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Environmental Management Los Alamos Field Office 1200 Trinity Drive, Suite 400 Los Alamos, New Mexico 87544 (240) 562-1122

Date: January 31, 2024 *Refer To*: N3B-2024-0004

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, 2024 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, and Buckman 8.

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).

The enclosed 2024 SAP is for the period from January 1 to December 31, 2024. The sampling suites, methods, and locations in this SAP 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, N3B will (1) work with the City of Santa Fe Sangre de Cristo Water Division to evaluate the data and (2) modify the SAP and/or collect additional samples to address questions raised by the potential contaminant.

If you have any questions, please contact Amanda White at (505) 309-1366 (amanda.white@emla.doe.gov) or Susan Wacaster at (505) 709-8704 (susan.wacaster@em.doe.gov).

Sincerely, olart & Edwards II

Robert Edwards III Acting Program Manager Environment, Safety, Health and Quality N3B-Los Alamos

Sincerely,

Digitally signed by Brian G. Harcek Date: 2024.01.30 05:52:39 -07'00'

Brian Harcek, Director Office of Quality and Regulatory Compliance U.S. Department of Energy Environmental Management Los Alamos Field Office

Enclosure(s): Two hard copies with electronic files

1. Los Alamos National Laboratory Site-Wide Monitoring Program, City of Santa Fe Buckman Water Supply Wells, 2024 Sampling and Analysis Plan (EM2024-0014)

cc (letter and enclosure[s] emailed): Laurie King, EPA Region 6, Dallas, TX Aaron Rand, City of Santa Fe, Santa Fe, NM Bill Schneider, City of Santa Fe, Santa Fe, NM Steve Yanicak, NMED-DOE-OB Joe Martinez, NMED-DWB Justin Ball, NMED-GWOB Neelam Dhawan, NMED-HWB Ricardo Maestas, NMED-HWB Kylian Robinson, NMED-HWB Rick Shean, NMED-RPD Stephen Hoffman, NA-LA Jeannette Hyatt, LANL Arturo Duran, EM-LA John Evans, EM-LA Thomas McCrory, EM-LA Michael Mikolanis, EM-LA Kenneth Ocker, EM-LA Aubrey Pierce, EM-LA Kent Rich, EM-LA Joseph Ritchey, EM-LA Cheryl Rodriguez, EM-LA Hai Shen, EM-LA Susan Wacaster, EM-LA Felicia Aguilar, N3B William Alexander, N3B Sarah Chambers, N3B Brian Clayman, N3B Michael Erickson, N3B



David Fellenz, N3B Vicky Freedman, N3B Ashley Kowalewski, N3B Dana Lindsay, N3B Christian Maupin, N3B Keith McIntyre, N3B Michael Nartker, N3B Regina Newman, N3B Bruce Robinson, N3B Vince Rodriguez, N3B Bradley Smith, N3B Jeffrey Stevens, N3B Troy Thomson, N3B Amanda White, N3B emla.docs@em.doe.gov n3brecords@em-la.doe.gov Public Reading Room (EPRR) PRS website

Los Alamos National Laboratory Site-Wide Monitoring Program, City of Santa Fe Buckman Water Supply Wells, 2024 Sampling and Analysis Plan

Table	1
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Sampling and Analysis Plan for the City of Santa Fe Buckman Water Supply Wells for the Period of January 1, 2024, to December 31, 2024

	Analytical Suites ^a				
	Metals	Organics	Radionuclides		Inorganics
Location	Metals	HEXP⊳	Radionuclides	Low-Level Tritium	General Inorganics
Buckman No. 1	Q1, Q3	Q3	Q1, Q3	Q1, Q3	Q1, Q3
Buckman No. 6	Q1, Q3	Q3	Q1, Q3	Q1, Q3	Q1, Q3
Buckman No. 8	Q1, Q3	Q3	Q1, Q3	Q1, Q3	Q1, Q3

Notes: Sampling schedule: Quarter 1 (Q1) = Jan–Mar 2024; Q2 = Apr–Jun 2024; Q3 = Jul–Sep 2024; Q4 = Oct–Dec 2024. 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 Buckman 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

Analytical Suite Field Preparation Analytical Method Analytes Radionuclides Unfiltered EPA:900 Gross alpha, gross beta Cesium-137, cobalt-60, EPA:901.1 neptunium-237, potassium-40, sodium-22 Strontium-90 EPA:905.0 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 Radium-226+228 Generic: radium by calculation 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 Bromide, chloride, fluoride, sulfate EPA:300.0 Alkalinity-CO₃, EPA:310.1 alkalinity-CO3+HCO3 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 Total organic carbon SW-846:9060 SW-846:9012 series Cyanide (Total)

Table 2 (continued)

* 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 Buckman 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.



Figure 1

City of Santa Fe Buckman water supply wells