



NEW MEXICO
 ENVIRONMENT DEPARTMENT
Surface Water Quality Bureau



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DAVE MARTIN
 Secretary

BUTCH TONGATE
 Deputy Secretary

November 23, 2011

John Arrowsmith, Utilities Manager
 County of Los Alamos, Department of Public Utilities
 150 Central Park Square
 Los Alamos, New Mexico 87544

RE: Minor Non-municipal, SIC 4941, NPDES Compliance Evaluation Inspection, Los Alamos, County of; Department of Public Utilities / Groundwater Drinking Water Supply, NMU001775, October 24 and 25, 2011

Dear Mr. Arrowsmith,

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

Problems noted during this inspection are discussed in the Further Explanations section of the inspection report. You are encouraged to review the inspection report, required to correct any problems noted during the inspection, and to modify your operational and/or administrative procedures, as appropriate. Further, you are encouraged to notify in writing, both the USEPA and NMED regarding modifications and compliance schedules at the addresses below:

Diana McDonald
 US Environmental Protection Agency
 Allied Bank Tower
 Region VI Enforcement Branch (6EN-WM)
 1445 Ross Avenue
 Dallas, Texas 75202-2733

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

I appreciate Timothy A. Glasco and Wayne Witten, Department of Public Utilities, County of Los Alamos cooperation during the inspection. If you have any questions about this inspection report, please contact me at (505) 827-0418.

Sincerely,

/s/ Erin S. Trujillo
 Erin S. Trujillo
 Surface Water Quality Bureau

cc: Marcia Gail Adams, USEPA (6EN-AS) by e-mail
 Samuel Tates, EPA (6EN-AS) by e-mail
 Carol Peters-Wagnon, USEPA (6EN-WM) by e-mail
 Diana McDonald, USEPA (6EN-WM) by e-mail
 Sonia Hall and Hannah Branning, USEPA (6EN-WC)
 Larry Giglio, USEPA (6WQ-PP) by e-mail
 Robert Italiano, NMED District II Manager by e-mail



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

NPDES Compliance Inspection Report

Section A: National Data System Coding

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

Section B: Facility Data

Name and Location of Facility Inspected (For industrial users discharging to POTW, also include POTW name and NPDES permit number) Groundwater Drinking Water Supply Wells at various locations near or along Pajarito Road, Puye Road, East Jemez Road (Truck Route), NM 502 and Guaje Canyon Road. Los Alamos County.	Entry Time /Date 1015 hours / 10/24/2011 0930 hours / 10/25/2011	Permit Effective Date Unpermitted Discharge
	Exit Time/Date 1300 hours / 10/24/2011 1125 hours / 10/25/2011	Permit Expiration Date Unpermitted Discharge
Name(s) of On-Site Representative(s)/Title(s)/Phone and Fax Number(s) -Jaime Kephart / Senior Office Specialist, Department of Public Utilities, County of Los Alamos -Timothy A. Glasco, P.E. / Deputy Utility Manager – Gas, Water and Sewer, Department of Public Utilities, County of Los Alamos / 505-662-8148, fax 663-1809 -Wayne Witten / Water Systems Superintendent, Department of Public Utilities, County of Los Alamos / 505-662-8157		Other Facility Data SIC 4941 Water Supply
Name, Address of Responsible Official/Title/Phone and Fax Number John Arrowsmith, Utilities Manager ; County of Los Alamos, Department of Public Utilities, 150 Central Park Square, Los Alamos, New Mexico 87544 / 505-662-833, 505-662-8272 and fax 505-662-8005	Contacted Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Section C: Areas Evaluated During Inspection

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

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

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

1. SEE ATTACHED FURTHER EXPLANATIONS.

Name(s) and Signature(s) of Inspector(s) Erin S. Trujillo /s/ Erin S. Trujillo	Agency/Office/Telephone/Fax NMED/SWQB/505-827-0418	Date November 23, 2011
Signature of Management QA Reviewer Richard E. Powell /s/ Richard E. Powell	Agency/Office/Phone and Fax Numbers NMED/SWQB/505-827-2798	Date November 23, 2011

**County of Los Alamos Department of Public Utilities
Groundwater Drinking Water Supply
NPDES Tracking No. NMU001775
Compliance Evaluation Inspection
October 24 and 25, 2011**

Further Explanations

Introduction

On October 24 and 25, 2011, Erin Trujillo of the New Mexico Environment Department (NMED), Surface Water Quality Bureau (SWQB) conducted a Compliance Evaluation Inspection of the County of Los Alamos, Department of Public Utilities, Groundwater Drinking Water Supply Wells in Los Alamos County. The purpose of this inspection was to document the compliance of the County of Los Alamos, Department of Public Utilities discharges of groundwater from drinking water supply wells into tributaries of the Rio Grande under 40 Code of Federal Regulations (CFR) Part 122 and National Pollutant Discharge Elimination System (NPDES) permitting program in accordance with requirements of the federal Clean Water Act.

Discharges are to tributaries or main channels of Cañada del Buey, Guaje Canyon , Los Alamos Canyon, Pajarito Canyon, Pueblo Canyon and Sandia Canyon in classified and unclassified segment Nos. 20.6.4.98 and 20.6.4.128 *State of New Mexico Standards for Interstate and Intrastate Surface Waters, 20.6.4 New Mexico Administrative Code (NMAC)* of the Rio Grande Basin. Designated uses for classified ephemeral and intermittent portions of watercourses within lands managed by U.S. department of Energy (DOE) within Los Alamos National Laboratory (LANL) for 20.6.4.128 NMAC include livestock watering, wildlife habitat, limited aquatic life and secondary contact. Designated uses for intermittent unclassified surface water (20.6.4.98 NMAC) include livestock watering, wildlife habitat, marginal warmwater aquatic life and primary contact.

The NMED performs a certain number of CEIs for the U.S. Environmental Protection Agency (USEPA), Region VI, under the NPDES permit program, in accordance with the Federal Clean Water Act. USEPA uses these inspections to determine compliance with the NPDES permit program. This inspection report is based on information provided by the operator's representatives, observations made by the NMED inspector, and records and reports kept by the operator and/or NMED. Additional information, including pollutants and groundwater analytical results, was obtained from the following on-line sources:

-Los Alamos County, Long-Range Water Supply Plan, dated August 2006:
<http://www.doeal.gov/SWEIS/OtherDocuments/449%20Stephens%202006%20LAC%20Long-Range%20Plan.pdf>

-Risk Analysis, Communication, Evaluation and Reduction (RACER) Project: <http://racernm.com/>

On the day of this inspection, the inspector obtained county utility staff contact and office location information from Ms. Jaime Kephart, Senior Office Specialist, Department of Public Utilities, County of Los Alamos at 170 Central Park Square, Los Alamos, New Mexico at approximately 1015 hours. Upon arrival at the county offices at 101 Camino Entrada, Building 5, the inspector made introductions, explained the purpose of the inspection and presented credentials to Mr. Timothy A. Glasco, P.E., Deputy Utility Manager, Gas, Water and Sewer, Department of Public Utilities, County of Los Alamos. The inspector and Mr. Wayne Witten, Water Systems Superintendent toured Pajarito Mesa (PM) and Otowi (O) water supply well sites until approximately 1300 hours on October 24, 2011 and from approximately 0930 to 1125 hours on October 25, 2011. Guaje (G) water supply well sites (G-1A, G-2A, G-3A, G-4A, and G-5A) were not toured during this inspection.

Water Supply System

The County of Los Alamos, Department of Public Utilities is a county-owned electric, gas, water and sewer utility systems under jurisdiction and control of the County of Los Alamos Board of Public Utilities. According to the Los Alamos County Code of Ordinances #502, the Manager of the Department of Public Utilities shall conduct the business of the Utilities Department subject to the policies established by the Board. The County of Los Alamos, Department of Public Utilities started operating the water system in September 1998; however, ownership of the water system and associated water rights was not transferred until September 2001.

The timing and pumping of wells varies depending upon factors, such as, customer power usage and time of year (demand). Wells typically pump during the night. Table 1 lists the **Active Wells in the Los Alamos Water Supply System** from the County’s Long-Range Water Supply Plan.

Table 1

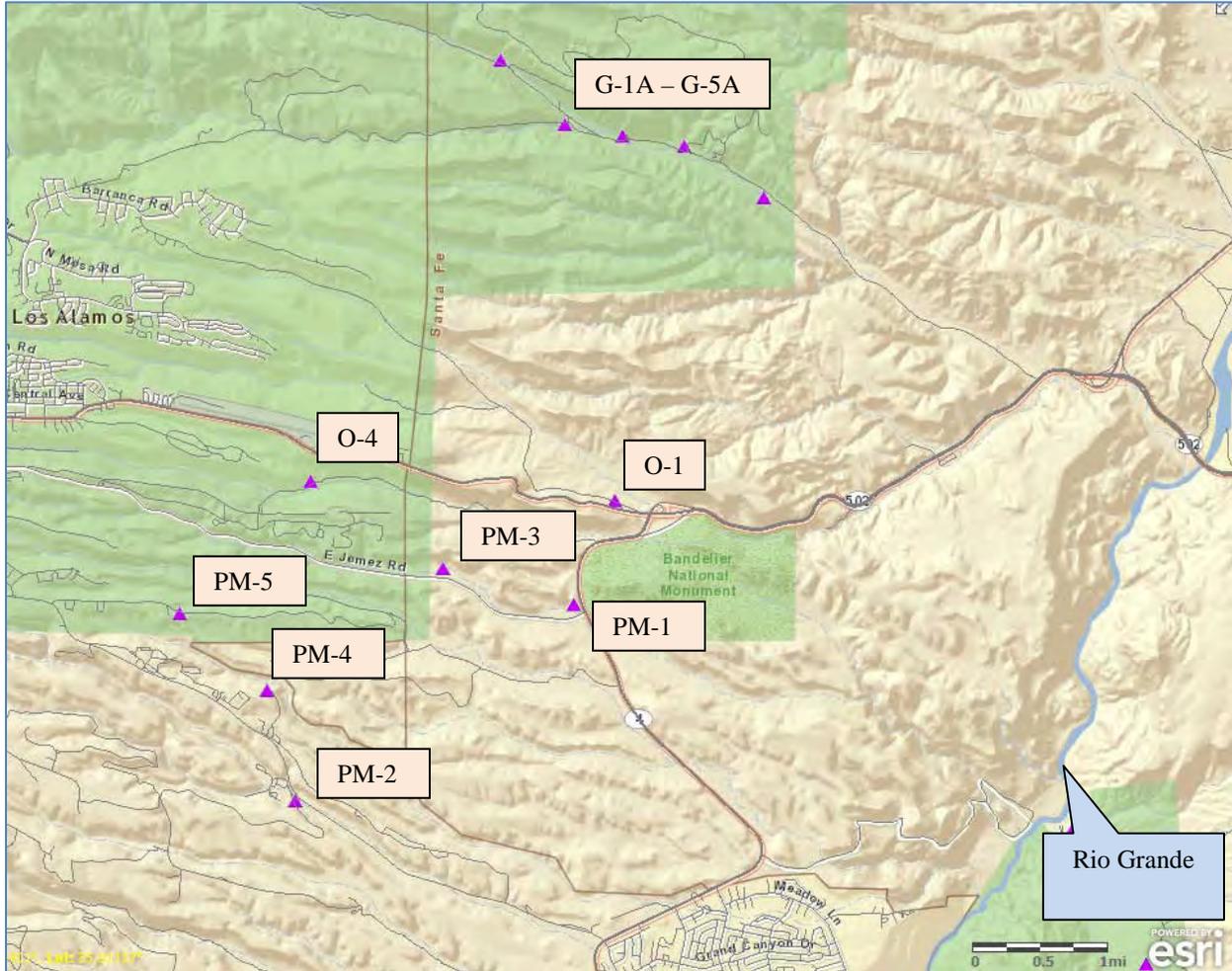
Well Field	Well Name	Date Completed	Completion Depth (ft)	Coordinates (ft)		Initial Depth to Water
				x	y	
Guaje	G-1A	Oct-54	1,519	1,655,241	1,784,353	250
	G-2A	Mar-98	1,980	1,651,974	1,786,166	318
	G-3A	May-98	1,980	1,649,662	1,786,585	408
	G-4A	Apr-98	1,980	1,647,318	1,787,113	452
	G-5A	Jun-98	1,980	1,644,877	1,789,636	551
Otowí	O-1 ^a	Aug-90	2,497	1,649,396	1,772,232	673
	O-4	Mar-90	2,595	1,637,337	1,772,995	780
Pajarito	PM-1	Feb-65	2,499	1,647,734	1,768,112	722
	PM-2	Jul-65	2,300	1,636,698	1,760,406	823
	PM-3	Nov-66	2,552	1,642,590	1,769,530	740
	PM-4	Aug-81	2,874	1,635,623	1,764,740	1,060
	PM-5	Sep-82	3,092	1,632,110	1,767,790	1,208

Source: Koch and Rogers, 2003

^a Well is currently not being used to supply drinking water.

Well Location Map

Created by: Erin S. Trujillo		
Source: NMED EGIS Mapper		
City/County: Los Alamos Area/ Los Alamos County		State: New Mexico



Groundwater Supply Well Discharges

Flow to Waste Discharges: For some wells, an automatic initial flush (flow to waste discharge) at a starting rate ranging between 1,400 to 360 gallons per minute (depending upon the well) occurs when the pump is turned on to prevent surges in the water supply line. The initial flow rate is reduced over an approximate one minute time frame while valves open and close. An initial flush is not required when the well pumps into a storage tank or runs continuously (i.e., PM-1, PM-2, PM-5, and G-1A). PM-4 initial flush is conducted manually. Flow to waste discharges are piped to outfalls

No active flow to waste discharge from outfalls was observed on the day of the inspection. Sediments in the bed of the tributary below the PM-3 and PM-2 outfalls were wet. Sediments in the stream bed of the receiving stream were wet below the O-4 outfall (Los Alamos Canyon above DP Canyon) and PM-3 outfall (Sandia Canyon).

Well Purge/Treated Disinfection Water Discharges: Following some well maintenance activities (typically pump maintenance), water well purge and treated disinfection water from the well is discharged at the well site. Operator on-site representatives stated that disinfected well purge water is de-chlorinated and tested for Free Chlorine before discharge. There were no facility or well-specific written procedures for de-chlorination according to the operator on-site representatives.

As an example, PM-2 purge water discharges occurred following well maintenance on three days for a total of 16 hours and 36 minutes (September 12, 2011 from 1136 to 1450 hours; September 13, 2011 from 0753 to 1445 hours; and October 11 from 0841 to 1520 hours) according to information provided by the operator on-site representatives. Water from PM-2 can be pumped at an approximate rate of 1,320 gpm, but it is unknown how much purge and treated disinfected water was discharged to Pajarito Canyon.

Backflow from Storage Tanks: Two wells (O-1 and PM-3) have the potential for backflow from water storage tanks to enter flow to waste lines (valves remain open or do not completely close after flow to waste flush). Backflow discharge was observed served at the O-1 outfall during this inspection, but the flow did not continue past the rock-lined slope below the outfall to an unnamed channel thence Pueblo Canyon on the day of this inspection. Backflow at the PM-3 outfall was not observed on the day of this inspection.

Cooling Coil and Cooling Wall Discharges: Flow from cooling coils and one cooling wall discharge to outfalls while pumps run. Operator on-site representatives stated that no chemicals are used for minimize corrosion or scale buildup at the PM-4 cooling wall with an outfall above Cañada del Buey. Discharge rates from the cooling coils varies between 3 to 6 gallons per minute when the pumps are running. Cooling coil discharge was observed at the PM-1 outfall above Sandia Canyon, but the flow did not continue (infiltrated) before reaching the receiving stream channel on the day of this inspection. Wet vegetation and standing water at cattails was observed in the swale below the PM-5 outfall above Cañada del Buey.

Floor or Wall Drain Discharges: Floor or wall drains exist at the well house buildings. During water sample collection, sampling ports on the water line are flushed to the floor or wall drains. Some wells have floor drains that are piped to separate outfalls near or at the flow to waste outfalls (e.g., O-1 and O-4). The separate O-4 floor drain outfall at Los Alamos Canyon described by the operator on-site representative was not found on the day of the inspection. No floor drain discharge was observed on the day of this inspection.

Dumps Lines

When maintenance or repairs are needed, groundwater discharges can also occur from “dump lines” between PM-1 and PM-3 wells and between PM-1 and White Rock. A dump line on LANL property is not used. Dump line valve locations were not observed during this inspection.

Clean Water Act and NPDES Requirements

Section 301 of the Federal Clean Water Act states:

Except as in compliance with this section and sections 302, 306, 307, 318, 402 and 404 of this Act, the discharge of any pollutant by any person shall be unlawful.

40 CFR 122.1(b) states, “The NPDES program requires permits for the discharge of “pollutants” from any “point source” into “waters of the United States.” The terms “pollutant”, “point source” and “waters of the United States” are defined at §122.2.

40 CFR 122.21(a) states, “Duty to apply. Any person who discharges or proposes to discharge pollutants”.... “shall submit a complete application (which shall include a BMP program if necessary under 40 CFR 125.102) to the Director in accordance with this section and part 124.”

Findings

Permit – Overall Rating of “U = Unsatisfactory”

Effluent/Receiving Waters – Overall Rating of “U = Unsatisfactory”

Discharges from the water supply wells and associated operations can have potential pollutants from natural deposits, man-made chemicals, and radioactive materials. An NPDES permit has not been obtained for groundwater flow to waste, well purge/treated disinfection water, backflow from storage, cooling coil and cooling wall, floor drain or dump line discharges above or in tributaries or main channel canyons to the Rio Grande. Discharges could have the potential to make it to the Rio Grande during storm events.

Discharges from noncontact cooling water, testing and water production facilities from Guaje, Otowi and Pajarito groundwater wells were previously permitted under U.S. Department of Energy and University of California Management Contractor for Los Alamos National Laboratory NPDES Permit No. NM0028355. Mr. Glasco stated that the County of Los Alamos submitted an application to USEPA (late 1990’s), but the application was withdrawn by the County.

Los Alamos County, Long-Range Water Supply Plan, dated August 2006, Section 3.2.2 discusses the presence of or potential for contaminants in groundwater including chromium at PM-3, perchlorate, RDX, tritium and nitrate. **Examples of pollutants (e.g., metals, radiological, volatile organic aromatics, pesticides) found above detection limits** at one or more of the groundwater water supply wells from available data in the RACER project database is summarized in Table 2.

Additional potential pollutants for well purge discharges include solids from natural deposits or well materials. Also, potential pollutants associated with well disinfection include Total Residual Chlorine (TRC) if not de-chlorinated properly. As previously discussed, the operator did not test well purge/disinfection well discharges for TRC. Also, potential pollutants for floor or wall drain discharges include oil and grease from lubrication oil leaks.

If not managed in accordance with a NPDES permit, groundwater discharge may be a potential threat to surface water quality.

Facility Site Review – Overall Rating of “M = Marginal”

PM-3 had rock structure around the outfall to minimize erosion. Rock also existed below the O-1 flow to waste and floor drain outfalls. However, the rest of the observed wells did not have velocity dissipation structures to minimize erosion at or below outfalls.

Table 2: Examples of Pollutants found in Wells above Detection Limits (RACER)

Analyte Name												
Metals												
Aluminum	G-1A	G-2A			G-5A		O-4		PM-2	PM-3	PM-4	PM-5
Arsenic	G-1A	G-2A	G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5
Barium	G-1A	G-2A	G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5
Boron	G-1A	G-2A	G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5
Cyanide, Total	G-2A		G-3A			O-1		PM-1	PM-2			
Chromium	G-1A	G-2A	G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5
Chromium VI	G-1A	G-2A	G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5
Cobalt							O-4		PM-2			
Copper	G-1A	G-2A	G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5
Lead	G-1A	G-2A	G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5
Manganese	G-1A			G-4A	G-5A	O-1	O-4		PM-2			PM-5
Mercury	G-1A	G-2A	G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5
Nickel	G-1A	G-2A	G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5
Selenium				G-4A								
Strontium	G-1A		G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5
Thallium	G-1A	G-2A		G-4A		O-1	O-4	PM-1			PM-4	
Uranium	G-1A	G-2A	G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5
Vanadium	G-1A	G-2A	G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5
Zinc	G-1A	G-2A	G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5
Radiological												
Americium-241	G-1A		G-3A			O-1		PM-1	PM-2			PM-5
Bismuth-214	G-1A		G-3A	G-4A	G-5A	O-1	O-4		PM-2	PM-3		PM-5
Gross alpha	G-1A		G-3A			O-1		PM-1		PM-3	PM-4	PM-5
Gross beta	G-1A	G-2A	G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5
Gross gamma		G-2A		G-4A						PM-3		PM-5
Lead-212	G-5A											
Lead-214	G-1A	G-2A		G-4A		O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5
Plutonium-238			G-3A	G-4A		O-1	O-4				PM-4	
Plutonium-239/240	O-1											
Potassium-40	G-1A	G-2A	G-3A		G-5A	O-1		PM-1				
Radium-226	G-1A	G-2A	G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5
Radium-228	G-1A		G-3A				O-4	PM-1	PM-2		PM-4	PM-5
Strontium-90		G-2A	G-3A	G-4A		O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5
Thorium-230				G-4A	G-5A							PM-5
Tritium	G-1A	G-2A	G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5
Uranium-234	G-1A	G-2A	G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5
Uranium-235/236	G-1A	G-2A	G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5
Uranium-238	G-1A	G-2A	G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5

Volatile Organic Aromatic / Pesticides / Other													
Acetone	G-1A	G-2A					O-4	PM-1	PM-2			PM-4	
Carbon Disulfide										PM-3			
Chloroform							O-1						
Chloromethane	G-1A		G-3A							PM-3			PM-5
DDD									PM-2	PM-3			PM-5
Diamino-6-nitrotoluene, 2,4-									PM-2				
Dichlorobenzene, 1,4-							O-1						
Dieldrin									PM-2	PM-3			
Endosulfan I									PM-2				
Endosulfan Sulfate									PM-2				
Endrin									PM-2	PM-3			
Endrin Aldehyde			G-3A						PM-2				
Heptachlor Epoxide									PM-2	PM-3			
Hexachlorocyclohexane, Delta-									PM-2				
Hexahydro-1,3,5- trinitro-1,3,5-triazine (RDX)									PM-2				
Methyl Ethyl Ketone	G-1A												
Methylene Chloride	G-1A												
Nitrate-Nitrite as Nitrogen	G-1A	G-2A	G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5	
Perchlorate	G-1A	G-2A	G-3A	G-4A	G-5A	O-1	O-4	PM-1	PM-2	PM-3	PM-4	PM-5	
Total Petroleum Hydrocarbons Diesel Range Organics						O-1	O-4	PM-1					
Xylene, 1,3-+ Xylene, 1,4-													PM-5
Notes: Data providers for available groundwater data were LANL and NMED DOE Oversight Bureau.													