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Los Alamos
NATIONAL LABORATORY
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Official Correspondence Form

Name:	U1102191
Title:	Response to Notice of Intent to Discharge Discharge Permit Required for Treated Well Development and Pump Test Ground Water Discharge at Regional Monitoring Well R-28, AI:856 PRD20110004
Date Received:	11/14/2011
Addressee Name:	M. Graham. ADEP; C. Cantwell, ADESHQ
Originator:	Clint Marshall, NMED
Action Item Description:	
Action Due Date:	
Responsible for Action:	Search
Responsible Office:	
Distribution:	Michael J. Graham Isaac E. RichardsonIII C. A. Beard David J. McInroy Phoebe K. Suina William Z. Alexander Tina M. Sandoval Charles F. McMillan Richard A. Marquez Deborah K. Woitte Michael T. Brandt Anthony R. Grieggs Paul Henry Scotty Jones

NEW MEXICO
ENVIRONMENT DEPARTMENT

Ground Water Quality Bureau

Harold Runnels Building
1190 St. Francis Drive
PO Box 5469, Santa Fe, NM 87502-5469
Phone (505) 827-2918 Fax (505) 827-2965
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SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lieutenant Governor

DAVE MARTIN
Secretary
BUTCH TONGATE
Deputy Secretary

EP2011-5507

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

November 9, 2011

Michael Graham
Associate Director, Environmental Programs
Los Alamos National Laboratory
PO Box 1663, MS-K490
Los Alamos, NM 87544

Chris Cantwell
Associate Director ESH & Q,
Los Alamos National Laboratory
PO Box 1663, MS-K490
Los Alamos, NM 87544

RE: Response to Notice of Intent to Discharge; Discharge Permit Required for Treated Well Development and Pump Test Ground Water Discharge at Regional Monitoring Well R-28, AI:856 (PRD20110004)

Dear Messrs. Graham and Cantwell:

The Ground Water Quality Bureau of the New Mexico Environment Department (NMED) received a Notice of Intent from you on August 29, 2011 (copy enclosed), requesting temporary permission for a one-time discharge of approximately 400,000 gallons of pump test and development water from regional monitoring well R-28. The pump test and development water is to be treated for chromium using an ion exchange treatment system and the treated water is proposed to be land applied on approximately 83 acres via water trucks along approximately three miles of dirt road in the vicinity of regional monitoring well R-28. The notice satisfies the requirements of Subsection A of 20.6.2.1201 NMAC of the New Mexico Water Quality Control Commission (WQCC) Regulations, 20.6.2 NMAC. The proposed discharge is located in Mortandad Canyon, approximately three miles southeast of Los Alamos in Section 24, Township 19N, Range 06E, within the boundaries of Los Alamos National Laboratory, Los Alamos County.

NMED has reviewed the information provided in accordance with Subsection D of 20.6.2.1201 NMAC. In response to a previous NOI submitted (AI856: PRD20100008) for a similar

discharge (copy enclosed), it was determined by NMED that should LANL seek to perform temporary on-site treatment and discharge of contaminated water at any location within the Laboratory in the future, a single application for a ground water Discharge Permit to cover all on-site treatment activities would be required to be submitted in accordance with Section 20.6.2.3106 NMAC. **You are hereby notified that a Discharge Permit is required for the proposed discharge and all similar discharges of the same nature.**

To apply for a Discharge Permit, you must complete and submit three copies of the enclosed Discharge Permit application, along with the $100 filing fee. Please be advised that any discharge from this facility without prior written approval from NMED would be a violation of the WQCC Regulations. **Upon submission of an Application for a Discharge Permit, NMED will review the facility's request for Temporary Permission under Subsection B of 20.6.2.3106.**

Any appeal of this determination that a Discharge Permit is required must be made to the New Mexico WQCC within 30 days of receipt of this letter, in accordance with Subsection B of 20.6.2.3112 NMAC. A copy of the WQCC Regulations, 20.6.2 NMAC, is available at http://www.nmcpr.state.nm.us/nmac/_title20/T20C006.htm.

If you have any questions, please contact either Jennifer Fullam at (505) 827-2909 or Clint Marshall, Acting Program Manager of the Ground Water Pollution Prevention Section, at (505) 827-0027.

Sincerely,

Clint Marshall, Acting Program Manager
Ground Water Quality Bureau

CM:JF

Enc: Notice of Intent dated August 24, 2011
NMED Response to Notice of Intent (AI 856: PRD20100008) dated December 16, 2010
Applying for a Discharge Permit: General Information
Discharge Permit Application

cc: Robert Italiano, District Manager, NMED District II
NMED Santa Fe Field Office
DP Required File
County File
James Bearzi, NMED SWQB
Richard Powell, NMED SWQB
John Kieling, NMED HWB
Steven Yanicak, NMED-DOE-Oversight Bureau

Gene Turner, LASO-EO, Los Alamos National Laboratory, A316, Los Alamos, NM 87545
Hai Shen, LASO-EO, Los Alamos National Laboratory, A316, Los Alamos, NM 87545
Carl Beard, PADOPS, Los Alamos National Laboratory, A102, Los Alamos, NM 87545
Victoria George, REG-DO, Los Alamos National Laboratory, M991, Los Alamos, NM 87545
Kate Lynnes, REG-COM, Los Alamos National Laboratory, M991, Los Alamos, NM 87545
Steve Veenis, PMFS-DO, Los Alamos National Laboratory, M997, Los Alamos, NM 87545
Ted Ball, PMF-FUNCT, Los Alamos National Laboratory, M996, Los Alamos, NM 87545
Mark Everett, ET-EI, Los Alamos National Laboratory, M992, Los Alamos, NM 87545
Michael Saladen ENV-RCRA, Los Alamos National Laboratory, K490, Los Alamos, NM 87545
Bob Beers, ENV-RCRA, Los Alamos National Laboratory, K490, Los Alamso NM, 87545

Los Alamos
NATIONAL LABORATORY
EST. 1943

Environmental Protection Division
Water Quality & RCRA Group (ENV-RCRA)
P.O. Box 1663, Mail Stop K490
Los Alamos, New Mexico 87545
(505) 667-7969/FAX: (505) 665-9344

Date: August 24, 2011
Refer To: ENV-RCRA-11-0172
LAUR: 11-04843

Mr. Jerry Schoeppner, Acting Chief
Ground Water Quality Bureau
New Mexico Environment Department
Harold Runnels Building, Room N2250
1190 St. Francis Drive
P.O. Box 26110
Santa Fe, NM 87502

GROUND WATER
AUG 29 2011
BUREAU

Dear Mr. Schoeppner:

SUBJECT: NOTICE OF INTENT TO DISCHARGE TREATED GROUNDWATER FROM R-28 DEVELOPMENT AND PUMPING TEST

In accordance with Subsection A of 20.6.2.1201 New Mexico Administrative Code (NMAC), Los Alamos National Laboratory (the Laboratory) is filing this notice of intent (NOI) to discharge (Enclosure 1) approximately 400,000 gal of treated groundwater produced during well development and a pumping test at monitoring well R-28, located in Mortandad Canyon. Well development was conducted to remove fine-grained sediments and to restore the porosity and permeability of the formation materials around the well screen. A 5-day pumping test will be conducted in accordance with the New Mexico Environment Department (NMED)-approved Sandia Canyon Phase II Investigation Work Plan (LA-UR-10-04921). The work plan describes a cross-hole pumping test at R-28 to better define the spatial distribution of regional aquifer heterogeneity and anisotropy in the vicinity of the chromium plume near wells R-28 and R-42. Data collected from the pumping test will be used to constrain flow parameters used in the model for groundwater flow and transport in the regional aquifer.

Groundwater produced during the above-referenced activities will be treated with ion exchange (IX) prior to discharge. The IX treatment system will remove chromium to less than 90% of the New Mexico Water Quality Control Commission (NMWQCC) 20.6.2.3103 NMAC groundwater standard of 50 µg/L, as required by the NMED-approved Decision Tree for the Land Application of Drilling, Development, Rehabilitation, and Sampling Purge Water (March 2010). As a contingency against the discharge of chromium in excess of land application criteria, samples of product water from the IX treatment system will be analyzed twice daily for chromium by the Laboratory's Geochemistry &

Geomaterials Research Laboratory (GGRL) analytical laboratory. If chromium concentrations in the product water exceed 45 µg/L (90% of the NMWQCC groundwater standard of 50 µg/L), then land application will cease until the IX resins can be replaced. Based on existing water quality data, no other regulated contaminants exceed land application criteria.

The land application of treated groundwater from R-28 will be conducted in accordance with the terms and conditions of the Laboratory's standard operating procedure, ENV-RCRA-QP-010.2, *Land Application of Groundwater*. Criteria for land application include, but are not limited to, the following:

- land application site cannot be located in a watercourse
- land application cannot result in runoff to a watercourse
- land application cannot create ponds or pools
- land application must be conducted in a manner that maximizes infiltration and evaporation
- land application is restricted to daylight hours and for a maximum of 10 hrs/day
- land application must be supervised at all times
- land application is prohibited while precipitation is occurring

In the event that your agency determines that a discharge permit is required for the previously described activity, in accordance with Subsection B of 20.6.2.3106 NMAC, the Laboratory requests temporary permission to discharge treated groundwater from well development and a pumping test at R-28. The $150.00 filing fee required by the regulation is provided in Enclosure 7.

Please contact me at (505) 667-7969 if you have questions regarding this NOI and request for temporary permission to discharge.

Sincerely,

Robert Beers
Water Quality & RCRA Group

BB/lm

Enclosures: a/s

Cy: James Bearzi, NMED/SWQB, Santa Fe, NM, w/enc. (w/o CD)
John Keiling NMED/HWB, Santa Fe, NM, w/enc., (w/o CD)
Gene Turner, LASO-EO, w/enc., A316, (w/o CD)
Hai Shen, LASO-EO, w/enc., A316, (w/o CD)
Steve Yanicak, LASO-GOV, w/enc., M894, (w/o CD)
Carl A. Beard, PADOPS, w/o enc., A102
J. Chris Cantwell, ADESHQ, w/o enc., K491

Cy (continued):
Michael Graham, ADEP, w/o enc., M991, (w/o CD)
Victoria George, REG-DO, w/enc., M991, (w/o CD)
Kate Lynnes, REG-COM, w/o enc., M991, (w/o CD)
Steve Veenis, PMFS-DO, w/o enc., M997, (w/o CD)
Ted Ball, PMF-FUNCT, w/o enc., M996, (w/o CD)
Mark Everett, ET-EI, w/enc., M992, (w/o CD)
Mike Saladen, ENV-RCRA, w/o enc., K490, (E-File)
ENV-RCRA File, w/enc., M704
IRM-RMMSO, w/enc., A150

New Mexico Environment Department
Ground Water Quality Bureau

Ground Water Quality Bureau – Pollution Prevention Section Notice of Intent

1. **Name and mailing address of person proposing to discharge:**
   Michael Graham, Associate Director, Environmental Programs
   Chris Cantwell, Associate Director, ESH&Q
   Los Alamos National Laboratory, PO Box 1663, MS K490, Los Alamos, New Mexico 87545

   Regulatory Point of Contact: Robert Beers, ENV-RCRA
   Phone: 505-667-7969 FAX: 505-665-9344 Email: bbeers@lanl.gov

2. **Name of facility:** Los Alamos National Laboratory (LANL or the Laboratory)

3. **Physical location of discharge (if applicable, give street address, township, range, section, distance from closest town or landmark, directions to facility, location map):**
   Monitoring well R-28 is located in Mortandad Canyon at T19N R06E S24. Enclosure 2 provides a location map.

4. **Type of operation generating the discharge (e.g., truck wash, food processing plant, restaurant, etc.):**
   R-28 is a regional aquifer monitoring well at LANL. Groundwater was produced during well development to remove fine-grained sediments and to restore the porosity and permeability of the formation materials around the well screen. A pumping test is planned to measure aquifer parameters in accordance with the NMED-approved *Sandia Canyon Phase II Investigation Work Plan* (LA-UR-10-04921). Enclosure 3 provides a copy of the work plan on CD.

5. **Source(s) of the discharge. Describe how the wastewater, sludge, or other discharges processed and/or disposed at your facility are generated. Identify all sources. Attach additional pages if needed:**
   Approximately 12,000 gal of R-28 development water are presently in storage at the well site. LANL plans to generate approximately 360,000 gal of groundwater from R-28 during a 5-day, 50 gallons per minute (gpm), pumping test.

6. **Expected contaminants in the discharge (e.g., nitrate-nitrogen, metals, organic compounds, salts, etc.) Include estimated concentration if known, and copies of results of laboratory analyses, if available:**
   The contaminant of concern at R-28 is chromium at concentrations ranging from 310 to 472 µg/L. Enclosure 4 provides water-quality data from R-28. No other contaminants at R-28 exceed land application criteria.

   LANL will install an ion exchange (IX) treatment system at the R-28 well site to remove chromium from the produced groundwater. The treatment system design will be based on the following criteria: Influent chromium concentration of 500 ug/L and a maximum effluent (product) chromium concentration of 35 ug/L, at the design flow rate of 50 gpm. The treatment system will be capable of reducing chromium to less than 90% of the NM WQCC Regulation 3103 groundwater standard of 50 µg/L, as required by the NMED-approved *Drilling, Development, Rehabilitation, and Sampling Purge Water Decision Tree* (March 2010).

   As a contingency against the discharge of chromium in excess of land application criteria, samples of product water from the IX treatment system will be analyzed twice daily for chromium by the Laboratory's GGRL analytical laboratory. If chromium concentrations exceed 45 µg/L (90% of the NM WQCC Regulation 3103 standard of 50 µg/L), then land application will cease until the spent IX resin can be replaced.

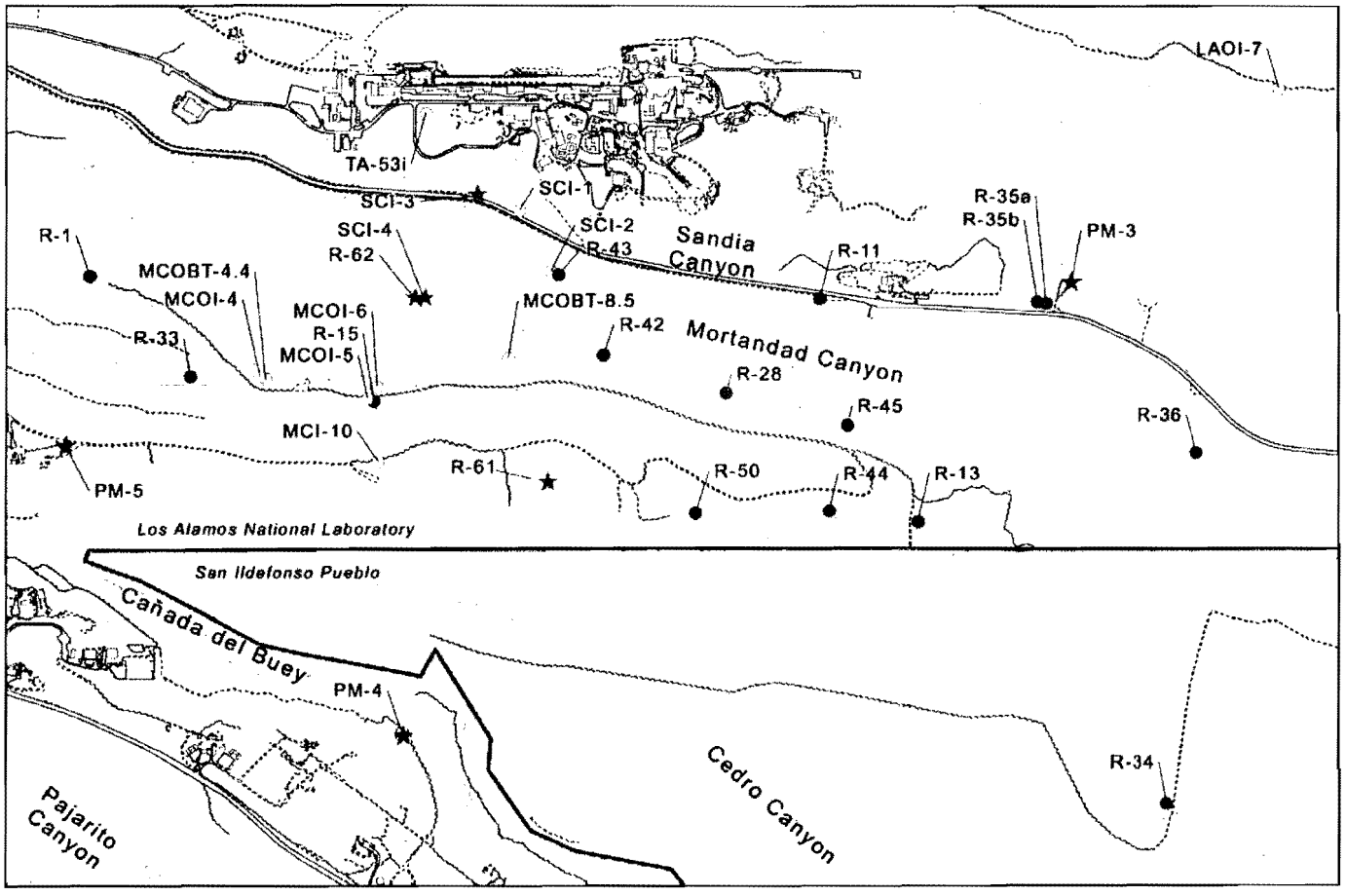
7. **Describe all components of wastewater processing, treatment, storage, and disposal system (e.g., grease interceptor, lagoon, septic tank/leachfield, etc.) Include sizes, site layout map, plans and specifications, etc. if available:**
   Enclosure 5 provides a schematic of the IX treatment system. Enclosure 6 provides technical specifications on the IX resin.

8. **Estimated maximum daily discharge volume in gallons per day (or other units):**
   The Laboratory proposes to land apply a total volume of approximately 400,000 gal of treated groundwater to dirt roads and the land surface using water trucks. Daily discharges will be approximately 75,000 gal. Land application will be conducted in accordance with the requirements of the Laboratory's Standard Operating Procedure for the Land Application of Groundwater (ENV-RCRA-QP-010.2).

9. **Estimated depth to ground water (ft):** The static water level at R-28 is 890 ft below ground surface.

Signature: Theodore J Ball **Date:** 8/24/11

Printed name: Theodore T. Ball **Title:** Project Manager



~ 35°51'35.21"N
106°15'52.38"W
S 24
T 19N
R 6 E

Table 1.0. Groundwater Quality in Regional Monitoring Well R-28, Metals.

Location Name	Start Date	Analyte	Anyl Meth Code	Fld Prep Code	Symbol	Std Result	Units	Std Mdl	Lab Qual Code	Concat Flag Code	Lab Code	Sample Id
R-28	2/14/2011	Ag	SW-846:6020	F	<	1	ug/L	0.2	U	U	GELC	CAMO-11-4599
R-28	2/14/2011	Al	SW-846:6010B	F	<	200	ug/L	68	U	U	GELC	CAMO-11-4599
R-28	2/14/2011	As	SW-846:6020	F	<	5	ug/L	1.7	U	U	GELC	CAMO-11-4599
R-28	2/14/2011	B	SW-846:6010B	F		22.9	ug/L	15	J	J	GELC	CAMO-11-4599
R-28	2/14/2011	Ba	SW-846:6010B	F		66	ug/L	1			GELC	CAMO-11-4599
R-28	2/14/2011	Be	SW-846:6010B	F		1.18	ug/L	1	J	J	GELC	CAMO-11-4599
R-28	2/14/2011	Cd	SW-846:6020	F	<	1	ug/L	0.11	U	U	GELC	CAMO-11-4599
R-28	2/14/2011	Co	SW-846:6010B	F	<	5	ug/L	1	U	U	GELC	CAMO-11-4599
R-28	2/14/2011	Cr	SW-846:6020	F		356	ug/L	2	E		GELC	CAMO-11-4599
R-28	2/14/2011	Cu	SW-846:6010B	F	<	10	ug/L	3	U	U	GELC	CAMO-11-4599
R-28	2/14/2011	Fe	SW-846:6010B	F		37	ug/L	30	J	J	GELC	CAMO-11-4599
R-28	2/14/2011	Hg	EPA:245.2	F	<	0.2	ug/L	0.066	U	U	GELC	CAMO-11-4599
R-28	2/14/2011	Hg	EPA:245.2	UF	<	0.2	ug/L	0.066	U	U	GELC	CAMO-11-4598
R-28	2/14/2011	Mn	SW-846:6010B	F	<	10	ug/L	2	U	U	GELC	CAMO-11-4599
R-28	2/14/2011	Mo	SW-846:6020	F	<	0.86	ug/L	0.17		U	GELC	CAMO-11-4599
R-28	2/14/2011	Ni	SW-846:6020	F		20.9	ug/L	0.5			GELC	CAMO-11-4599
R-28	2/14/2011	Pb	SW-846:6020	F	<	2	ug/L	0.5	U	U	GELC	CAMO-11-4599
R-28	2/14/2011	Sb	SW-846:6020	F	<	3	ug/L	1	U	U	GELC	CAMO-11-4599
R-28	2/14/2011	Se	SW-846:6020	F	<	5	ug/L	1.5	U	U	GELC	CAMO-11-4599
R-28	2/14/2011	Tl	SW-846:6020	F	<	2	ug/L	0.45	U	U	GELC	CAMO-11-4599
R-28	2/14/2011	U	SW-846:6020	F		1.36	ug/L	0.067			GELC	CAMO-11-4599
R-28	2/14/2011	Zn	SW-846:6010B	F	<	10	ug/L	3.3	U	U	GELC	CAMO-11-4599
R-28	6/1/2011	Ag	SW-846:6020	F	<	1	ug/L	0.2	U	U	GELC	CAMO-11-10704
R-28	6/1/2011	Al	SW-846:6010B	F	<	200	ug/L	68	U	U	GELC	CAMO-11-10704
R-28	6/1/2011	As	SW-846:6020	F	<	5	ug/L	1.7	U	U	GELC	CAMO-11-10704
R-28	6/1/2011	B	SW-846:6010B	F		25.2	ug/L	15	J	J	GELC	CAMO-11-10704
R-28	6/1/2011	Ba	SW-846:6010B	F		66.6	ug/L	1			GELC	CAMO-11-10704
R-28	6/1/2011	Be	SW-846:6010B	F	<	5	ug/L	1	U	U	GELC	CAMO-11-10704
R-28	6/1/2011	Cd	SW-846:6020	F	<	1	ug/L	0.11	U	U	GELC	CAMO-11-10704
R-28	6/1/2011	Co	SW-846:6010B	F	<	5	ug/L	1	U	U	GELC	CAMO-11-10704
R-28	6/1/2011	Cr	SW-846:6020	F		344	ug/L	2			GELC	CAMO-11-10704
R-28	6/1/2011	Cu	SW-846:6010B	F		3.28	ug/L	3	J	J	GELC	CAMO-11-10704
R-28	6/1/2011	Fe	SW-846:6010B	F	<	100	ug/L	30	U	U	GELC	CAMO-11-10704
R-28	6/1/2011	Hg	EPA:245.2	F	<	0.2	ug/L	0.066	U	U	GELC	CAMO-11-10704
R-28	6/1/2011	Hg	EPA:245.2	UF	<	0.2	ug/L	0.066	U	U	GELC	CAMO-11-10705
R-28	6/1/2011	Mn	SW-846:6010B	F	<	10	ug/L	2	U	U	GELC	CAMO-11-10704
R-28	6/1/2011	Mo	SW-846:6020	F		0.771	ug/L	0.17			GELC	CAMO-11-10704
R-28	6/1/2011	Ni	SW-846:6020	F		17.9	ug/L	0.5			GELC	CAMO-11-10704
R-28	6/1/2011	Pb	SW-846:6020	F	<	2	ug/L	0.5	U	U	GELC	CAMO-11-10704
R-28	6/1/2011	Sb	SW-846:6020	F	<	3	ug/L	1	U	U	GELC	CAMO-11-10704
R-28	6/1/2011	Se	SW-846:6020	F	<	5	ug/L	1.5	U	U	GELC	CAMO-11-10704
R-28	6/1/2011	Tl	SW-846:6020	F	<	2	ug/L	0.45	U	UJ	GELC	CAMO-11-10704
R-28	6/1/2011	U	SW-846:6020	F		1.36	ug/L	0.067		J	GELC	CAMO-11-10704
R-28	6/1/2011	Zn	SW-846:6010B	F		5.86	ug/L	3.3	J	J	GELC	CAMO-11-10704

Table 2.0. Groundwater Quality in Regional Monitoring Well R-28, General Inorganics.

Location Name	Start Date	Analyte	Analyte Desc	Anyl Meth Code	Fld Prep Code		Std Result	Units	Std Mdl	Lab Qual Code	Concat Flag Code	Lab Code	Sample Id
R-28	2/14/2011	Cl(-1)	Chloride	EPA:300.0	F		30.9	mg/L	0.66			GELC	CAMO-11-4599
R-28	2/14/2011	ClO4	Perchlorate	SW-846:6850	F		0.997	ug/L	0.05			GELC	CAMO-11-4599
R-28	2/14/2011	F(-1)	Fluoride	EPA:300.0	F		0.297	mg/L	0.033			GELC	CAMO-11-4599
R-28	2/14/2011	NH3-N	Ammonia as Nitrogen	EPA:350.1	F	<	0.05	mg/L	0.016	U	U	GELC	CAMO-11-4599
R-28	2/14/2011	NO3+NO2-N	Nitrate-Nitrite as Nitrogen	EPA:353.2	F		3.58	mg/L	0.1			GELC	CAMO-11-4599
R-28	2/14/2011	SO4(-2)	Sulfate	EPA:300.0	F		47.5	mg/L	1			GELC	CAMO-11-4599
R-28	2/14/2011	TDS	Total Dissolved Solids	EPA:160.1	F		306	mg/L	2.4			GELC	CAMO-11-4599
R-28	2/14/2011	pH	pH	EPA:150.1	F		7.87	SU	0.01	H	J-	GELC	CAMO-11-4599
R-28	6/1/2011	Cl(-1)	Chloride	EPA:300.0	F		34.3	mg/L	0.33			GELC	CAMO-11-10704
R-28	6/1/2011	ClO4	Perchlorate	SW-846:6850	F		0.996	ug/L	0.05			GELC	CAMO-11-10704
R-28	6/1/2011	F(-1)	Fluoride	EPA:300.0	F		0.297	mg/L	0.033			GELC	CAMO-11-10704
R-28	6/1/2011	NH3-N	Ammonia as Nitrogen	EPA:350.1	F	<	0.022	mg/L	0.016	J	U	GELC	CAMO-11-10704
R-28	6/1/2011	NO3+NO2-N	Nitrate-Nitrite as Nitrogen	EPA:353.2	F		3.82	mg/L	0.05			GELC	CAMO-11-10704
R-28	6/1/2011	SO4(-2)	Sulfate	EPA:300.0	F		50.7	mg/L	0.5			GELC	CAMO-11-10704
R-28	6/1/2011	TDS	Total Dissolved Solids	EPA:160.1	F		293	mg/L	2.4			GELC	CAMO-11-10704
R-28	6/1/2011	pH	pH	EPA:150.1	F		7.86	SU	0.01	H	J-	GELC	CAMO-11-10704

Table 3.0. Groundwater Quality in Regional Monitoring Well R-28, Radiologicals.

Location Name	Start Date	Analyte	Analyte Desc	Anyl Meth Code	Fld Prep Code		Std Result	Units	Std Uncert	Std Mda	Lab Qual Code	Concat Flag Code	Lab Code	Sample Id
R-28	11/10/2005	Ra-226	Radium-226	EPA:901.1	UF	<	4.54	pCi/L	2.01	5.48	U	U	GELC	GU05110G28R01
R-28	11/14/2007	Ra-228	Radium-228	EPA:904	UF	<	0.125	pCi/L	0.24	0.83	U	U	GELC	CAMO-08-8713
R-28	11/14/2007	Ra-226	Radium-226	EPA:903.1	UF	<	0.479	pCi/L	0.17	0.44		U	GELC	CAMO-08-8713
R-28	8/15/2008	Ra-226	Radium-226	EPA:903.1	UF	<	0.381	pCi/L	0.2	0.62	U	U	GELC	CAMO-08-14543
R-28	5/20/2005	Ra-226	Radium-226	EPA:901.1	UF		14.1	pCi/L	4.71	7.43		J	GELC	GU05050G28R01
R-28	2/15/2008	Ra-226	Radium-226	EPA:903.1	UF	<	0.462	pCi/L	0.21	0.62	U	U	GELC	CAMO-08-10442
R-28	2/15/2008	Ra-228	Radium-228	EPA:904	UF	<	-0.04	pCi/L	0.22	0.84	U	U	GELC	CAMO-08-10442
R-28	8/15/2008	Ra-228	Radium-228	EPA:904	UF	<	0.515	pCi/L	0.19	0.51		U	GELC	CAMO-08-14543

Table 4.0. Groundwater Quality in Regional Monitoring Well R-28, Volatile Organic Compounds (VOCs).

Location Name	Start Date	Analyte	Analyte Desc	Anyl Meth Code	Fld Prep Code		Std Result	Units	Std Mdl	Lab Qual Code	Concat Flag Code	Lab Code	Sample Id
R-28	7/14/2010	67-64-1	Acetone	SW-846:8260B	UF	<	10	ug/L	3.5	U	UJ	GELC	CAMO-10-22860
R-28	7/14/2010	75-05-8	Acetonitrile	SW-846:8260B	UF	<	25	ug/L	6.3	U	R	GELC	CAMO-10-22860
R-28	7/14/2010	107-02-8	Acrolein	SW-846:8260B	UF	<	5	ug/L	1.3	U	UJ	GELC	CAMO-10-22860
R-28	7/14/2010	107-13-1	Acrylonitrile	SW-846:8260B	UF	<	5	ug/L	1	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	71-43-2	Benzene	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	108-86-1	Bromobenzene	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	74-97-5	Bromochloromethane	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	75-27-4	Bromodichloromethane	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	75-25-2	Bromoform	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	74-83-9	Bromomethane	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	71-36-3	Butanol[1-]	SW-846:8260B	UF	<	50	ug/L	15	U	R	GELC	CAMO-10-22860
R-28	7/14/2010	78-93-3	Butanone[2-]	SW-846:8260B	UF	<	5	ug/L	1.3	U	UJ	GELC	CAMO-10-22860
R-28	7/14/2010	104-51-8	Butylbenzene[n-]	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	135-98-8	Butylbenzene[sec-]	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	98-06-6	Butylbenzene[tert-]	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	75-15-0	Carbon Disulfide	SW-846:8260B	UF	<	5	ug/L	1.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	56-23-5	Carbon Tetrachloride	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	126-99-8	Chloro-1,3-butadiene[2-]	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	107-05-1	Chloro-1-propene[3-]	SW-846:8260B	UF	<	5	ug/L	1.5	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	108-90-7	Chlorobenzene	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	124-48-1	Chlorodibromomethane	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	75-00-3	Chloroethane	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	67-66-3	Chloroform	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	74-87-3	Chloromethane	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	95-49-8	Chlorotoluene[2-]	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	106-43-4	Chlorotoluene[4-]	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	96-12-8	Dibromo-3-Chloropropane[1,2-]	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	106-93-4	Dibromoethane[1,2-]	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	74-95-3	Dibromomethane	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	95-50-1	Dichlorobenzene[1,2-]	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	541-73-1	Dichlorobenzene[1,3-]	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	106-46-7	Dichlorobenzene[1,4-]	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	75-71-8	Dichlorodifluoromethane	SW-846:8260B	UF	<	1	ug/L	0.3	U	UJ	GELC	CAMO-10-22860
R-28	7/14/2010	75-34-3	Dichloroethane[1,1-]	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	107-06-2	Dichloroethane[1,2-]	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	75-35-4	Dichloroethene[1,1-]	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	156-59-2	Dichloroethene[cis-1,2-]	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	156-60-5	Dichloroethene[trans-1,2-]	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	78-87-5	Dichloropropane[1,2-]	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	142-28-9	Dichloropropane[1,3-]	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	594-20-7	Dichloropropane[2,2-]	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860

Table 4.0 (con't). Groundwater Quality in Regional Monitoring Well R-28, Volatile Organic Compounds (VOCs).

Location Name	Start Date	Analyte	Analyte Desc	Anyl Meth Code	Fld Prep Code		Std Result	Units	Std Mdl	Lab Qual Code	Concat Flag Code	Lab Code	Sample Id
R-28	7/14/2010	563-58-6	Dichloropropene[1,1-]	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	10061-01-5	Dichloropropene[cis-1,3-]	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	10061-02-6	Dichloropropene[trans-1,3-]	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	60-29-7	Diethyl Ether	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	97-63-2	Ethyl Methacrylate	SW-846:8260B	UF	<	5	ug/L	1	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	100-41-4	Ethylbenzene	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	87-68-3	Hexachlorobutadiene	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	591-78-6	Hexanone[2-]	SW-846:8260B	UF	<	5	ug/L	1.3	U	UJ	GELC	CAMO-10-22860
R-28	7/14/2010	74-88-4	Iodomethane	SW-846:8260B	UF	<	5	ug/L	1.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	78-83-1	Isobutyl alcohol	SW-846:8260B	UF	<	50	ug/L	13	U	R	GELC	CAMO-10-22860
R-28	7/14/2010	98-82-8	Isopropylbenzene	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	99-87-6	Isopropyltoluene[4-]	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	126-98-7	Methacrylonitrile	SW-846:8260B	UF	<	5	ug/L	1	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	80-62-6	Methyl Methacrylate	SW-846:8260B	UF	<	5	ug/L	1	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	1634-04-4	Methyl tert-Butyl Ether	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	108-10-1	Methyl-2-pentanone[4-]	SW-846:8260B	UF	<	5	ug/L	1.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	75-09-2	Methylene Chloride	SW-846:8260B	UF	<	10	ug/L	3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	91-20-3	Naphthalene	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	107-12-0	Propionitrile	SW-846:8260B	UF	<	5	ug/L	1.5	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	103-65-1	Propylbenzene[1-]	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	100-42-5	Styrene	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	630-20-6	Tetrachloroethane[1,1,1,2-]	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	79-34-5	Tetrachloroethane[1,1,2,2-]	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	127-18-4	Tetrachloroethene	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	108-88-3	Toluene	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	76-13-1	Trichloro-1,2,2-trifluoroethane[1,1,2-]	SW-846:8260B	UF	<	5	ug/L	1	U	UJ	GELC	CAMO-10-22860
R-28	7/14/2010	87-61-6	Trichlorobenzene[1,2,3-]	SW-846:8260B	UF	<	1	ug/L	0.33	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	120-82-1	Trichlorobenzene[1,2,4-]	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	71-55-6	Trichloroethane[1,1,1-]	SW-846:8260B	UF	<	1	ug/L	0.33	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	79-00-5	Trichloroethane[1,1,2-]	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	79-01-6	Trichloroethene	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	75-69-4	Trichlorofluoromethane	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	96-18-4	Trichloropropane[1,2,3-]	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	95-63-6	Trimethylbenzene[1,2,4-]	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	108-67-8	Trimethylbenzene[1,3,5-]	SW-846:8260B	UF	<	1	ug/L	0.25	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	75-01-4	Vinyl Chloride	SW-846:8260B	UF	<	1	ug/L	0.5	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	108-05-4	Vinyl acetate	SW-846:8260B	UF	<	5	ug/L	1.5	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	95-47-6	Xylene[1,2-]	SW-846:8260B	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	Xylene	Xylene[1,3-]+Xylene[1,4-]	SW-846:8260B	UF	<	2	ug/L	0.5	U	U	GELC	CAMO-10-22860

Table 5.0. Groundwater Quality in Regional Monitoring Well R-28, Semivolatile Organic Compounds (SVOCs).

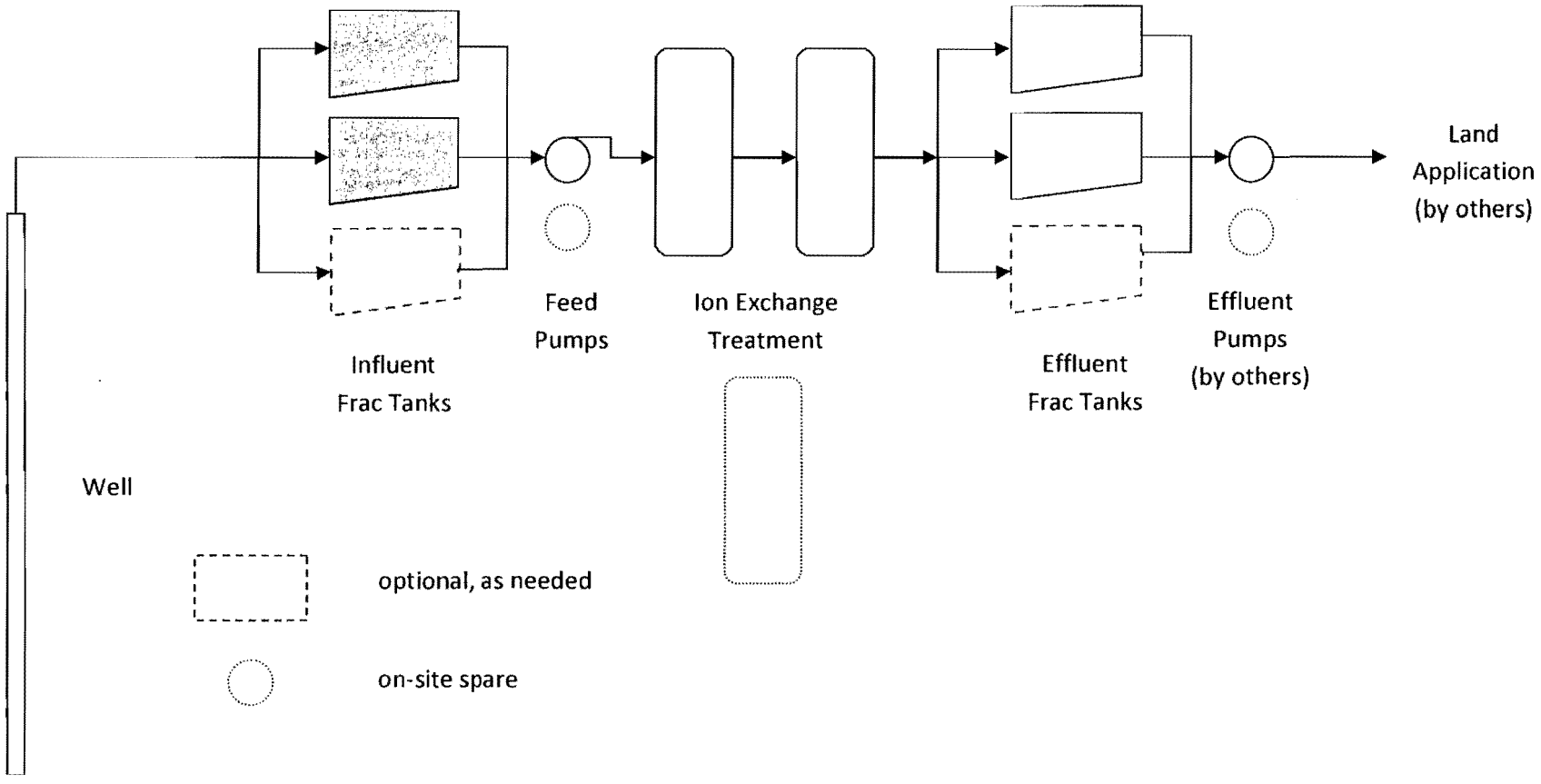
Location Name	Start Date	Analyte	Analyte Desc	Anyl Meth Code	Fld Prep Code		Std Result	Units	Std Mdl	Lab Qual Code	Concat Flag Code	Lab Code	Sample Id
R-28	7/14/2010	83-32-9	Acenaphthene	SW-846:8270C	UF	<	1	ug/L	0.31	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	208-96-8	Acenaphthylene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	62-53-3	Aniline	SW-846:8270C	UF	<	10	ug/L	2.5	U	UJ	GELC	CAMO-10-22860
R-28	7/14/2010	120-12-7	Anthracene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	1912-24-9	Atrazine	SW-846:8270C	UF	<	10	ug/L	3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	103-33-3	Azobenzene	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	92-87-5	Benzidine	SW-846:8270C	UF	<	10	ug/L	3	U	UJ	GELC	CAMO-10-22860
R-28	7/14/2010	56-55-3	Benzo(a)anthracene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	50-32-8	Benzo(a)pyrene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	205-99-2	Benzo(b)fluoranthene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	191-24-2	Benzo(g,h,i)perylene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	207-08-9	Benzo(k)fluoranthene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	65-85-0	Benzoic Acid	SW-846:8270C	UF	<	20	ug/L	6	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	100-51-6	Benzyl Alcohol	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	111-91-1	Bis(2-chloroethoxy)methane	SW-846:8270C	UF	<	10	ug/L	3	U	UJ	GELC	CAMO-10-22860
R-28	7/14/2010	111-44-4	Bis(2-chloroethyl)ether	SW-846:8270C	UF	<	10	ug/L	2	U	UJ	GELC	CAMO-10-22860
R-28	7/14/2010	117-81-7	Bis(2-ethylhexyl)phthalate	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	101-55-3	Bromophenyl-phenylether[4-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	85-68-7	Butylbenzylphthalate	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	59-50-7	Chloro-3-methylphenol[4-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	106-47-8	Chloroaniline[4-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	91-58-7	Chloronaphthalene[2-]	SW-846:8270C	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	95-57-8	Chlorophenol[2-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	7005-72-3	Chlorophenyl-phenyl[4-] Ether	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	218-01-9	Chrysene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	84-74-2	Di-n-butylphthalate	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	117-84-0	Di-n-octylphthalate	SW-846:8270C	UF	<	10	ug/L	3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	53-70-3	Dibenz(a,h)anthracene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	132-64-9	Dibenzofuran	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	95-50-1	Dichlorobenzene[1,2-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	541-73-1	Dichlorobenzene[1,3-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	106-46-7	Dichlorobenzene[1,4-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	91-94-1	Dichlorobenzidine[3,3'-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	120-83-2	Dichlorophenol[2,4-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	84-66-2	Diethylphthalate	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	131-11-3	Dimethyl Phthalate	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	105-67-9	Dimethylphenol[2,4-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	534-52-1	Dinitro-2-methylphenol[4,6-]	SW-846:8270C	UF	<	10	ug/L	3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	51-28-5	Dinitrophenol[2,4-]	SW-846:8270C	UF	<	20	ug/L	5	U	UJ	GELC	CAMO-10-22860

Table 5.0 (con't). Groundwater Quality in Regional Monitoring Well R-28, Semivolatile Organic Compounds (SVOCs).

Location Name	Start Date	Analyte	Analyte Desc	Anyl Meth Code	Fld Prep Code		Std Result	Units	Std Mdl	Lab Qual Code	Concat Flag Code	Lab Code	Sample Id
R-28	7/14/2010	121-14-2	Dinitrotoluene[2,4-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	606-20-2	Dinitrotoluene[2,6-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	88-85-7	Dinoseb	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	123-91-1	Dioxane[1,4-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	122-39-4	Diphenylamine	SW-846:8270C	UF	<	10	ug/L	3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	206-44-0	Fluoranthene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	86-73-7	Fluorene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	118-74-1	Hexachlorobenzene	SW-846:8270C	UF	<	10	ug/L	2	U	UJ	GELC	CAMO-10-22860
R-28	7/14/2010	87-68-3	Hexachlorobutadiene	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	77-47-4	Hexachlorocyclopentadiene	SW-846:8270C	UF	<	10	ug/L	3	U	UJ	GELC	CAMO-10-22860
R-28	7/14/2010	67-72-1	Hexachloroethane	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	193-39-5	Indeno(1,2,3-cd)pyrene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	78-59-1	Isophorone	SW-846:8270C	UF	<	10	ug/L	3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	90-12-0	Methylnaphthalene[1-]	SW-846:8270C	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	91-57-6	Methylnaphthalene[2-]	SW-846:8270C	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	95-48-7	Methylphenol[2-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	106-44-5	Methylphenol[4-]	SW-846:8270C	UF	<	10	ug/L	3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	91-20-3	Naphthalene	SW-846:8270C	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	88-74-4	Nitroaniline[2-]	SW-846:8270C	UF	<	10	ug/L	2	U	UJ	GELC	CAMO-10-22860
R-28	7/14/2010	99-09-2	Nitroaniline[3-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	100-01-6	Nitroaniline[4-]	SW-846:8270C	UF	<	10	ug/L	3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	98-95-3	Nitrobenzene	SW-846:8270C	UF	<	10	ug/L	3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	88-75-5	Nitrophenol[2-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	100-02-7	Nitrophenol[4-]	SW-846:8270C	UF	<	10	ug/L	2	U	UJ	GELC	CAMO-10-22860
R-28	7/14/2010	924-16-3	Nitroso-di-n-butylamine[N-]	SW-846:8270C	UF	<	10	ug/L	3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	621-64-7	Nitroso-di-n-propylamine[N-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	55-18-5	Nitrosodiethylamine[N-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	62-75-9	Nitrosodimethylamine[N-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	930-55-2	Nitrosopyrrolidine[N-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	108-60-1	Oxybis(1-chloropropane)[2,2'-]	SW-846:8270C	UF	<	10	ug/L	2	U	UJ	GELC	CAMO-10-22860
R-28	7/14/2010	608-93-5	Pentachlorobenzene	SW-846:8270C	UF	<	10	ug/L	3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	87-86-5	Pentachlorophenol	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	85-01-8	Phenanthrene	SW-846:8270C	UF	<	1	ug/L	0.2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	108-95-2	Phenol	SW-846:8270C	UF	<	10	ug/L	1	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	129-00-0	Pyrene	SW-846:8270C	UF	<	1	ug/L	0.3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	110-86-1	Pyridine	SW-846:8270C	UF	<	10	ug/L	3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	95-94-3	Tetrachlorobenzene[1,2,4,5]	SW-846:8270C	UF	<	10	ug/L	3	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	58-90-2	Tetrachlorophenol[2,3,4,6-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	120-82-1	Trichlorobenzene[1,2,4-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	95-95-4	Trichlorophenol[2,4,5-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860
R-28	7/14/2010	88-06-2	Trichlorophenol[2,4,6-]	SW-846:8270C	UF	<	10	ug/L	2	U	U	GELC	CAMO-10-22860

Final Treatment Configuration – R-28 Pumping Test

(all treatment equipment by SUBCONTRACTOR unless noted)



Special Instruction Sheet (SIS) Form Instruction

Special Instruction Sheet

This is a placeholder page for a record that cannot be scanned or would lose meaning or content if scanned. The record can be requested through ep records@lanl.gov.

1. Record Date **11/14/2011**	2. ERID Number **ERID-207577 (Attached to)**
3. Title/Description **ENCLOSURE 6 (1) – SIEMENS WATER TECHNOLOGIES – WASTEWATER ION EXCHANGE SERVICES** **ENCLOSURE 6 (2) – USFITTER – ION EXCHANGE, USF A-284 ANION RESIN – TECH SHEET MED-301**	4. No Restrictions ☐ OUO ☐ UCNI ☐
5. Media Type & Quantity **NA**	6. Software and Version required to read media **NA**

7. Remarks

COPYRIGHT REFERENCE – PAGES 17, 18 AND 19 OF THIS RECORD HAS A PLACEHOLDER FOR THE COPYRIGHT REFERENCES USED IN THIS RECORD.

NEW MEXICO
ENVIRONMENT DEPARTMENT

Ground Water Quality Bureau

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DIANE DENISH
Lieutenant Governor

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1190 St. Francis Drive
PO Box 5469, Santa Fe, NM 87502-5469
Phone (505) 827-2900 Fax (505) 827-2965
www.nmenv.state.nm.us

RON CURRY
Secretary

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

December 16, 2010

Anthony R. Grieggs, Group Leader
Environmental Protection Division
Water Quality & RECR (ENV-RCRA)
P.O. Box 1663, Mail Stop K-490
Los Alamos, NM 87545

RE: Response to Notice of Intent to Discharge and Request for Temporary Permission to Discharge for Treated Development and Pump Test Water at TA-16, [AI:856, PRD201000008]

Dear Mr. Grieggs:

The Ground Water Quality Bureau of the New Mexico Environment Department received a Notice of Intent, dated October 27, 2010, from the Los Alamos National Laboratory (LANL) regarding the one-time discharge of 200,000 – 400,000 gallons of treated pump test and development ground water from intermediate monitoring well CdV-16-4ip. The ground water contains the "toxic pollutant" hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX), as defined by Section 20.6.2.7.WW NMAC, New Mexico Water Quality Control Commission (WQCC) Regulations, (20.6.2 NMAC). Development water will be generated from the well in an attempt to remove fine-grained sediments to restore porosity and permeability of the formation materials around the well screen. Pump test water will be generated during pump tests conducted in order to measure aquifer parameters in accordance with the NMED-approved *Hydrologic Testing Work Plan for Consolidated Unit 16-021(c)-99*. LANL's NOI and proposal for discharge under temporary permission involve removing the RDX from the development and pump test water to a concentration of < 3 µg/L using a granular activated carbon (GAC) treatment system and discharging the treated water by water trucks for dust control of dirt roads in the vicinity.

Section 20.6.2.3104 NMAC of the WQCC Regulations prohibits the discharge of effluent or leachate in such a manner that the effluent or leachate could move directly or indirectly into ground water without a Discharge Permit. None of the exemptions identified under Section 20.6.2.3105 NMAC apply to this discharge. The discharge is located at Technical Area 16 (TA-16), at Section 29, Township 19N, Range 6E, Los Alamos National Laboratory, Los Alamos County. **Pursuant to Subsection A of 20.6.2.3106 NMAC; you are hereby notified that a Discharge Permit is required for this discharge.**

Any appeal of this determination that a Discharge Permit is required must be made to the New Mexico WQCC within 30 days of receipt of this letter, in accordance with Subsection B of 20.6.2.3112 NMAC. A copy of the WQCC Regulations, 20.6.2 NMAC, is available at http://www.nmcpr.state.nm.us/nmac/_title20/T20C006.htm.

Due to the temporary nature of the discharge and in place of a Discharge Permit, temporary approval to discharge for up to 120 days is hereby granted in accordance with Section 20.6.2.3106.B NMAC, with the following conditions:

1. Water generated from the development and pump testing of monitoring well CdV-16-4ip shall be contained and treated to < 3 µg/L RDX prior to discharge.
2. The total volume of treated water discharged shall be recorded.
3. Land application of the treated water shall not occur in a watercourse or result in run-off to a watercourse.
4. Land application of the treated water shall not result in ponding or pooling.
5. Land application shall be conducted in a manner that maximizes infiltration and evaporation.
6. Land application is restricted to daylight hours and a maximum of 10 hours per day.
7. Land application must be supervised at all times.
8. Land application of the treated water is prohibited while precipitation is occurring or during times when the ground is saturated, frozen or covered with ice.
9. LANL shall collect representative samples of the treated water twice daily and analyze the samples for RDX using a method with a minimum detection limit (MDL) of 2 µg/L for RDX. All sample collection, preservation and analysis shall conform to the methods identified in Section 20.6.2.3107.B. of the WQCC Regulations.
10. Should a RDX sample analysis reveal the presence of RDX at a concentration of 5.5 µg/L[1] or greater, discharge of treated water shall immediately cease and NMED shall be notified. Following replacement of the GAC treatment vessel and NMED authorization, discharge may resume.
11. All GAC treatment vessels used in the temporary treatment system shall be properly disposed in accordance with all local, state and federal laws and regulations.
12. A final project report shall be submitted to NMED within 30 days of the final cessation of discharge. The report shall present the total volume of treated water discharged and the analytical results of the RDX analyses for the project, and identification of the locations that received the treated water.

[1] This value represents 90% of the EPA Regional Screening Level for RDX

This temporary approval to discharge is for one time only and is granted for up to 120 days. Therefore, discharges performed under this temporary approval shall cease by April 15, 2011. Should LANL seek to perform temporary on-site treatment and discharge of contaminated water at any location within the Laboratory in the future, an application for a ground water Discharge Permit must be submitted to NMED in accordance with Section 20.6.2.3106 NMAC.

If you have any questions, please contact either Jennifer Fullam at (505) 827-2909 or Robert George of the Ground Water Pollution Prevention Section, at (505) 476-3648.

Sincerely,

George Schuman for W. Olson

William C. Olson, Chief
Ground Water Quality Bureau

WO:RJG/rg

Cc: ·Robert Italiano, Manager, NMED District II
Richard Powell, NMED SWQB
·James Bearzi, Chief, NMED HWB
·Steven Yanicak, NMED-DOE-Oversight Bureau
·Erik Galloway, NMED-DOE-Oversight Bureau
·Gene Turner, LASO-EO, Los Alamos National Laboratory, A316, Los Alamos, NM 87545
·Michael B. Mallory, PADOPS, Los Alamos National Laboratory, A102, Los Alamos, NM 87545
·Chris Cantwell, ADESHQ, Los Alamos National Laboratory, K491, Los Alamos, NM 87545
Michael Saladen ENV-RCRA, Los Alamos National Laboratory, K490, Los Alamos, NM 87545
Bob Beers, ENV-RCRA, Los Alamos National Laboratory, MS K497, Los Alamos, NM 87545
·Mark Haagenstad, ENV-RCRA, Los Alamos National Laboratory, K490, Los Alamos, NM 87545
County File
NOI File

NEW MEXICO ENVIRONMENT DEPARTMENT
GROUND WATER QUALITY BUREAU

DISCHARGE PERMIT APPLICATION

Type of Application. Check appropriate box.

- ☐ Application for new Discharge Permit -- new facility
- ☐ Application for new Discharge Permit -- existing (unpermitted) facility
- ☐ Application for Discharge Permit Renewal
- ☐ Application for Discharge Permit Modification
  "Modification" is defined as a change to the permit requirements that result from a change in the location of the discharge, a significant increase in the quantity of the discharge, or a significant change in the quality of the discharge.
- ☐ Application for Discharge Permit Renewal and Modification

For an existing Discharge Permit, please indicate: DP Number _____ Expiration date _____

Checklist of Application Components.

☐ Part A: Administrative Completeness.	*Instructions for completing the application are included on the form itself and on Supplemental Instructions for Parts A and B.* *You may fill out the application manually, or a Microsoft Word version may be downloaded from www.nmenv.state.nm.us (Ground Water Quality) and filled out electronically.*
☐ Part B: Operational, Monitoring, Contingency and Closure Plans, with required attachments. *Choose appropriate option*: ☐ Septic Tank System ☒ General – Various Facility Types	
☐ Part C: Site Information, with required attachments.	
☐ $100 Filing Fee, payable to the New Mexico Environment Department. *Required from all applicants.* An additional fee will be assessed prior to permit issuance. Permit fees are listed in Section 20.6.2.3114 NMAC.	

Certification. Signature must be that of the person named in Item A-3 of Part A of the application.

I certify under penalty of law that I am knowledgeable about the information contained in this application. The information is, to the best of my knowledge and belief, true, accurate and complete.

Signature: _____ Date: _____

Printed Name: _____

Title: _____

Send three complete copies of this application and the filing fee to:

Program Manager
Ground Water Pollution Prevention Section
New Mexico Environment Department
PO Box 5469
Santa Fe, NM 87502

Form updated May 2006

GROUND WATER DISCHARGE PERMIT APPLICATION
PART A: ADMINISTRATIVE COMPLETENESS
All Facilities

A-1. Facility Information. See Supplemental Instructions to determine what constitutes the "facility." The physical location of the facility must be provided. If the facility does not have an address, the location can be described by road intersections, mile posts, or landmarks, as appropriate.

Facility Name _____

Former Names (if any) _____

Physical address/location *(mandatory)* _____

_____ County _____

Mailing address _____

_____

Contact person _____

Title _____

Telephone number(s) _____

Fax number _____ E-mail address _____

A-2. Type of Discharge and Type of Facility. See Supplemental Instructions.

Type of discharge: ☐ Domestic ☐ Agricultural ☐ Industrial ☐ Mining

Type of facility: _____

_____

A-3. Applicant Information. The applicant is the person or entity (e.g., corporation, partnership, organization, municipality, etc.) legally responsible for the discharge and for complying with the terms of the Discharge Permit. If the applicant is an entity, then the name and title of a contact person must be provided. This application must be signed by the applicant or contact person named here.

Applicant Name _____

Mailing address _____

_____

Contact person _____

Title _____

Telephone number(s) _____

Fax number _____ E-mail address _____

A-4. Consultant Information (if applicable). If the consultant is a company or organization, then the name and title of a contact person must be provided.

Consultant/Firm Name _____

Mailing address _____

_____

Contact person _____

Title _____

Telephone number(s) _____

Fax number _____ E-mail address _____

A-5. Permit Contact Information (if applicable). If someone other the applicant listed in Item A-3 or a consultant listed in Item A-4 is a primary contact for this application and/or facility, list here.

Permit Contact Name _____

Title _____

Mailing address _____

_____

Telephone number(s) _____

Fax number _____ E-mail address _____

A-6. Ownership.

The applicant owns (check as appropriate): ☐ the facility ☐ some discharge sites ☐ all discharge sites

If other parties own the facility or any of the discharge sites, attach their names and contact information.

A-7. Discharge Quantity.

Your Discharge Permit will specify a maximum discharge volume, which is typically expressed as the maximum number of gallons per day that may be treated and/or disposed of. Please indicate below the maximum discharge volume for your facility. You must show how it was determined in Part B of your application. For further explanation, see Supplemental Instructions for Part B.

Maximum discharge volume: _____ gallons per day (or other units: _____)

A-8. **Processing, Treatment, Storage and Disposal System.** Briefly describe how wastewater, sludge, etc. is processed, treated, stored, and/or disposed of at your facility. See Supplemental Instructions for examples of system components.

A-9. **Discharge Locations.** List the locations of your facility and of all components of your processing, treatment, storage and/or disposal system. Examples of components include septic tanks, lagoons, leachfields, irrigation sites, mine stockpiles, etc. Additional examples are listed in the Supplemental Instructions. Latitude and longitude are optional unless township, range and section are not available.

Components	Township	Range	Section(s)	Latitude	Longitude
Facility					

A-10. Discharge Quality.

Indicate the expected quality of the discharge -- wastewater, leachate, sludge, etc. -- generated, stored, treated, processed and/or discharged at your facility. List the contaminants of concern and the expected concentrations. *Not all facilities need to characterize influent quality.* See Supplemental Instructions for typical contaminants and additional guidance.

Expected or Known Contaminants	**Expected concentration range** Indicate units: mg/L, CFU/100 ml, etc.	
	Incoming (Influent)	Final (Effluent)

For **new** septic tank systems, you may either fill out the chart above or simply check one of the following options:

- ☐ typical domestic wastewater
- ☐ low-strength domestic wastewater (large gray water component; e.g., laundromat, spa, etc.)
- ☐ high-strength domestic wastewater (low water use; e.g., RV park, low-flow toilets at campground, etc.)

A-11. Ground Water Conditions.

All applicants must provide the depth to and pre-discharge TDS concentration of the ground water that could be affected by the discharge. Refer to Supplemental Instructions for details on how to obtain these values.

Indicate the depth to the most shallow ground water beneath the discharge site. If there are multiple discharge sites, indicate the range of depths.

Depth to water (feet): _____

Reference:

- ☐ Measurement, nearby monitoring well
- ☐ Measurement, nearby supply well
- ☐ Well log from nearby well (attach copy)
- ☐ Office of the State Engineer http://www.ose.state.nm.us/
- ☐ Report or study (give citation here and attach relevant portion):
- ☐ Other (describe):

Indicate the total dissolved solids (TDS) concentration of most shallow ground water beneath the discharge site. Attach copies of analyses.

TDS (mg/L): _____

Reference:

- ☐ Analysis from upgradient monitoring well
- ☐ Analysis from on-site supply well
- ☐ Analysis from shallow nearby supply well
- ☐ Concentration provided in previous Discharge Permit application
- ☐ Report or study (give citation here and attach relevant portion):
- ☐ Other (describe):

A-12. Public Notice. See Supplemental Instructions.

a) The public notice packet including instructions and materials should be sent to:

☐ Applicant ☐ Consultant ☐ Other: _____

_____

b) Copies of the public notice packet (excluding sign) should be sent to:

☐ Applicant ☐ Consultant ☐ Other: _____

_____

c) The applicant is required to provide public notice of this application by placing a display ad in a newspaper of general circulation near the location of the proposed discharge. Indicate newspaper you intend to place the ad in:

Newspaper: _____

d) *For new or modification applications only*: The applicant must post a sign for 30 days in a conspicuous location at or near the facility, as approved by NMED. One sign must be posted for each 640 contiguous acres or less of the discharge site. An additional notice must be posted at an off-site location conspicuous to the public. Describe the locations below where you intend to post the notices. You may also attach sketches or photographs.

At or near facility: _____
2 by 3 feet in size

_____

_____

Off-site location: _____
flyer size

_____

_____

Supplemental Instructions for Part A
All Facilities

Please note: Discharge Permits are required for a wide range of facilities that process, treat, store and/or dispose of wastewater, sludge, septage, leachate, contaminated soils, mine tailings, industrial waste, mine ore, waste rock, or other similar materials. For the purposes of this application form, the term "discharge" applies to any of these materials whether they are actually discharged or whether they represent only a potential discharge that could occur due to factors such as poor maintenance, improper installation, equipment failure or accidents.

A-1. Facility Information.

The "facility" may be identified as:

a) a treatment facility, such as a municipal wastewater treatment plant;
b) the source of the discharge, such as a subdivision, dairy, or waste rock pile;
c) a disposal facility or operation, such as for sludge or septage;
d) the discharge location or recipient of reclaimed wastewater for reuse, such as a golf course or cement plant;
e) a storage and/or processing facility with off-site disposal;
f) a collection of facilities, such as numerous comfort stations at a state park; or
g) a project or operation, such as a construction project or a system to distribute reclaimed wastewater throughout a city.

A-2. Type of Discharge and Type of Facility.

Characterize the type of discharge, wastewater, sludge, leachate, etc. generated, processed or received by your facility as domestic, agricultural, industrial or mining. Examples of a variety of facility types are categorized below.

Domestic Waste

"Domestic" waste contains human excreta or originates from typical residential plumbing fixtures.

- Municipal wastewater treatment plant
- Septage disposal

- Sludge disposal
- Mobile home/RV park
- Campground/park
- School/educational facility
- Restaurant
- Subdivision/apartment complex
- Unincorporated community
- Lodging/resort/spa
- Residential facility
- Commercial/shopping complex
- Laundromat
- Facility using reclaimed domestic wastewater

Agricultural Waste

- Dairy
- Food processing
- Slaughter facility
- Nursery/greenhouse
- Manufacture/processing of agricultural chemicals
- Feedlot
- Livestock truck washout

Industrial Waste

- Manufacturing
- Power plant
- Military installation
- Vehicle/equipment wash
- Mortuary
- Hydrocarbon landfarm
- Ground water remediation
- Ethanol plant
- Asphalt plant

Mining Discharges

- tailing impoundment
- mine dewatering
- waste rock pile
- smelter slag
- in-situ leach
- leach piles
- pipelines
- collection ponds
- concentrator – other beneficiation

This listing is only a guide, as there can be crossover between categories. For example, a golf course might use treated industrial wastewater for irrigation. The type of facility in that case is "golf course" and the type of waste is "industrial." A mining operation may need a permit for its restroom and shower facilities. In that case, the type of facility is a "mining operation" and the type of discharge is "domestic waste."

A-7. Discharge Quantity.

Refer to the Supplemental Instructions for Part B for information on how to calculate the maximum discharge volume for your facility.

A-8 and A-9. Treatment, Storage, Disposal System.

The following are examples of treatment, storage and disposal methods:

Treatment Methods

- Septic tank
- Grease interceptor
- Oil/water separator
- Manure separator
- Wetlands
- Lagoon (indicate whether aerated and type of liner)
- Trickling filter
- Activated sludge (extended air, SBR, etc.)
- Sand filter
- Membranes
- Sludge drying bed
- Disinfection (specify type)
  - chlorination
  - UV/ozone
- Water treatment plant

Storage Methods

- Above/below ground tank
- Storage lagoon (indicate type of liner)
- Holding tank
- Pit toilet
- Stockpile
- Tailing impoundment

Disposal Methods

- Leachfield
- Infiltration gallery
- Evaporation lagoon (indicate type of liner)
- Evaporation tank
- Impoundment
- Discharge to waters of the US (NPDES permit required)
- Ongoing land application (specify type)
  - subsurface irrigation
  - sprinkler irrigation
  - flood irrigation
  - drip irrigation
  - surface spreading (solids)
  - surface injection (solids)
- Temporary uses of reclaimed wastewater

- Ongoing use of reclaimed wastewater for:
  - manufacturing
  - construction or dust control

A-9. Discharge Quality.

Untreated wastewater entering a treatment facility (also referred to as "influent") must be characterized so that the treatment process can be evaluated. It is not necessary to provide influent quality for systems providing minimal treatment prior to discharge or disposal, such as systems relying on crop uptake for treatment (e.g., dairies), septic tank – leachfield systems, storage/processing facilities or evaporative systems. The final quality of the waste or wastewater disposed of or discharged must be characterized for all facilities.

For most agricultural and domestic facilities, the contaminants of concern include nitrate as nitrogen (NO_3-N), total Kjeldahl nitrogen (TKN), total dissolved solids (TDS), and chloride (Cl). For domestic facilities with advanced treatment, additional contaminants include total suspended solids (TSS), biochemical oxygen demand (BOD_5), and fecal coliform bacteria. Contaminants of concern at industrial and mining sites include pH, metals, and organic compounds. List all that apply.

A-10. Ground Water Conditions.

The depth to ground water beneath your facility and/or discharge site must be provided. This is true even if your facility or operation is intended to have no discharge. Discharge Permits are required for "no-discharge" lagoons, storage tanks, etc. because of the potential for a discharge to occur due to factors such as improper installation, poor maintenance, equipment failure or accidents.

The best way to determine the depth to water is to measure it in an on-site or nearby monitoring well. If a monitoring well is not available, the measurement may be from a water supply well. If there is a well but it is not possible to access it for a measurement, you could refer to the well log for that well and/or others in the vicinity. Well log information is available on the website of the State Engineer's office:

http://www.ose.state.nm.us/.

Be aware that water levels have dropped in many areas of the state, so more recent well logs in those areas are more reliable.

There may be a significant discrepancy in the depth to water in different wells, even when falling water levels is not a factor. One reason for this is that a water supply well may rely on a deep aquifer rather than water in the "first" or most shallow aquifer. Discharge Permits are intended to protect all ground water, so it is important to report the most shallow depth in the vicinity of your site.

The total dissolved solids (TDS) concentration of the ground water prior to discharge must be provided. As explained for the depth to water, this is true even if your facility or operation is intended to have no discharge. The TDS value provides a general indication of the quality of the ground water that could be affected by your operation.

The best way to obtain a pre-discharge TDS concentration is to sample an on-site or nearby well before your facility begins operating. It is better to sample a shallow rather than a deep well, if possible. It may be that a neighboring facility has existing analytical data for its Discharge Permit. (If so, be sure to obtain data from a non-impacted well.)

If there are no wells in your vicinity or it is not possible to sample them, you may find general TDS concentrations in reports available from sources such as a university, the State Engineer's Office (http://www.ose.state.nm.us/) or the US Geological Survey (http://nm.water.usgs.gov/). If you are renewing or modifying your Discharge Permit, you may refer to the TDS concentration previously determined if there was a sound basis for it. Monitoring data or other information obtained since the permit was issued, however, may warrant listing a different value.

A-12. Public Notice.

The latest revision of 20.6.2.3108 NMAC, which specifies the applicant's public notice requirements, is effective as of July 16, 2006. Once NMED has determined that your application is administratively complete, **the instructions and materials necessary to complete the public notice requirements will be sent to you.**

GROUND WATER DISCHARGE PERMIT APPLICATION

PART B: OPERATIONAL, MONITORING, CONTINGENCY AND CLOSURE PLANS GENERAL FORM (VARIOUS FACILITY TYPES)

Operational Plan *[Section 20.6.2.3106.C, 3109.C NMAC]*

B-1. **Source(s) of the Discharge.** Describe what generates the wastewater, sludge or other discharges processed and/or disposed of at your facility. Identify all sources. Attach additional pages, if needed. See Supplemental Instructions.

B-2. **Discharge Quantity.** Describe the methods/calculations used to determine the maximum discharge volume listed in Item A-6 in Part A of your application. Attach additional pages, if needed. See Supplemental Instructions.

B-3. **Site Map.** Attach a site map showing the components of your proposed system and relevant surrounding features, clearly labeled, such as:

- treatment units
- lagoons
- tanks
- sumps
- manure separators
- land application fields
- domestic wastewater reuse areas
- pits
- stockpiles
- leachfields
- sludge drying beds
- roads
- buildings
- supply wells
- monitoring wells
- extraction/injection wells
- arroyos
- nearby water bodies such as ponds or canals
- property boundaries
- other permitted discharges
- required setbacks
- north arrow

If map is not to scale, mark distances on the map.

☐ Site map is attached.

B-4. **Flood Protection.** Describe the methods used to prevent flooding and run-off at the facility (tank protection, berms, diversion channels, etc.)

B-5. Plans and Specifications. For new facilities and for new components of existing systems, attach plans and specifications certified by a New Mexico registered professional engineer. *[Section 20.6.2.1202 NMAC]*

☐ Not applicable because no new facilities are proposed.

☐ Plans and specifications are attached.

☐ Plans and specifications were previously submitted. Submittal date(s): _____

B-6. Description of Components. Provide descriptive details of all components of your processing, treatment, storage and/or disposal system. Include all components listed under Item A-8 in Part A.

Component	Description (construction material, liner type, irrigation method, capacity, dimensions, area, etc.)

B-7. Operational Plan. Attach a detailed description of how you operate your processing, treatment, storage and/or disposal system.

Animal feeding operations: include stormwater management, nutrient management plans, method for mixing irrigation and wastewater.

Domestic wastewater treatment facilities: include pre-treatment, solids management, vegetation management for land application.

Facilities using reclaimed domestic wastewater above ground: include setbacks, irrigation schedules, employee training, public information, etc. as needed to comply with the *NMED Policy for the Above-Ground Use of Reclaimed Domestic Wastewater*. A copy of the policy is available on the NMED website www.nmenv.state.nm.us under Ground Water Quality.

☐ Operational plan is attached.

☐ Operational plan was previously submitted. Submittal date(s): _____

B-8. System Maintenance. Attach a description of the operations and maintenance procedures which ensure that your processing, treatment and disposal system functions properly; e.g., inspections, pumping schedules, equipment maintenance, etc.

☐ O & M procedures are attached.

☐ O & M procedures were previously submitted. Submittal date(s): _____

B-9. **Backflow Prevention.** If wastewater is used for land application or irrigation, describe methods used to protect wells from contamination by wastewater backflow. For new facilities or new systems at an existing facility, only air gap or reduced pressure valve assemblies are acceptable methods.

a) Clearly describe and/or sketch the location of air gaps or devices and attach specifications.

b) Describe how devices are maintained.

B-10. **Water Rights.** Animal feeding operations which land apply wastewater must attach documentation of irrigation water rights for the proposed land application fields, sufficient to sustain the intended crop rotation.

☐ Water right documentation is attached.

☐ Not applicable.

B-11. **Past Ground Water Monitoring Results**. *This item applies only to existing facilities seeking renewal and/or modification of a Discharge Permit that required ground water monitoring.*

a) Attach a graph or a table showing all analytical results from ground water sampling at your facility. If preparing graphs, a separate graph should be developed for each constituent, except that nitrate and TKN may be shown on the same graph. Multiple wells may be shown on the same graph. See Supplemental Instructions for sample table and graph.

b) If the monitoring results indicate that ground water standards have been violated or that there is an upward trend approaching standards, attach a description of what actions you have taken or will take to address the elevated concentrations. Ground water standards are listed in Section 20.6.2.3103 NMAC. See the Supplemental Instructions for frequently referenced standards.

Monitoring Plan *[Section 20.6.2.3107.A NMAC]*

B-12. **Discharge Volumes.** Describe how and where the monthly discharge volume at your facility will be. For all measuring devices, provide type, location, and units of measure including multipliers (e.g., gallons, gallons x 100, acre-ft, etc.) See Supplemental Instructions. Attach additional pages, if necessary.

B-13. **Discharge Quality Monitoring.** Discharge Permits typically require that the discharge (treated wastewater, sludge, septage, etc.) be sampled on a regular basis. The frequency of sampling varies by type of facility, as do the contaminants of concern. Domestic and agricultural Discharge Permits typically require sampling for total Kjeldahl nitrogen (TKN), nitrate-nitrogen (NO_3-N), total dissolved solids (TDS) and chloride on a quarterly or semi-annual basis. *(continued on next page)*

The *NMED Policy for the Above-Ground Use of Reclaimed Domestic Wastewater* specifies additional sampling requirements for treatment facilities producing reclaimed wastewater for above-ground uses.

In the space below, provide a description or sketch of the sampling point(s) to be used for sampling the discharge at your facility.

Optional: In the space below (or as an attachment), you may propose revisions or additions to the standard discharge quality monitoring requirements. If you do, provide the rationale for your proposal.

B-14. **Ground Water Quality Monitoring.** Discharge Permits typically require that ground water samples be collected quarterly from properly constructed monitoring wells located downgradient from discharge locations. The samples must be analyzed for contaminants of concern. For most domestic and agricultural Discharge Permits, the typical contaminants of concern are total Kjeldahl nitrogen (TKN), nitrate-nitrogen (NO_3-N), total dissolved solids (TDS) and chloride.

Optional: In the space below (or as an attachment), you may propose revisions or additions to the standard ground water monitoring requirements. If you do, provide the rationale for your proposal.

For existing facilities:

Indicate number of existing monitoring wells: _____

Attach copies of monitoring well logs.

☐ Well logs attached. ☐ Well logs cannot be located.

☐ Well logs previously submitted. Submittal date(s): _____

Attach copy of monitoring well survey (typically not applicable if fewer than 3 monitoring wells).

☐ Survey attached. ☐ No survey has been conducted.

☐ Survey previously submitted. Submittal date(s): _____

B-15. **Other Monitoring.** In addition to discharge volumes, discharge quality monitoring and ground water sampling, Discharge Permits typically require the following monitoring, depending on the type of facility:

- inspection and pumping of septic tanks, grease tanks, lift stations
- inspection of leachfields
- inspection of lagoons
- process testing for treatment plants
- land application data sheets (LADS)
- tracking of chemical fertilizer applications to land application areas
- soil sampling (agricultural and selected other facilities land applying wastewater)
- harvested plant material testing (agricultural facilities)

Optional: In the space below (or as an attachment), you may propose revisions or additions to the other standard monitoring requirements for your type of facility. If you do, provide the rationale for your proposal.

Contingency Plan *[Section 20.6.2.3107.A.10 NMAC]*

B-16. **System Failure.** Describe your contingency plan in the event there is a failure of your wastewater or discharge system (e.g., wastewater back-up, pump failure, pipe breaks, tank overflow, leachfield failure, saturated fields etc.)

B-17. **Contingency Leachfield Location.** *This item applies only if your disposal system includes a leachfield.* Identify a location on your site map (Item B-3) for a contingency leachfield in the event that your leachfield must be replaced. If no land is available for a contingency leachfield at an existing facility, describe how you will address a failed leachfield. New facilities must provide for a contingency leachfield location.

B-18. Other Contingencies. Discharge Permits typically contain standard contingencies to address:

- exceeding wastewater quality limits
- violation of ground water or surface water standards
- spills or illegal releases of wastewater
- migration of soil nitrogen
- loading nitrogen above limit

Propose additional contingency plans, if appropriate:

_____

_____

_____

_____

Closure Plan *[Section 20.6.2.3107(A)11 NMAC]*

B-18. Facility Closure and Post-Closure Monitoring. Discharge Permits contain standard requirements to address the closure of part or all of your discharge system, as follows:

- cap or plug lines to prevent the flow of wastewater to treatment or disposal system
- empty and remove or backfill tanks
- empty lagoons, perforate or remove liners, re-grade to surface topography
- appropriately dispose of solids
- regrade and cover stockpiles at mine facilities
- continue ground water monitoring for at least two years, longer as appropriate
- enact contingency plans if ground water standards are violated
- financial assurance may be required.

Propose additional closure plans in the space below or as an attachment, if appropriate:

_____

_____

_____

_____

_____

_____

Please Note: You must also complete Part C of the application.

Supplemental Instructions for Part B – General Form

B-1. Source(s) of the Discharge.

Be specific in describing all sources. Consider the following examples:

- Municipalities – identify particular industries or specialized facilities contributing wastewater.
- RV Parks – identify showers, dump stations, laundromat, etc.
- Subdivisions – identify homes, apartments, commercial developments, water softener backwash, etc.
- Landfarms or disposal facilities – specify type of materials accepted, e.g., residential septage, car wash grit trap waste, contaminated soils/water, treated municipal sludge, etc.
- Dairies – identify milking parlors, type of washdown used, sources of stormwater runoff, etc.
- Schools – identify cafeteria, gym, showers, etc.
- Truck stops – identify restaurant, showers, car wash, etc.
- Facilities receiving reclaimed wastewater – identify the treatment facility providing the reclaimed wastewater.
- Food processing and industrial facilities – describe the processes which produce the waste stream and chemicals used.
- Mines – identify processes including beneficiation, tailing, waste rock, leach facilities, pipelines, ponds, catchments, booster stations, in-situ leach facilities.

You do not need to include solid wastes, hazardous wastes or discharges being managed under other permits; however, these should be listed under Item C-7 in Part C of the application.

B-2. Discharge Quantity.

Your Discharge Permit will allow for the treatment, processing and/or discharge of up to a specified volume, generally, a maximum number of gallons per day. The flow at your facility on any given day must not exceed this "maximum discharge volume." It is determined based on the expected contributions from the sources you identified in Item B-1.

NMED will carefully review the basis of the maximum discharge volume you propose. Show all your calculations and assumptions.

Animal feeding operations must provide calculations based on the number of animals and water conservation practices in place.

Landfarms, disposal facilities, processing facilities typically identify the expected number of loads to be delivered.

For septic systems and wastewater treatment plants, the maximum discharge volume is also referred to as the "design flow." It includes a peaking or safety factor to guard against back-ups and overflows.

Municipal wastewater treatment facilities should identify the population served, growth assumptions, and expected per capita usage considering any contributing industries.

On-site domestic wastewater treatment facilities should rely on published design flows such as those provided in the NMED Liquid Waste Regulations (20.7.3 NMAC), the Uniform Plumbing Code or the USEPA On-site Wastewater Treatment Systems Manual.

For existing facilities, the maximum discharge volume may be based on a record of measured flows if no changes are anticipated. At least two years of flow data must be submitted, and the highest monthly discharge volume must be multiplied by a peaking factor of 1.5.

NMED will verify that your proposed or existing facility can handle maximum discharge volume you propose.

B-11. Past Monitoring Results.

A complete list of ground water standards can be found in Section 20.6.2.3103 NMAC. The standards for contaminants most frequently monitored under Discharge Permits are as follows:

Nitrate-nitrogen (NO_3-N)	10 mg/L
Chloride	250 mg/L
Total dissolved solids (TDS)	1000 mg/L
Sulfate (SO_4)	600 mg/L
pH	between 6 and 9

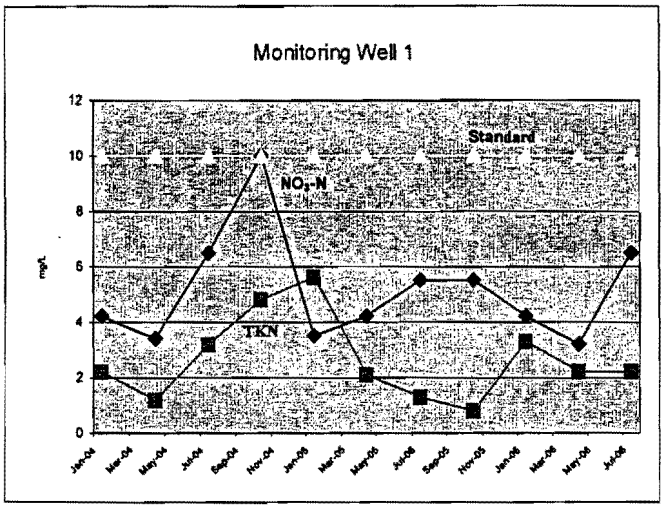
There is no ground water standard for total Kjeldahl nitrogen (TKN). Because TKN converts readily to nitrate as it moves through the vadose zone, however, concentrations approaching or exceeding 10 mg/L are of concern.

Additional parameters typically apply at mining or industrial facilities.

Some ground waters in the state have TDS or chloride concentrations that naturally exceed these standards. In that case, the standard is the naturally occurring level. You must provide documentation of such elevated natural conditions, such as analytical results from a non-impacted well.

An example table and graph follow:

Date	Monitoring Well 1	
	NO3-N	TKN
Jan-04	4.2	2.2
Apr-04	3.4	1.2
Jul-04	6.5	3.2
Oct-04	10	4.8
Jan-05	3.5	5.6
Apr-05	4.2	2.1
Jul-05	5.5	1.3
Oct-05	5.5	0.8
Jan-06	4.2	3.3
Apr-06	3.2	2.2
Jul-06	6.5	2.2



B-12. Discharge Volumes.

You must provide a method for measuring the discharge volume (Section 20.6.2.3109.H.1 NMAC). At facilities with treatment or storage lagoons, it is necessary to measure both the volume entering the treatment system as well as the volume ultimately discharged.

If you land apply wastewater to more that one discharge location, you must be able to track the volume to each location.

If your facility is small and relies on gravity to carry wastewater to the treatment and disposal system, it may be acceptable to estimate the wastewater flow. This can be done by metering water usage and deducting the volume of water used for fresh-water irrigation, swimming pools, evaporative cooling, livestock watering or other uses that do not result in wastewater flowing to the treatment system.

GROUND WATER DISCHARGE PERMIT APPLICATION
PART C: SITE INFORMATION
All Facilities

C-1. **Area Map.** Attach a current area map showing roads and clearly mark the location of your facility.

C-2. **Directions to Site.** Provide driving directions to the site from the nearest town or, if located in a town, from an easily identifiable location.

_____

_____

_____

_____

C-3. **Topographic Map.** Attach a copy of the appropriate US Geological Survey topographic map. You may provide just the relevant portion. USGS maps are available at many outdoor equipment stores or bookstores, from the USGS at www.usgs.gov or 1-888-ASKUSGS, and from commercial websites.

On the map clearly indicate the location of your facility. Also identify the approximate locations of all wells within 1,000 feet of your discharge locations. The Office of the State Engineer has a searchable database of supply wells on its website at www.ose.state.nm.us.

☐ USGS map attached with facility location and neighboring wells marked.

C-4. **Flood Potential.** Attach a copy of the latest Federal Emergency Management Agency (FEMA) flood map with your facility's location clearly marked, to the best of your ability. Information about how to obtain this map, formally known as a Flood Insurance Rate Map (FIRM) is available at www.fema.gov, insurance agencies or county government offices. A site specific analysis may be substituted.

☐ FEMA map or site-specific analysis attached.

☐ Previously submitted and still up-to-date. Submittal date(s): _____

C-5. **Soils.** Attach either:

a) A copy of the appropriate Natural Resource Conservation Service (NRCS) soil survey map, with your site clearly identified to the best of your ability. Include the descriptive information for soils associated with the discharge locations. To obtain the map, contact your local NRCS office – there is one in every county.

b) A site-specific assessment showing the soils classifications. This is preferred over the more generalized NRCS surveys.

☐ NRCS soil survey or site-specific assessment attached.

☐ Previously submitted. Submittal date(s): _____

C-6. **Geology.** Provide information on the geology beneath the site by attaching relevant portions of geologic reports, well logs for on-site or nearby wells, or site specific assessments. A variety of geology publications and resources are available from the New Mexico Bureau of Geology and Mineral Resources at http://geoinfo.nmt.edu or 505-835-5420 (Socorro). Well logs are available from the New Mexico State Engineer's Office at http://www.ose.state.nm.us/.

☐ Geologic report attached. ☐ Well log(s) attached.

☐ Geologic information previously submitted. Submittal date(s): _____

C-7. **Ground Water Hydrology.** Ground water hydrology refers to the occurrence, distribution, movement and chemistry of ground water. The ground water hydrology at your site will determine in large part whether your discharge will adversely affect ground water quality. You may need to present detailed information in order to "demonstrate that the Discharge Permit will not result in concentrations in excess of the standards of Section 20.6.2.3103 NMAC or the presence of any toxic pollutant." (20.2.3106.C.7 NMAC)

At a minimum, provide information below on the direction of ground water flow. Ground water may not flow in the same direction as water on the surface of the ground. A monitoring well survey is one of the best methods to determine the direction of ground water flow at a particular site. Such surveys are routinely required for many Discharge Permit locations.

If a survey is not available, check with well drillers, the city water department, staff at the Office of the State Engineer, environmental consultants or other knowledgeable persons in your area. In addition, relevant reports have been published for some areas. See the OSE website at www.ose.state.nm.us or the NMBGMR website at http://geoinfo.nmt.edu.

Direction of ground water flow: _____

If ground water flow shifts seasonally, describe here: _____

Reference:

☐ On-site well survey attached. ☐ Previously submitted. Submittal date(s): _____

☐ Nearby well survey attached. ☐ Previously submitted. Submittal date(s): _____

☐ Other. Specify: _____

☐ Relevant portion attached.

☐ Previously submitted. Submittal date(s): _____

Attach any additional information available about ground water hydrology at the site.

C-8. **Other Permitted Discharge Locations.** If applicable, list other locations of wastewater or stormwater discharges on your site that are not described in this application and indicate what permits apply to them. Examples include discharges from small septic systems covered by Liquid Waste Permits, discharges to surface waters under a NPDES permit, a discharge covered by a separate Discharge Permit, etc. Be sure these other discharge locations are identified on the site map required in Item B-3.

Discharge Type	Permit Identification

C-9. **Other Information.** Describe below or attach any additional information to demonstrate that your proposed discharge plan will be protective of ground water quality, public health and property.

_____

_____

_____

_____

_____

NMED/Ground Water Bureau
Harold Runnels Bldg./Rm.N-2250
P.O. Box 5469
Santa Fe, New Mexico 87502-5469

PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT OF THE RETURN ADDRESS, FOLD AT DOTTED LINE

CERTIFIED MAIL™

7002 2410 0004 2506 9167

NAME Doreen Martya
Z# 086365
DATE 1/-14-11

Michael Graham, Associate Director
Los Alamos National Lab
Environmental Programs
PO Box 1663, MS ~~K490~~
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- ALSO

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OF THE RETURN ADDRESS, FOLD AT DOTTED LINE

CERTIFIED MAIL™

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NAME Doreen Montoya
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