



SUSANA MARTINEZ  
Governor

JOHN A. SANCHEZ  
Lt. Governor

NEW MEXICO  
ENVIRONMENT DEPARTMENT

*DOE Oversight Bureau*

121 Tijeras Ave., NE Suite 1000  
Albuquerque, NM  
Phone (505) 383-2073 Fax (505) 222-9510  
www.env.nm.gov



BUTCH TONGATE  
Cabinet Secretary

J. C. BORREGO  
Deputy Secretary

June 27, 2018

Steven Black  
Point of Contact  
Water Quality Program Manager  
U.S. Department of Energy  
Sandia Field Office  
P.O Box 5400 MS 0184  
Albuquerque, New Mexico 87185-5400

**Subject: Data Submittal for Groundwater Monitoring at Sandia National Laboratories/New Mexico Burn Site Groundwater Area of Concern Conducted by the New Mexico Environment Department DOE Oversight Bureau for FFY 2018 Q-1**

Mr. Black:

This letter transmits the subject report as final. The report shows groundwater data results from Burn Site Groundwater Area of Concern collected by the New Mexico Environment Department DOE Oversight Bureau during the first quarter of FFY 2018.

The enclosed monitoring results were provided to the U.S Department of Energy in draft form on May 25, 2018 for 30-day review and comment. The final monitoring results are provided to DOE, the State of New Mexico and other federal agencies, the NMED website and interested members of the public. If you have any questions, or if you would like copies of the complete data set, please contact me by phone at (505) 383-2070, by email at [chris.armijo1@state.nm.us](mailto:chris.armijo1@state.nm.us), or by mail to the address in the above letterhead.

Sincerely,

Chris Armijo  
Environmental Scientist  
Sandia Oversight Section

Enclosure: (1) Groundwater Monitoring at Sandia National Laboratories/New Mexico Burn Site Groundwater Area of Concern Conducted by the New Mexico Environment Department DOE Oversight Bureau for FFY 2018 Q-1  
(2) Table-1 Nitrate-Nitrite as Nitrogen and Perchlorate Results  
(3) Table-2 Total Petroleum Hydrocarbons Diesel Range Organics and Gasoline Range Organics Results

Distribution: David Rast, DOE/SFO  
Michael Skelly, SNL/NM Groundwater  
Tim Jackson, SNL/NM Groundwater  
Susan Lucas Kamat, Bureau Chief, DOE OB

File: SGE42. Groundwater Monitoring. BSG AOC. FFY 2018 Q-1

**DOE Oversight Bureau, New Mexico Environment Department**

**Groundwater Monitoring at  
Sandia National Laboratories/New Mexico  
Burn Site Groundwater  
Area of Concern**

**Conducted by the  
New Mexico Environment Department DOE Oversight Bureau  
for FFY 2018 Q-1**

**Prepared by Chris Armijo, Environmental Scientist  
Sandia Oversight Section  
121 Tijeras Ave., NE Suite 1000  
Albuquerque, NM 87102  
(505) 383-2070  
chris.armijo1@state.nm.us**

**Final Report**

**6/27/2018**

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The purpose of this communication is to transmit groundwater quality data collected by the New Mexico Environment Department DOE Oversight Bureau from Burn Site Groundwater Area of Concern during the first quarter of Federal Fiscal Year 2018.

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## **Introduction**

The New Mexico Environment Department (NMED) DOE Oversight Bureau (DOE-OB or Bureau) has compiled and assessed groundwater data collected during October 2017. The Bureau collected groundwater samples from Burn Site Groundwater (BSG) Area of Concern (AOC) monitoring wells CYN-MW8, CYN-MW9, CYN-MW10, CYN-MW11, CYN-MW12, CYN-MW14A and CYN-MW15 (plus duplicate). Samples were collected using standard Sandia National Laboratories/New Mexico (SNL/NM) sampling procedures and equipment. Samples were analyzed for total petroleum hydrocarbons (TPH)-gasoline range organics (GRO), TPH-diesel range organics (DRO), nitrate-nitrite as nitrogen and perchlorate (at CYN-MW15 only). The Bureau submitted samples for analysis to an independent analytical laboratory under contract with the NMED.

Nitrate-nitrite levels were detected at or exceeded the U.S. Environmental Protection Agency (EPA) maximum contaminant level (MCL), or drinking water standard of 10 mg/L at monitoring wells CYN-MW9, CYN-MW10, CYN-MW11, CYN-MW12, CYN-MW14A and CYN-MW15.

## **Data Assessment**

All groundwater samples were collected and analyzed in accordance with U.S. EPA protocols. Data results are compared to applicable MCLs established by the U.S. EPA National Primary Drinking Water Regulations (40 CFR 141), National Primary Drinking Water Standards, EPA, July 2002. Perchlorate results are compared to the *Compliance Order on Consent (Consent Order) Pursuant to the New Mexico Hazardous Waste Act 74-4-10: Sandia National Laboratories Consent Order*, New Mexico Environment Department, April 19, 2004.

## **Results**

Analytical results for nitrate-nitrite as nitrogen and perchlorate are presented in Table-1. Nitrate-nitrite levels were detected at or exceeded the EPA MCL of 10 milligrams per liter (mg/L) at monitoring wells CYN-MW9 (27 mg/L), CYN-MW10 (10 mg/L), CYN-MW11 (14 mg/L), CYN-MW12 (12 mg/L), CYN-MW14A (10 mg/L) and CYN-MW15 and CYN-MW15 duplicate (18 mg/L and 20 mg/L respectively). Perchlorate was detected below the Consent Order screening level of 4.0 micrograms per liter ( $\mu\text{g/L}$ ) from samples collected at CYN-MW15. No MCL has been established for perchlorate.

Analytical results for TPH-diesel range organics and TPH-gasoline range organics are presented in Table-2. No samples were detected above the method detection limit (MDL) for TPH-DRO or TPH-GRO. Currently, no MCLs have been established for DRO or GRO in groundwater.

## **Conclusion**

The DOE-OB collected split samples from seven (7) BSG groundwater monitoring wells during the first quarter of FFY 2018. Samples were submitted to and analyzed by an independently contracted analytical lab. Nitrate concentrations were detected at or exceeded the EPA MCL of 10 mg/L in samples collected from monitoring wells CYN-MW9, CYN-MW10, CYN-MW11, CYN-MW12, CYN-MW14A and CYN-MW15. Samples collected at CYN-MW15 for perchlorate were below the Consent Order screening level of 4.0 µg/L. No samples were detected above the laboratory MDL for TPH-DRO or TPH-GRO.

Nitrate has been identified as a contaminant of concern in groundwater from the BSG AOC. Historically, nitrate at these wells have exceeded the EPA MCL and the Bureau's results for this reporting period are consistent with past results.

The DOE-OB will continue to collect split samples with SNL/NM from BSG groundwater monitoring wells and continue to independently monitor nitrate concentrations in the AOC.

Table-1

Groundwater Quality Results: Nitrate-Nitrite as Nitrogen and Perchlorate  
 Sandia National Laboratories/ New Mexico Burn Site Groundwater Area of Concern  
 New Mexico Environment Department DOE Oversight Bureau  
 October 2017

Monitoring Well/ Sample Date	Analyte	Result	EPA MCL	Laboratory Detection Limit	MDL	Units	Laboratory Qualifier	Analytical Method
<b>CYN-MW8</b> 10-Oct-17	Nitrate-Nitrite as Nitrogen	4.3	10	0.25	0.016	mg/L	B	353.2
<b>CYN-MW9</b> 12-Oct-17	Nitrate-Nitrite as Nitrogen	<b>27</b>	10	1.3	0.078	mg/L	B	353.2
<b>CYN-MW10</b> 11-Oct-17	Nitrate-Nitrite as Nitrogen	<b>10</b>	10	0.5	0.031	mg/L	B	353.2
<b>CYN-MW11</b> 10-Oct-17	Nitrate-Nitrite as Nitrogen	<b>14</b>	10	0.5	0.031	mg/L	B	353.2
<b>CYN-MW12</b> 12-Oct-17	Nitrate-Nitrite as Nitrogen	<b>12</b>	10	0.5	0.031	mg/L	B	353.2
<b>CYN-MW14A</b> 11-Oct-17	Nitrate-Nitrite as Nitrogen	<b>10</b>	10	0.5	0.031	mg/L	B	353.2
<b>CYN-MW15</b> 13-Oct-17	Nitrate-Nitrite as Nitrogen	<b>18</b>	10	1	0.062	mg/L	B	353.2
	Perchlorate	2.5	NE	4	2	ug/L	J	314.0
<b>CYN-MW15</b> 13-Oct-17 (Duplicate)	Nitrate-Nitrite as Nitrogen	<b>20</b>	10	1	0.062	mg/L	B	353.2
	Perchlorate	2.7	NE	4	2	ug/L	J	314.0

**Bold** = Data results exceed the established EPA MCL.

B = Compound was found in the blank and sample.

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NE = Not established

Table-2

Groundwater Quality Results: Total Petroleum Hydrocarbons Diesel Range Organics and Gasoline Range Organics

Sandia National Laboratories/ New Mexico Burn Site Groundwater Area of Concern

New Mexico Environment Department DOE Oversight Bureau

October 2017

Monitoring Well/ Sample Date	Analyte	Result (ug/L)	EPA MCL (ug/L)	Laboratory Detection Limit (ug/L)	MDL (ug/L)	Laboratory Qualifier	Analytical Method
<b>CYN-MW8</b> 10-Oct-17	TPH Diesel Range Organics	17	NE	54	17	U	8015M
	TPH Gasoline Range Organics	790	NE	2000	790	U	8015M
<b>CYN-MW9</b> 12-Oct-17	TPH Diesel Range Organics	17	NE	54	17	U	8015M
	TPH Gasoline Range Organics	790	NE	2000	790	U	8015M
<b>CYN-MW10</b> 11-Oct-17	TPH Diesel Range Organics	17	NE	54	17	U	8015M
	TPH Gasoline Range Organics	790	NE	2000	790	U	8015M
<b>CYN-MW11</b> 10-Oct-17	TPH Diesel Range Organics	17	NE	54	17	U	8015M
	TPH Gasoline Range Organics	790	NE	2000	790	U	8015M
<b>CYN-MW12</b> 12-Oct-17	TPH Diesel Range Organics	17	NE	54	17	U	8015M
	TPH Gasoline Range Organics	790	NE	2000	790	U	8015M
<b>CYN-MW14A</b> 11-Oct-17	TPH Diesel Range Organics	17	NE	55	17	U	8015M
	TPH Gasoline Range Organics	790	NE	2000	790	U	8015M
<b>CYN-MW15</b> 13-Oct-17	TPH Diesel Range Organics	17	NE	54	17	U	8015M
	TPH Gasoline Range Organics	790	NE	2000	790	U	8015M
<b>CYN-MW15</b> 13-Oct-17 (Duplicate)	TPH Diesel Range Organics	18	NE	56	18	U	8015M
	TPH Gasoline Range Organics	790	NE	2000	790	U	8015M

NE = Not Established

U = the analyte was analyzed for but not detected