



U. S. Department of Energy
Energy Technology Engineering Center
4100 Guardian Street, Suite 160
Simi Valley, CA 93063

November 28, 2018

Mr. Mark Malinowski
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826

Subject: 2018 Groundwater Level Monitoring Data

Dear Mark:

The attached report summarizes the United States Department of Energy (DOE) groundwater quarterly monitoring activities conducted during the third quarter (Q3) 2018 at Area IV within the Santa Susana Field Laboratory (SSFL), located in Ventura County, California. The Q3 2018 sampling activities met the objectives stated in the Site-Wide Groundwater Monitoring program and Site-Wide WQSAP except where noted above and in the body of this report. In general, sample results were consistent with historical results. Any newly detected sample results will be monitored in future sampling events. Areas of impact to groundwater from COCs remained consistent and will be further evaluated with the 2018 results to see if any changes are required.

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to evaluate the information submitted. I certify that the information contained in or accompanying this submittal is true, accurate, and complete. As to those identified portion(s) of this submittal for which I cannot personally verify the accuracy, I certify that this submittal and all attachments were prepared in accordance with procedures designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those directly responsible for gathering the information, or the immediate supervisor of such person(s), the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or concerns, please give me a call at (805) 416-0992.

Best regards,

A handwritten signature in black ink, appearing to read 'John Jones', written over the text 'Best regards,'.

John Jones
DOE/ETEC, Director

cc: Roger Paulson, DTSC
Tom Seckington, DTSC
Laura Rainey, DTSC
Buck King, DTSC
Stephie Jennings, DOE
Brad Frazee, North Wind
John Wondolleck, CDM
Mike Bower, Boeing
Pete Zorba, NASA
Dr. Keith Thomsen, NASA



October 8, 2018

NW-2018-202

John Jones
Department of Energy
4100 Guardian Street
Suite 160
Simi Valley, CA 93063

Subject: DE-EM0000837-DT0007583 Transmittal of Deliverable for Q3, 2018 Groundwater Level Monitoring Data

Dear Mr. Jones:

This letter is provided as the quarterly water level letter deliverable outlined in Section C.2.2. (7) of contract DE-EM0000837. During the 3rd quarter of 2018 the following tasks were accomplished; groundwater levels were collected from 63 wells, four wells were resampled, and CDM Smith continued work at the FSDF, HASA, and Building 4009 Leach Field.

Groundwater Level Measurements

On 1, 2 and 3 August 2018 North Wind, Inc. collected groundwater level monitoring data from 63 wells located in Area IV and the Northern Buffer Zone as part of the Santa Susana Field Laboratory Site-wide Groundwater Monitoring program. Attached are the groundwater level measurements collected. The data will be forwarded to Boeing, NASA, and CDM Smith, and submitted to the Department of Toxic Substances Control as part of the Boeing Q3, 2018 Groundwater Monitoring Report and the 2018 DOE Annual Groundwater Report.

Well Resampling

On 2 August 2018, at 0735, it was discovered that wells RD-33A and RD-33C had been tampered with. The lids of the protective casings had been pried open and the pump in RD-33C was missing. Well RD-33B was not damaged. The other wells in the area (PZ-097 and DD-139) were checked and they had not been tampered with or damaged. The protective lids of RD-33A and RD-33C were repaired, new well caps were installed on the casings, and both wells were locked. On 21 and 22, August, RD-33A and RD-33C were sampled for the full analytical suite that is currently being tested as part of the DOE Site-wide sampling program. Results are due the week of 10/01/2018 and will be include in the Q4 2018 letter.

Analytical results of groundwater samples collected in February 2018 showed concentrations of Sr-90 in the dissolved fraction of samples collected from Brandeis wells RD-59A and RD-59C. No detection of Sr-90 was reported in the total fraction of these samples and historical data show that Sr-90 has never been detected in these wells. The detection of Sr-90 in dissolved results but not total results indicates that the dissolved results may be a false positive. Based on this and the lack of historical detections, the laboratory was contacted to investigate if the results were potentially false positives due to laboratory error. After reevaluating the results, it was determined that there was no laboratory error; however, it was noted that the detections of dissolved Sr-90 were extremely low. The level of dissolved Sr-90 detected in RD-59A was 0.363 pCi/L and the minimum detectable concentration (MDC) was 0.320 pCi/L. The Sr-90 concentration in the dissolved fraction of the sample from RD-59C was 0.464 pCi/L and the MDC was 0.260 pCi/L. In comparison, the State of California Maximum Contaminant Level

(MCL) in drinking water for Sr-90 is 8.0 pCi/L . Concentrations this low are at the statistical boundary of the 95% confidence interval. Further evaluation of the results at the 99% confidence interval showed the detections could be statistically non-detect and false positives.

On 20 August 2018, wells RD-59A and RD-59C were resampled for Sr-90 (total and dissolved) to verify that these detections were in fact false positives. Split samples were also sent to GEL laboratories in Charleston, SC. The samples from Test America went through a Level IV validation and the results from both laboratories of these samples were non-detect for Sr-90 (total and dissolved).

The resample results from two independent laboratories indicating non-detect Sr-90 (total and dissolved) for wells RD-59A and RD-59C provide an additional line of evidence that the samples collected in February 2018 were anomalous and false positives.

Work Completed by CDM Smith

FSDf

- Continued the GWIM action using RS-54 (two pumping events), RS-54 never recovered after the late June pumping.
- Collected additional soil gas samples as part of VOC source investigation
- Drilled and sampled eight 60-foot bedrock cores at FSDf as part of the TCE/1,1,1-TCA source investigation. Results to be provided in technical memorandum
- Sampled groundwater collected in eight new coreholes.
- Collected additional soil gas samples as part of VOC source investigation

HMSA

- Collected passive soil gas samples as part of TCE source investigation
- Installed two new piezometers as part of investigation of the weathered bedrock groundwater.
- Conducted a step draw-down and continuous pump test of weathered bedrock groundwater
- Installed new deep well as cluster in center of HMSA.
- Drilled RD-89 about 100 feet deeper as RD-89 has traditionally been dry and is at a key location for the HMSA TCE and tritium plumes.

Building 4009 Leach Field

- Collected passive soil gas samples as of RD-91/B56 Landfill TCE source investigation

If you have any questions or need additional information please contact me at (208) 528-8718.

Sincerely,



Bradley J. Frazee
ETEC Program Manager

NW-2018-202
Mr. John Jones,
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Enclosure

cc:
File
John Blecher
Stewart Williford
Trina Cesnik

TABLE 3
WATER LEVEL DATA, THIRD QUARTER 2018
SANTA SUSANA FIELD LABORATORY AREA IV
VENTURA COUNTY, CALIFORNIA

Well Identifier	Geological Unit	Date of Measurement	Depth to Water (feet BTOC)	Reference Point Elevation (feet above MSL)	Static Water Level Elevation (feet above MSL)	Notes
PZ-097	Shallow	8/1/2018	Dry	1761.87	---	
PZ-108	Shallow	8/1/2018	22.97	1809.36	1786.39	
PZ-124	Shallow	8/2/2018	Dry	1764.11	---	
RD-07	Chatsworth	8/2/2018	101.33	1812.82	1711.49	
RD-14	Chatsworth	8/1/2018	110.81	1824.18	1713.37	
RD-17	Chatsworth	8/1/2018	46.29	1836.30	1790.01	
RD-19	Chatsworth	8/1/2018	93.50	1853.16	1759.66	
RD-20	Chatsworth	8/1/2018	52.09	1819.52	1767.43	
RD-21	Chatsworth	8/1/2018	107.51	1866.96	1759.45	
RD-22	Chatsworth	8/2/2018	298.64	1853.41	1554.77	1
RD-23	Chatsworth	8/2/2018	240.23	1838.19	1597.96	1
RD-24	Chatsworth	8/1/2018	47.77	1809.93	1762.16	
RD-27	Chatsworth	8/2/2018	65.78	1841.67	1775.89	
RD-29	Chatsworth	8/1/2018	23.72	1806.29	1782.57	
RD-30	Chatsworth	8/1/2018	28.00	1768.69	1740.69	
RD-33A	Chatsworth	8/2/2018	210.91	1792.97	1582.06	1
RD-33B	Chatsworth	8/2/2018	280.94	1793.72	1512.78	
RD-33C	Chatsworth	8/2/2018	283.05	1793.61	1510.56	
RD-34A	Chatsworth	8/1/2018	51.66	1761.91	1710.25	
RD-34B	Chatsworth	8/1/2018	66.30	1762.51	1696.21	
RD-34C	Chatsworth	8/1/2018	25.30	1762.79	1737.49	
RD-50	Chatsworth	8/2/2018	130.16	1914.88	1784.72	1
RD-54A	Chatsworth	8/2/2018	179.71	1841.72	1662.01	
RD-54B	Chatsworth	8/2/2018	243.70	1842.54	1598.84	
RD-54C	Chatsworth	8/2/2018	232.05	1843.77	1611.72	
RD-57	Chatsworth	8/2/2018	NA	1774.15	---	2
RD-59A	Chatsworth	8/3/2018	29.72	1340.59	1310.87	
RD-59B	Chatsworth Artesian	8/3/2018	19.25 psi	1342.49	---	3
RD-59C	Chatsworth Artesian	8/3/2018	19.25 psi	1345.41	---	3
RD-63	Chatsworth	8/1/2018	41.56	1764.83	1723.27	
RD-64	Chatsworth	8/2/2018	250.47	1857.04	1606.57	1
RD-65	Chatsworth	8/2/2018	220.76	1819.14	1598.38	
RD-74	Chatsworth	8/2/2018	Dry	1810.90	---	4
RD-87	Chatsworth	8/2/2018	56.84	1789.09	1732.25	
RD-88	Chatsworth	8/2/2018	Dry	1774.62	---	
RD-90	Chatsworth	8/2/2018	47.37	1784.75	1737.38	
RD-91	Chatsworth	8/2/2018	101.39	1818.04	1716.65	
RD-93	Chatsworth	8/2/2018	43.91	1810.48	1766.57	
RD-94	Chatsworth	8/2/2018	Dry	1744.38	1744.38	
RD-95	Chatsworth	8/2/2018	67.90	1811.36	1743.46	

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SANTA SUSANA FIELD LABORATORY AREA IV
VENTURA COUNTY, CALIFORNIA

Well Identifier	Geological Unit	Date of Measurement	Depth to Water (feet BTOC)	Reference Point Elevation (feet above MSL)	Static Water Level Elevation (feet above MSL)	Notes
RD-96	Chatsworth	8/2/2018	78.68	1805.49	1726.81	
RD-97	Chatsworth	8/2/2018	69.79	1792.22	1722.43	
RD-98	Chatsworth	8/2/2018	57.91	1808.73	1750.82	
RS-16	Shallow	8/2/2018	Dry	1811.05	---	
RS-18	Shallow	8/1/2018	Dry	1802.86	---	
RS-25	Shallow	8/1/2018	Dry	1862.71	---	
RS-27	Shallow	8/1/2018	Dry	1804.78	---	
RS-28	Shallow	8/2/2018	Dry	1768.59	---	
RS-54	Shallow	8/2/2018	41.40	1846.66	1805.26	5
DS-43	Shallow	8/2/2018	18.70	1809.52	1790.82	
DS-44	Shallow	8/2/2018	73.69	1851.21	1777.52	
DS-45	Shallow	8/2/2018	Dry	1866.58	---	
DS-46	Shallow	8/1/2018	41.45	1797.79	1756.34	
DS-47	Shallow	8/2/2018	111.74	1867.94	1756.20	
DD-139	Chatsworth	8/2/2018	181.80	1793.01	1611.21	
DD-140	Chatsworth	8/1/2018	158.80	1798.16	1639.36	
DD-141	Chatsworth	8/2/2018	77.75	1762.79	1685.04	
DD-142	Chatsworth	8/2/2018	66.10	1812.22	1746.12	
DD-143	Chatsworth	8/2/2018	47.21	1789.74	1742.53	
DD-144	Chatsworth	8/1/2018	25.15	1810.69	1785.54	
DD-145	Chatsworth	8/2/2018	29.41	1798.90	1769.49	
DD-147	Chatsworth	8/2/2018	53.68	1814.18	1760.50	6
C-8	Chatsworth	8/2/2018	202.92	1842.23	1639.31	

BTOC = below top of casing

MSL = Mean Sea Level

(1) = FLUTe removed, open borehole.

(2) = FLUTe partially removed, lid welded shut.

(3) = Pressure transducers installed on artesian well.

(4) = Obstruction at 95.1 ft.

(5) = RS-54 is currently being used as an extraction well and being pumped, weekly

(6) = Well RD-89 was drilled deeper and ID changed to DD-147.

--- = No data available or not applicable

Chatsworth = Chatsworth Formation groundwater unit.

Chatsworth Artesian = Chatsworth Formation groundwater unit - Artesian with hydrostatic head above land surface.

Shallow = Near Surface groundwater unit.

Static water level elevations were calculated using the following equation:

$$E_w = E - D + C$$

Where:

E_w = Elevation of water above mean sea level (feet)

E = Elevation above mean sea level at point of measurement (feet).

D = Depth to water (feet)

C = Calibration correction factor (feet)