M. Phenols, Total		X													
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

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CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Accrolein (107-02-8)			X												
2V. Acrylonitrile (107-13-1)			X												
3V. Benzene (71-43-2)		X													
4V. Bis (*Chloromethyl*) Ether (542-88-1)															
5V. Bromoform (75-25-2)			X												
6V. Carbon Tetrachloride (56-23-5)			X												
7V. Chlorobenzene (108-90-7)			X												
8V. Chlorodibromomethane (124-48-1)			X												
9V. Chloroethane (75-00-3)			X												
10V. 2-Chloroethylvinyl Ether (110-75-8)			X												
11V. Chloroform (67-66-3)			X												
12V. Dichlorobromomethane (75-27-4)			X												
13V. Dichlorodifluoromethane (75-71-8)															
14V. 1,1-Dichloroethane (75-34-3)			X												
15V. 1,2-Dichloroethane (107-06-2)			X												
16V. 1,1-Dichloroethylene (75-35-4)			X												
17V. 1,2-Dichloropropane (78-87-5)			X												
18V. 1,3-Dichloropropylene (542-75-6)			X												
19V. Ethylbenzene (100-41-4)			X												
20V. Methyl Bromide (74-83-9)			X												
21V. Methyl Chloride (74-87-3)			X												

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CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS (*continued*)															
22V. Methylene Chloride (75-09-2)			X												
23V. 1,1,2,2-Tetrachloroethane (79-34-5)			X												
24V. Tetrachloroethylene (127-18-4)			X												
25V. Toluene (108-88-3)			X												
26V. 1,2-Trans-Dichloroethylene (156-60-5)			X												
27V. 1,1,1-Trichloroethane (71-55-6)			X												
28V. 1,1,2-Trichloroethane (79-00-5)			X												
29V Trichloroethylene (79-01-6)			X												
30V. Trichlorofluoromethane (75-69-4)															
31V. Vinyl Chloride (75-01-4)			X												
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)			X												
2A. 2,4-Dichlorophenol (120-83-2)			X												
3A. 2,4-Dimethylphenol (105-67-9)			X												
4A. 4,6-Dinitro-O-Cresol (534-52-1)			X												
5A. 2,4-Dinitrophenol (51-28-5)			X												
6A. 2-Nitrophenol (88-75-5)			X												
7A. 4-Nitrophenol (100-02-7)			X												
8A. P-Chloro-M-Cresol (59-50-7)			X												
9A. Pentachlorophenol (87-86-5)			X												
10A. Phenol (108-95-2)			X												
11A. 2,4,6-Trichlorophenol (88-05-2)			X												

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CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X" a. TESTING REQUIRED	2. MARK "X" b. BELIEVED PRESENT	2. MARK "X" c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (*if available*) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (*if available*) (2) MASS	c. LONG TERM AVRG. VALUE (*if available*) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (*if available*) (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE (*optional*) a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE (*optional*) b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)			X												
2B. Acenaphtylene (208-96-8)			X												
3B. Anthracene (120-12-7)			X												
4B. Benzidine (92-87-5)			X												
5B. Benzo (*a*) Anthracene (56-55-3)			X												
6B. Benzo (*a*) Pyrene (50-32-8)			X												
7B. 3,4-Benzo-fluoranthene (205-99-2)			X												
8B. Benzo (*ghi*) Perylene (191-24-2)			X												
9B. Benzo (*k*) Fluoranthene (207-08-9)			X												
10B. Bis (*2-Chloro-ethoxy*) Methane (111-91-1)			X												
11B. Bis (*2-Chloro-ethyl*) Ether (111-44-4)			X												
12B. Bis (*2-Chloroisopropyl*) Ether (102-80-1)			X												
13B. Bis (*2-Ethyl-hexyl*) Phthalate (117-81-7)			X												
14B. 4-Bromophenyl Phenyl Ether (101-55-3)			X												
15B. Butyl Benzyl Phthalate (85-68-7)			X												
16B. 2-Chloro-naphthalene (91-58-7)			X												
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)			X												
18B. Chrysene (218-01-9)			X												
19B. Dibenzo (*a,h*) Anthracene (53-70-3)			X												
20B. 1,2-Dichloro-benzene (95-50-1)			X												
21B. 1,3-Di-chloro-benzene (541-73-1)			X												

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CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
22B. 1,4-Dichlorobenzene (106-46-7)			X												
23B. 3,3-Dichlorobenzidine (91-94-1)			X												
24B. Diethyl Phthalate (84-66-2)			X												
25B. Dimethyl Phthalate (131-11-3)		X													
26B. Di-N-Butyl Phthalate (84-74-2)			X												
27B. 2,4-Dinitrotoluene (121-14-2)			X												
28B. 2,6-Dinitrotoluene (606-20-2)			X												
29B. Di-N-Octyl Phthalate (117-84-0)			X												
30B. 1,2-Diphenylhydrazine (*as Azobenzene*) (122-66-7)			X												
31B. Fluoranthene (206-44-0)			X												
32B. Fluorene (86-73-7)			X												
33B. Hexachlorobenzene (118-74-1)			X												
34B. Hexachlorobutadiene (87-68-3)			X												
35B. Hexachlorocyclopentadiene (77-47-4)			X												
36B Hexachloroethane (67-72-1)			X												
37B. Indeno (1,2,3-*cd*) Pyrene (193-39-5)			X												
38B. Isophorone (78-59-1)			X												
39B. Naphthalene (91-20-3)			X												
40B. Nitrobenzene (98-95-3)			X												
41B. N-Nitrosodimethylamine (62-75-9)			X												
42B. N-Nitrosodi-N-Propylamine (621-64-7)			X												

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CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X" a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (continued)															
43B. N-Nitro-sodiphenylamine (86-30-6)			X												
44B. Phenanthrene (85-01-8)			X												
45B. Pyrene (129-00-0)			X												
46B. 1,2,4-Tri-chlorobenzene (120-82-1)			X												
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. α-BHC (319-84-6)			X												
3P. β-BHC (319-85-7)			X												
4P. γ-BHC (58-89-9)			X												
5P. δ-BHC (319-86-8)			X												
6P. Chlordane (57-74-9)			X												
7P. 4,4'-DDT (50-29-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (60-57-1)			X												
11P. α-Enosulfan (115-29-7)			X												
12P. β-Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (72-20-8)			X												
15P. Endrin Aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												

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EPA I.D. NUMBER (*copy from Item 1 of Form 1*)	OUTFALL NUMBER
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1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (*continued*)															
17P. Heptachlor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X												
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

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EPA Form 3510-2C (8-90)