

**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 <ul style="list-style-type: none"> <li>- Process water from radiochemistry laboratories, duct washing systems, radiological areas, boilers, and process areas.</li> <li>- Cooling water from systems located in radiological areas.</li> <li>- Storm and surface water (including samples) collected from sumps, manholes, and vaults.</li> <li>- Environmental Restoration (ER) waste water generated by groundwater monitoring and sampling activities at performed at LANL.</li> </ul>

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	Multimedia Filtration	Pressure and Cartridge Filters used for Particulate Removal
1R	Rapid Sand Filtration	Gravity Media Filter for Particulate Removal
2C	Chemical 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	Coagulation	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 <sup>1</sup>	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 <sup>2</sup> Chromium <sup>3</sup> Copper <sup>4</sup> Lead <sup>5</sup>
ER	Discharged from groundwater drilling and remediation projects.	acrolein ammonia aniline benzoic acid Dieldrin endosulfan	endrin ethyl benzene Naphthalene Phenol Toluene xylene	Naphthalene <sup>6</sup> Phenol <sup>7</sup>

**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 <sup>1</sup>		Detected in Outfall 051 Discharge (Aug 07 – Jun 10)
Storm Water	Discharged from sumps, manholes, and vaults. <sup>8,9</sup>	Ammonia chloroform	nitric acid trichloroethylene	Chloroform <sup>2</sup>

- NOTE: The wastewater influent received by the RLWTF is not Resource Conservation and Recovery Act (RCRA) listed hazardous waste.
- Chloroform was detected twelve (12) times at concentrations ranging from 0.000283 – 0.0546 mg/L.
- Chromium was detected one (1) time at a concentration of 0.001 mg/L.
- Copper was detected thirty five (35) times at concentrations ranging from 0.0102 – 0.24 mg/L.
- Lead was detected on (1) time at a concentration of 0.0076 mg/L.
- Naphthalene was detected two (2) times at concentrations of 0.000372 – 0.000933 mg/L.
- Phenol was detected on (1) time at a concentration of 0.0177 mg/L.
- 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.
- 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 RLWTF 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.



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				C. DURATION (in days)
		a. DAYS PER WEEK (specify average)	b. MONTHS PER YEAR (specify average)	a. FLOW RATE (in mgd)		B. TOTAL VOLUME (specify with units)		
				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, endosulfan, endric, ethylbenzene, naphthalene, phenol, toluene, xylene	RLWTF Influent (Based on Waste Profile Form 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

**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**

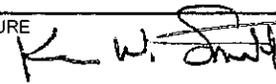
Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

- 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. Española, 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) Kevin W. Smith, Manager, DOE/Los Alamos Site Office	B. PHONE NO. (area code & no.) (505) 606-2004
C. SIGNATURE 	D. DATE SIGNED 1/27/2012

**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.

<p>A. NAME &amp; OFFICIAL TITLE (type or print)</p> <p>Alison M. Dorries, Division Leader, ENV Protection Division</p>	<p>B. PHONE NO. (area code &amp; no.)</p> <p>(505) 665-6952</p>
<p>C. SIGNATURE</p> 	<p>D. DATE SIGNED</p> <p>4/23/10</p>

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 RLWTF 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 pollutant which is limited either directly, or indirectly but express quantitative data or an explanation. If the outfall is limited either directly, or indirectly but express quantitative data or an explanation in 2a, you must provide

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		a. MAXIMUM DAILY VALUE (if available)						d. NO. OF ANALYSES	a. CONCEN- TRATION	b. MASS	a. LONG TERM AVERAGE VALUE (optional)		b. NO. OF ANALYSES
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	(1) CONCENTRATION		(2) MASS		(1) CONCENTRATION					(2) MASS		
			(1)	(2)	(1)	(2)	(1)	(2)				(1)	(2)	
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. 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		
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 <sub>4</sub> ) (14808-79-8)	X														
l. Sulfide (as S)		X													
m. Sulfite (as SO <sub>3</sub> ) (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													

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 RLWTF discharges effluent to Mortandad Canyon. See the DMR Outfall Summary for the analytical data collected prior to November 2010.

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
NM0890019515	051

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. 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	
	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													
<b>DIOXIN</b>															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1784-01-6)			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	
<b>GC/MS FRACTION - VOLATILE COMPOUNDS</b>															
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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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. 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	
<b>GC/MS FRACTION - VOLATILE COMPOUNDS (continued)</b>															
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												
<b>GC/MS FRACTION - ACID COMPOUNDS</b>															
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"			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. 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	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)			X												
2B. Acenaphthylene (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 (u) 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-ethyl) 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 (85-88-7)			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 (u,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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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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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. 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	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS (continued)															
43B. N-Nitrosodiphenylamine (86-30-6)			X												
44B. Phenanthrene (85-01-8)			X												
45B. Pyrene (129-00-0)			X												
46B. 1,2,4-Trichlorobenzene (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-Endosulfan (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
NM0890019515	051

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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. 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		
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)