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Environmental Management
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Date: February 28, 2022
Refer To: N3B-2022-0007

Rick Carpenter, Water Division Director
Sangre de Cristo Water Division
City of Santa Fe
801 West San Mateo
Santa Fe, New Mexico 87505

Subject: Los Alamos National Laboratory Site-Wide Monitoring Program, City of Santa Fe Buckman Water Supply Wells, 2022 Sampling and Analysis Plan

Dear Mr. Carpenter:

The City of Santa Fe Buckman water supply wells have been sampled since 2001 for both general characterization and specific constituents of interest under Los Alamos National Laboratory's (LANL's) Site-Wide Monitoring Program. These wells include Buckman 1, Buckman 6, Buckman 8, SF-3A, and SF-4A.

The U.S. Department of Energy (DOE) Environmental Management Los Alamos Field Office (EM-LA) and Newport News Nuclear BWXT-Los Alamos, LLC (N3B) continue to coordinate with the City of Santa Fe to conduct an annual review of the sampling and analysis plan (SAP) to ensure it is dynamic, strategic, and mutually beneficial.

The enclosed 2022 SAP represents the sampling and analysis commitment for the period from January 1, 2022, to December 31, 2022. The sampling suites, methods, and locations in this SAP will focus on water supply wells and analytes that potentially could be affected by LANL contaminants.

N3B will continue to implement the following practices associated with groundwater data collected from Buckman water supply wells.

1. N3B will provide an automated report of the data upon receipt from the analytical laboratory. Sixty days after the automated report is provided to the City of Santa Fe, the data will be posted to the publicly accessible website Intellus (<http://www.intellusnm.com>).

2. If a potential contaminant is detected in a Buckman production well, N3B will (1) work with the City of Santa Fe Sangre de Cristo Water Division to evaluate the data and (2) review the need to modify the SAP and/or to collect additional samples to address questions raised by the potential contaminant, as deemed necessary.

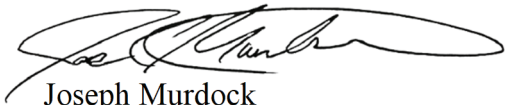
The two previous SAPs (2020 and 2021) included sampling for three per- and polyfluoroalkyl substances (PFAS). These compounds were not detected during these two rounds of sampling. Therefore, PFAS sampling is removed from this SAP. Additionally, semivolatile organic compounds (SVOCs), volatile organic compounds (VOCs), and polychlorinated biphenyls (PCBs) are also removed based on a review of data collected for these wells over the last 10 years for which there have been no consistent detections for these groups of compounds.

Additionally, specific sampling of hexavalent chromium will be incorporated into the metals suite. Because of the natural oxidizing nature of the water being sampled, the chromium results returned from sampling are considered to be in the hexavalent form.

Furthermore, based on review of the last 10 years of data from piezometer locations SF-3A and SF-4A, there are no results that indicate the presence of constituents related to the LANL site. Therefore, these locations are also removed from this SAP. Moving forward, the primary focus of this SAP will be exclusively at the water-supply wells.

If you have any questions, please contact Steve Veenis at (505) 309-1362 (steve.veenis@em-la.doe.gov) or Cheryl Rodriguez at (505) 414-0450 (cheryl.rodriguez@em.doe.gov)

Sincerely,



Joseph Murdock
Program Manager
Environment, Safety and Health
N3B-Los Alamos

Sincerely,

M Lee Bishop

Digitally signed by M Lee Bishop
Date: 2022.02.28 13:40:30
-07'00'

M. Lee Bishop, Director
Office of Quality and Regulatory Compliance
U.S. Department of Energy
Environmental Management
Los Alamos Field Office

Enclosure(s):

1. Los Alamos National Laboratory Site-Wide Monitoring Program, City of Santa Fe Buckman Water Supply Wells, 2022 Sampling and Analysis Plan (EM2022-0015)

cc (letter and enclosure[s] emailed):

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PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

**LOS ALAMOS NATIONAL LABORATORY SITE-WIDE MONITORING PROGRAM,
CITY OF SANTA FE BUCKMAN WATER SUPPLY WELLS, 2022 SAMPLING AND ANALYSIS PLAN**

**Table 1
Sampling and Analysis Plan for the City of Santa Fe
Buckman Water Supply Wells for the Period of January 1, 2022, to December 31, 2022**

Location	Analytical Suites ^a				
	Metals	Organics	Radionuclides		Inorganics
	Metals	HEXP ^b	Radionuclides	Low-Level Tritium	General Inorganics
Buckman No. 1	Q2, Q4	Q4	Q2, Q4	Q2, Q4	Q2, Q4
Buckman No. 6	Q2, Q4	Q4	Q2, Q4	Q2, Q4	Q2, Q4
Buckman No. 8	Q2, Q4	Q4	Q2, Q4	Q2, Q4	Q2, Q4

Notes: Sampling schedule: Quarter 1 (Q1) = Jan–Mar 2022. Q2 = Apr–Jun 2022; Q3 = Jul–Sep 2022; Q4 = Oct–Dec 2022.
Quality control samples will be collected in accordance with Appendix D of the Interim Facility-Wide Groundwater Monitoring Plan for the associated monitoring year.

^a Table 2 of this sampling and analysis plan presents the sample field preparation, analytical methods, and analytes for each of the analytical suites specified in Table 1.

^b HEXP = High explosives.

Table 2
Analytes, Field Preparation, and Analytical Methods Used by
U.S. Environmental Protection Agency Contract Laboratory Program Laboratories for Samples
Collected under the Sampling and Analysis Plan for the City of Santa Fe Water Supply Wells

Analytical Suite	Field Preparation	Analytical Method	Analytes
Metals	Unfiltered	SW-846:7470 series	Mercury
		SW-846:6020 series	Aluminum, selenium
	Filtered	SM:A2340	Hardness
		SW-846:6010 series	Barium, beryllium, boron, calcium, iron, magnesium, manganese, potassium, silicon dioxide, sodium, strontium, tin, vanadium, zinc
		SW-846:6020 series	Aluminum, antimony, arsenic, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, selenium, silver, thallium, uranium
SW-846:7470 series	Mercury		
HEXP*	Unfiltered	SW-846:8330 series	See Table 3
Radionuclides	Unfiltered	EPA:900	Gross alpha, gross beta
		EPA:901.1	Cesium-137, cobalt-60, neptunium-237, potassium-40, sodium-22
		EPA:905.0	Strontium-90
		HASL-300:AM-241	Americium-241
		HASL-300:ISOPU	Plutonium-238, plutonium-239/240
		HASL-300:ISOU	Uranium-234, uranium-235/236, uranium-238
		EPA:903.1	Radium-226
		EPA:904	Radium-228
		Generic: radium by calculation	Radium-226+228
Low-level tritium	Unfiltered	Generic: low-level tritium	Tritium
General inorganics	Filtered	EPA:120.1	Specific conductance
		EPA:150.1	Acidity or alkalinity of a solution
		EPA:160.1	Total dissolved solids
		EPA:300.0	Bromide, chloride, fluoride, sulfate
		EPA:310.1	Alkalinity-CO ₃ , alkalinity-CO ₃ +HCO ₃
		SW-846:6850 series	Perchlorate
		EPA:350.1	Ammonia as nitrogen
		EPA:353.2	Nitrate-nitrite as nitrogen
		EPA:365.4	Total phosphate as phosphorus
	Unfiltered	EPA:351.2	Total Kjeldahl nitrogen
		SW-846:9060	Total organic carbon
		SW-846:9012 series	Cyanide (Total)

* HEXP = High explosives.

Table 3
Analytical Methods Used
by Contract Laboratories for Samples Collected
under the Sampling and Analysis Plan for the City of Santa Fe Water Supply Wells

Analytical Suite: HEXP ^a	
Analytical Method: SW-846:8330B	
Symbol or CAS ^b No.	Analyte
6629-29-4	2,4-Diamino-6-nitrotoluene
59229-75-3	2,6-Diamino-4-nitrotoluene
618-87-1	3,5-Dinitroaniline
19406-51-0	Amino-2,6-dinitrotoluene[4-]
35572-78-2	Amino-4,6-dinitrotoluene[2-]
99-65-0	Dinitrobenzene[1,3-]
121-14-2	Dinitrotoluene[2,4-]
606-20-2	Dinitrotoluene[2,6-]
2691-41-0	HMX ^c
98-95-3	Nitrobenzene
88-72-2	Nitrotoluene[2-]
99-08-1	Nitrotoluene[3-]
99-99-0	Nitrotoluene[4-]
78-11-5	PETN ^d
121-82-4	RDX ^e
3058-38-6	TATB ^f
479-45-8	Tetryl
99-35-4	Trinitrobenzene[1,3,5-]
118-96-7	Trinitrotoluene[2,4,6-]
78-30-8	Tris (o-cresyl) phosphate

Note: Table 3 is referenced in Table 2 and serves to complete the analyte lists in Table 2.

^a HEXP = High explosives.

^b CAS = Chemical Abstracts Service.

^c HMX = Her Majesty's Explosive.

^d PETN = Pentaerythritol tetranitrate.

^e RDX = Royal Demolition Explosive.

^f TATB = Triaminotrinitrobenzene.

