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Date: AUG 2 1 2017
Symbol: EPC-DO: 17-274
LA-UR: 17-25771
Locates Action No.: U1601822

GROUND WATER
AUG 21 2017
BUREAU

Ms. Michelle Hunter, Chief
Ground Water Quality Bureau
New Mexico Environment Department
Harold Runnels Building, Room N2261
1190 St. Francis Drive
P.O. Box 26110
Santa Fe, NM 87502

Subject: **Quarterly Report – 2017 Quarter 2, Discharge Permit DP-1835, Class V Underground Injection Control Wells**

Dear Ms. Hunter:

On August 31, 2016, the New Mexico Environment Department (NMED) issued Discharge Permit (DP) 1835 to the U.S. Department of Energy and Los Alamos National Security, LLC (DOE/LANS) for the discharge of treated groundwater to the regional aquifer through up to six Class V Underground Injection Control (UIC) wells. Pursuant to Condition No. 10 of the above-referenced discharge permit, DOE/LANS are required to submit quarterly reports for the previous quarter to document:

1. *Influent and discharge volumes from the treatment systems;*
2. *Quarterly groundwater and treated effluent sampling results; and*
3. *Operations/Maintenance activities.*

Pursuant to Condition Nos. 11, 12, and 13 of DP-1835, the quarterly reports shall also contain general information, performance information, and monitoring data of treated effluent from each ion-exchange (IX) treatment system, respectively. During the 2017 April 1st through June 30th (Quarter 2) reporting period, discharge of treated groundwater to the regional aquifer continued under DP-1835. This treated discharge occurred at two of the six UIC wells: CrIN-4 and CrIN-5. The Quarterly Report – 2017 Quarter 2 (Enclosure 1) provides the information required under DP-1835 for this reporting period.

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1. *Influent and discharge volumes from the treatment systems;*
2. *Quarterly groundwater and treated effluent sampling results; and*
3. *Operations/Maintenance activities.*

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Please contact William J. Foley by telephone at (505) 665-8423 or by email at bfoley@lanl.gov if you have questions regarding this information.

Sincerely,

John C. Bretzke
Division Leader

Sincerely,

Cheryl L. Rodriguez
Program Manager, FPD-II

JCB/CLR/MTS/WJF:am

Enclosures:
(1) Quarterly Report for the Discharge of Treated Groundwater to the Regional Aquifer – 2017 Quarter 2, DP-1835
(2) Treated Effluent Analytical Results Summary Table – 2017 Quarter 2, DP-1835
(3) Groundwater Elevation Contour Map – 2017 Quarter 2, DP-1835
(4) Groundwater Monitoring Wells Analytical Results Summary Table – 2017 Quarter 2, DP-1835
(5) Treated Groundwater Injection and Extraction Summary Tables – 2017 Quarter 2, DP-1835
(6) Facility Layout Map – 2017 Quarter 2, DP-1835

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ENCLOSURE 1

Quarterly Report for the Discharge of
Treated Groundwater to the Regional Aquifer –
2017 Quarter 2, DP-1835

EPC-DO: 17-274

LA-UR-17-25771

U1601822

Date: AUG 2 1 2017

ENCLOSURE 1
Quarterly Report for the Discharge of Treated Groundwater to the Regional Aquifer – 2017 Quarter 2, DP-1835

Introduction. On August 31, 2016, the New Mexico Environment Department (NMED) issued Discharge Permit (DP) 1835 to the U.S. Department of Energy and Los Alamos National Security, LLC (DOE/LANS) for the discharge of treated groundwater to the regional aquifer through up to six Class V underground injection control (UIC) wells. Pursuant to Condition No. 10 of the above-referenced discharge permit, DOE/LANS are required to submit quarterly reports.

During the 2017 April 1 through June 30 (Quarter 2) reporting period, discharge of treated groundwater to the regional aquifer continued at two of the six UIC wells, CrIN-4 and CrIN-5, under DP-1835. Treated groundwater originated from extraction well CrEX-1 and was treated by chromium treatment unit (CTU) CTUA.

Condition No. 10 of DP-1835 required DOE/LANS to submit a quarterly report to NMED by September 1 for the April 1 – June 30 discharge period. Several conditions within the permit identify information to be submitted in the quarterly report. The following information, with condition references, are required in the quarterly report:

1. *Influent and discharge volumes for the ion exchange (IX) treatment systems (Condition No. 10);*
2. *Quarterly treated effluent sampling results from each IX treatment system (Condition Nos. 10 and 13);*
3. *Quarterly depth to groundwater and groundwater quality sampling results (Condition Nos. 10 and 14);*
4. *Any operations/maintenance activities performed (Condition No. 10);*
5. *Any periodic test of mechanical integrity conducted (Condition No. 11);*
6. *Any replacement of primary or secondary IX vessels or associated treatment system infrastructure (Condition No. 11);*
7. *Any well work-overs conducted (Condition No. 11);*
8. *Any additional operational changes with the potential to markedly affect the discharge (Condition No. 11);*
9. *Monthly average, maximum, and minimum values for flow rate and volume of treated effluent transferred to each UIC well (Condition No. 12);*
10. *Totalized monthly volume of treated effluent transferred to each UIC well (Condition No. 12);*
11. *Monthly average, maximum, and minimum values of injection water level, pressure head above static level for each UIC well (Condition No. 12);*
12. *Daily volume injected at each UIC well (Condition No. 12);*
13. *Daily volume pumped from each extraction well (Condition No. 12);*
14. *Facility layout map (Condition No. 12);*
15. *Groundwater Elevation Contour Map (Condition No. 15).*

Each of the above requirements is addressed in this report and referenced enclosures.

ENCLOSURE 1
Quarterly Report for the Discharge of Treated Groundwater to the Regional Aquifer – 2017 Quarter 2, DP-1835

Requirement 1: Influent and discharge volumes for the IX treatment system. Table 1 provides the influent and discharge volumes for IX treatment systems during 2017 Quarter 2 for activities completed under DP-1835. As previously identified, injection only occurred at UIC wells CrIN-4 and CrIN-5 during the quarter. Treated discharge originated from extraction well CrEX-1 and was treated with treatment unit CTUA.

Table 1. Total Influent and Discharge Volumes for IX Treatment Systems – 2017 Quarter 2

Treatment Unit	Influent Volume[1,3] (gal)	Effluent Volume[2,3] (gal)
CTUA	4,952,226	4,605,015
CTUB	N/A	N/A
CTUC	N/A	N/A

Notes:
N/A - treatment unit did not treat any groundwater that was subsequently injected during the quarter.
[1] Influent volume based on CrEX-1 extraction volume.
[2] Effluent volume based on combined CrIN-4 and CrIN-5 injection volume.
[3] Individual flow meter accurate to ±5%

Requirement 2: Quarterly treated effluent sampling results from each IX treatment system. Treated effluent analytical results from samples collected during 2017 Quarter 2 for activities completed under DP-1835 are summarized in Enclosure 2. No results for total chromium, nitrate-nitrogen (NO_3-N), perchlorate, sulfate, total dissolved solids, fluoride, or chloride exceeded 90% of the numeric standards of 20.6.2.3103 New Mexico Administrative Code (NMAC) or 90% of the numeric standards established for tap water in Table A-1 for constituents not listed in 20.6.2.3103 NMAC. The 90% values for chromium, nitrate-nitrogen (NO_3-N), perchlorate, sulfate, total dissolved solids, fluoride, or chloride are 45 µg/L, 9 mg/L, 12.4 µg/L, 540 mg/L, 900 mg/L, 1.44 mg/L, and 225 mg/L, respectively.

During 2017 Quarter 2 no annual compliance samples were obtained. As previously identified, all groundwater injected under DP-1835 was treated by CTUA. The CTUA annual compliance sample was obtained on February 6, 2017 with results reported in the 2017 Quarter 1 report (EPC-DO: 17-166) in accordance with Condition 13 of DP-1835.

Requirement 3: Quarterly depth to groundwater and groundwater quality sampling results. Table 2 provides the quarterly groundwater elevation measurements. Enclosure 3 provides a groundwater elevation contour map and an explanation of how this map was generated.

ENCLOSURE 1
Quarterly Report for the Discharge of Treated Groundwater to the Regional Aquifer – 2017 Quarter 2, DP-1835

Table 2. Groundwater Elevations Summary for Groundwater Monitoring Wells – 2017 Quarter 2

Monitoring Well	Groundwater Elevation[1] (ft)
CrCH-1	5836.38
CrCH-2 S1	5833.15
CrCH-2 S2	5833.26
CrCH-3	5834.47
CrCH-4	5837.06
CrCH-5	5836.00
R-11	5833.55
R-13	5831.86
R-43 S1	5835.55
R-43 S2	5834.84
R-44 S1	5832.83
R-44 S2	5832.51
R-45 S1	5832.61
R-45 S2	5832.62
R-50 S1	5834.21
R-50 S2	5833.82
R-61 S1	5835.74
R-61 S2	5835.88
R-62[2]	5838.66
SIMR-2[3]	5832.77
SIMR-2[4]	-

Notes
[1]Groundwater elevations provided based on April 28 daily average values from transducers.
[2]Groundwater elevation provided is June 13 value from transducer.
[3]First Quarter 2017 SIMR-2 data reported here in accordance with DP-1835 2017 Quarter 1 Report (EPC-DO: 17-166). Data was unavailable at the time of that report's preparation in accordance with the Memorandum of Agreement between Pueblo de San Ildefonso and DOE/LANS.
[4]Data has been collected but is unavailable at the time of this report's preparation in accordance with the Memorandum of Agreement between Pueblo de San Ildefonso and DOE/LANS. This data will be presented in the next quarterly report.

Quarterly groundwater analytical results from samples collected during 2017 Quarter 2 for the monitoring wells listed in Condition No. 14 are summarized in Table 3. Complete results related to these samples are provided in Enclosure 4.

ENCLOSURE 1
Quarterly Report for the Discharge of Treated Groundwater to the Regional Aquifer – 2017 Quarter 2, DP-1835

Table 3. Summary Table of Analytical Results for Groundwater Monitoring Wells 2017 Quarter 2

Location	Sample Date	Analyte[1]						
		Chloride (mg/L)	Perchlorate (µg/L)	Chromium (µg/L)	Fluoride (mg/L)	Nitrate-Nitrite as Nitrogen (mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)
R-11	5/5/2017	4.61	0.816	16.4	0.403	5.2	11.6	193
R-13	5/16/2017	2.68	0.418	4.12	0.274	0.734	3.63	147
R-43 S1	5/8/2017	9.39	0.878	172	0.362	4.98	19.0	190
R-43 S2	5/8/2017	6.3	0.892	14.5	0.31	3.38	9.19	173
R-44 S1	5/18/2017	2.56	0.431	13.9	0.321	1.18	3.6	150
R-44 S2	5/18/2017	2.4	0.335	6	0.345	0.736	2.83	126
R-45 S1	5/17/2017	6.07	0.605	41.7	0.326	3.13	9.34	160
R-45 S2	5/17/2017	4.44	0.411	20.6	0.393	0.906	5.21	153
R-50 S1	4/25/2017	-	-	117.7	-	-	-	-
R-50 S1	5/17/2018	8.48	0.598	128	0.291	2.07	14.3	161
R-50 S2	4/26/2017	-	-	3.9	-	-	-	-
R-50 S2	5/18/2017	2.32	0.346	3.98	0.383	0.477	2.75	133
R-62	5/8/2017	11.8	0.82	228	0.18	1.49	21.4	161
SIMR-2[2]	2/15/2017	2.17	0.429	5.19	0.138	0.66	2.79	160
SIMR-2[2]	3/30/2017	-	-	4.71	-	-	-	-
SIMR-2[3]	-	-	-	-	-	-	-	-

[1] Reported results are dissolved constituents

[2] 2017 Quarter 1 SIMR-2 data reported here in accordance with DP-1835 2017 Quarter 1 Report (EPC-DO: 17-166). Data was unavailable at the time of that report's preparation in accordance with the Memorandum of Agreement between Pueblo de San Ildefonso and DOE/LANS.

[3] Data has been collected but is unavailable at the time of this report's preparation in accordance with the Memorandum of Agreement between Pueblo de San Ildefonso and DOE/LANS. This data will be presented in the next quarterly report, if available.

NA - Not Available

Requirement 4: Any operations/maintenance activities performed. Table 4 provides a summary of all operations/maintenance activities performed during 2017 Quarter 2 for the extraction, treatment and injection system.

ENCLOSURE 1
Quarterly Report for the Discharge of Treated Groundwater to the Regional Aquifer – 2017 Quarter 2, DP-1835

Table 4. Operations and Maintenance Activity Summary Table 2017 Quarter 2

Maintenance Time Period	Elements Impacted	Maintenance Description
4/11	CTUA[1]	For treatment train C replaced primary IX vessel with the secondary IX vessel and a new secondary IX vessel installed.
4/27 – 5/30	CrEX-1, CTUA, CrIN-4, and CrIN-5	Injection of treated groundwater did not occur due to: 1. CrEX-2 aquifer testing being completed and 2. Pipeline construction activities limited site access to the CrEX-1, CTUA, CrIN-4, and CrIN-5 locations
5/10	CTUA[1]	For treatment train A replaced primary IX vessel with the secondary IX vessel and a new secondary IX vessel installed.
6/26 through end of reporting period	CrEX-1, CTUA, CrIN-4, and CrIN-5	Injection of treated groundwater did not occur to allow re-location of the CTUA treatment skid.[2]

[1] Treatment unit CTUA contains three treatment trains: train A, train B, and train C.
[2] Re-location includes only the treatment skid and not the treatment unit. As a result of this activity the treatment unit will be re-named and the new name reported in the 2017 Quarter 3 report.

Requirement 5: Any periodic test of mechanical integrity conducted. Periodic testing of mechanical integrity was not conducted during 2017 Quarter 2. As indicated in the 2016 Quarter 4 report, DOE/LANS submitted documentation demonstrating initial mechanical integrity of the distribution piping and UIC wells for treatment unit CTUA, CrIN-4, and CrIN-5. In accordance with Condition No. 3 the next required integrity test of these items will occur within 5 yr of the initial test unless an UIC well is reconfigured. In this scenario, a mechanical integrity test before reinjection of treated effluent at that well will be completed pursuant to Condition No. 3.

Requirement 6: Any replacement of primary or secondary IX vessels or associated treatment system infrastructure. Replacement of primary and secondary IX vessels occurred for treatment unit CTUA during the reporting period as cited in Requirement 4.

Requirement 7: Any well work-overs conducted. Well work-overs did not occur during 2017 Quarter 2.

Requirement 8: Any additional operational changes with the potential to markedly affect the discharge. Other than when the activities cited in Requirement 4, no additional operational changes occurred during the reporting period. As previously discussed, the IX treatment trains which have been part of the CTUA treatment unit are not being re-located with the CTUA treatment skid. Therefore, no operational changes are anticipated as a result of this change.

Requirement 9: Monthly average, maximum, and minimum values for flow rate and volume of treated effluent transferred to each UIC well. Table 5 provides the monthly average, maximum, and minimum values for flow rate and volume of treated effluent transferred to each well in 2017 Quarter 2.

ENCLOSURE 1
Quarterly Report for the Discharge of Treated Groundwater to the Regional Aquifer – 2017 Quarter 2, DP-1835

Table 5. Flows and Volumes of Treated Effluent Injected – 2017 Quarter 2

UIC Well	Flow rate (gpm)			Volume (gal)		
	Average	Maximum	Minimum	Average	Maximum	Minimum
	April					
CrIN-1[1]	N/A	N/A	N/A	N/A	N/A	N/A
CrIN-2[1]	N/A	N/A	N/A	N/A	N/A	N/A
CrIN-3[1]	N/A	N/A	N/A	N/A	N/A	N/A
CrIN-4	35.1	37.2	32.2	39,889	56,171	27,710
CrIN-5	38.3	41.5	36.3	51,443	66,361	27,602
CrIN-6[2]	N/A	N/A	N/A	N/A	N/A	N/A
	May					
CrIN-1[1]	N/A	N/A	N/A	N/A	N/A	N/A
CrIN-2[1]	N/A	N/A	N/A	N/A	N/A	N/A
CrIN-3[1]	N/A	N/A	N/A	N/A	N/A	N/A
CrIN-4	33.9	34.6	33.2	19,029	31,235	6,823
CrIN-5	36.0	38.8	33.1	22,294	39,216	5,371
CrIN-6[2]	N/A	N/A	N/A	N/A	N/A	N/A
	June					
CrIN-1[1]	N/A	N/A	N/A	N/A	N/A	N/A
CrIN-2[1]	N/A	N/A	N/A	N/A	N/A	N/A
CrIN-3[1]	N/A	N/A	N/A	N/A	N/A	N/A
CrIN-4	35.5	40.4	33.0	39,766	54,636	26,797
CrIN-5	37.6	42.6	33.0	39,326	54,464	29,221
CrIN-6[2]	N/A	N/A	N/A	N/A	N/A	N/A

Notes:
N/A = Treated groundwater not injected during the month at this location.
[1] UIC well constructed, but connections not completed/approved to begin injection of treated groundwater.
[2] UIC well under construction at end of quarter.

Requirement 10: Totalized monthly volume of treated effluent transferred to each UIC well. Table 6 provides totalized monthly volumes of treated effluent transferred to each well. As previously identified, injection only occurred at UIC wells CrIN-4 and CrIN-5 during the quarter.

Table 6. Totalized Monthly Volumes Injected by Well – 2017 Quarter 2

UIC Well	April (gal)	May (gal)	June (gal)
CrIN-1[1]	N/A	N/A	N/A
CrIN-2[1]	N/A	N/A	N/A
CrIN-3[1]	N/A	N/A	N/A
CrIN-4	1,077,009	38,058	1,033,916
CrIN-5	1,388,963	44,587	1,022,482
CrIN-6[2]	N/A	N/A	N/A

Notes:
N/A = Treated groundwater not injected during the quarter at this location.
[1] UIC well constructed, but connections not completed/approved to begin injection of treated groundwater.
[2] UIC well under construction at end of quarter.

Requirement 11: Monthly average, maximum, and minimum values of injection water level (pressure) head above static level for each UIC well. Table 7 provides the monthly average, maximum, and minimum values for injection water level above static level for each UIC well. As previously indicated, injection only occurred at UIC wells CrIN-4 and CrIN-5 during the quarter.

Table 7. Water Level Values Above Static Level by UIC Well – 2017 Quarter 2

UIC Well	April			May			June		
	Average (ft)	Maximum (ft)	Minimum (ft)	Average (ft)	Maximum (ft)	Minimum (ft)	Average (ft)	Maximum (ft)	Minimum (ft)
CrIN-1[1]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CrIN-2[1]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CrIN-3[1]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CrIN-4	3.68	4.40	2.70	3.25	3.30	3.20	3.38	3.90	2.50
CrIN-5	4.37	4.75	4.15	3.85	4.10	3.60	4.08	4.50	3.60
CrIN-6[2]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes:
N/A = Treated groundwater not injected during the month at this location.
[1] UIC well constructed, but connections not completed/approved to begin injection of treated groundwater.
[2] UIC well under construction at end of quarter.

ENCLOSURE 1
Quarterly Report for the Discharge of Treated Groundwater to the Regional Aquifer – 2017 Quarter 2, DP-1835

Requirement 12: Daily volume injected at each UIC well. Daily volumes of treated groundwater injected at CrIN-4 and CrIN-5 during 2017 Quarter 2 are provided in Enclosure 5.

Requirement 13: Daily volume pumped from each extraction well. Daily volumes of groundwater pumped from CrEX-1 during 2017 Quarter 2, which was subsequently treated and injected at CrIN-4 and CrIN-5, are provided in Enclosure 5.

Requirement 14: Facility layout map. The facility layout map for 2017 Quarter 2 showing the location and number of each well is provided in Enclosure 6.

Requirement 15: Groundwater Elevation Contour Map. Enclosure 3 provides the groundwater elevation contour map and an explanation of how this map was generated.

ENCLOSURE 2

Treated Effluent Analytical
Results Summary Table –
2017 Quarter 2, DP-1835

EPC-DO: 17-274

LA-UR-17-25771

U1601822

Date: AUG 2 1 2017

ENCLOSURE 2

Table E2-1

Treated Effluent Analytical Results Summary Table - 2017 Quarter 2, DP-1835

Location ID	Sample ID	Sample Date	Parameter Name	Result	Report Units	Lab Qualifier	Detect Flag	Filtered	Lab Method	Report Detection Limit
CTUA	CTUA-17-131781	04/12/17	Chloride	41.7	mg/L		Y	Y	EPA:300.0	0.670
CTUA	CTUA-17-131780	04/26/17	Chloride	14.0	mg/L		Y	Y	EPA:300.0	0.134
CTUA	CTUA-17-131773	05/31/17	Chloride	40.3	mg/L		Y	Y	EPA:300.0	0.670
CTUA	CTUA-17-131775	06/07/17	Chloride	16.0	mg/L		Y	Y	EPA:300.0	0.134
CTUA	CTUA-17-131778	06/14/17	Chloride	13.9	mg/L		Y	Y	EPA:300.0	0.134
CTUA	CTUA-17-139169	06/21/17	Chloride	14.2	mg/L		Y	Y	EPA:300.0	0.134
CTUA	CTUA-17-139171	06/26/17	Chloride	14.0	mg/L		Y	Y	EPA:300.0	0.134
CTUA	CTUA-17-131781	04/12/17	Chromium	3	ug/L	U	N	Y	SW-846:6020	3
CTUA	CTUA-17-131780	04/26/17	Chromium	3	ug/L	U	N	Y	SW-846:6020	3
CTUA	CTUA-17-131773	05/31/17	Chromium	3	ug/L	U	N	Y	SW-846:6020	3
CTUA	CTUA-17-131775	06/07/17	Chromium	3	ug/L	U	N	Y	SW-846:6020	3
CTUA	CTUA-17-131778	06/14/17	Chromium	3	ug/L	U	N	Y	SW-846:6020	3
CTUA	CTUA-17-139169	06/21/17	Chromium	3	ug/L	U	N	Y	SW-846:6020	3
CTUA	CTUA-17-139171	06/26/17	Chromium	3	ug/L	U	N	Y	SW-846:6020	3
CTUA	CTUA-17-131781	04/12/17	Fluoride	0.343	mg/L		Y	Y	EPA:300.0	0.033
CTUA	CTUA-17-131780	04/26/17	Fluoride	0.245	mg/L		Y	Y	EPA:300.0	0.033
CTUA	CTUA-17-131773	05/31/17	Fluoride	0.268	mg/L		Y	Y	EPA:300.0	0.033
CTUA	CTUA-17-131775	06/07/17	Fluoride	0.275	mg/L		Y	Y	EPA:300.0	0.033
CTUA	CTUA-17-131778	06/14/17	Fluoride	0.210	mg/L		Y	Y	EPA:300.0	0.033
CTUA	CTUA-17-139169	06/21/17	Fluoride	0.259	mg/L		Y	Y	EPA:300.0	0.033
CTUA	CTUA-17-139171	06/26/17	Fluoride	0.235	mg/L		Y	Y	EPA:300.0	0.033
CTUA	CTUA-17-131781	04/12/17	Nitrate-Nitrite as Nitrogen	1.25	mg/L		Y	Y	EPA:353.2	0.085
CTUA	CTUA-17-131780	04/26/17	Nitrate-Nitrite as Nitrogen	3.01	mg/L		Y	Y	EPA:353.2	0.085
CTUA	CTUA-17-131773	05/31/17	Nitrate-Nitrite as Nitrogen	1.37	mg/L		Y	Y	EPA:353.2	0.017
CTUA	CTUA-17-131775	06/07/17	Nitrate-Nitrite as Nitrogen	3.01	mg/L		Y	Y	EPA:353.2	0.085
CTUA	CTUA-17-131778	06/14/17	Nitrate-Nitrite as Nitrogen	2.47	mg/L		Y	Y	EPA:353.2	0.085
CTUA	CTUA-17-139169	06/21/17	Nitrate-Nitrite as Nitrogen	2.52	mg/L		Y	Y	EPA:353.2	0.085
CTUA	CTUA-17-139171	06/26/17	Nitrate-Nitrite as Nitrogen	2.62	mg/L		Y	Y	EPA:353.2	0.085
CTUA	CTUA-17-131781	04/12/17	Perchlorate	0.0984	ug/L	J	Y	Y	SW-846:6850	0.05
CTUA	CTUA-17-131780	04/26/17	Perchlorate	0.125	ug/L	J	Y	Y	SW-846:6850	0.05

ENCLOSURE 2

Table E2-1

Treated Effluent Analytical Results Summary Table - 2017 Quarter 2, DP-1835

Location ID	Sample ID	Sample Date	Parameter Name	Result	Report Units	Lab Qualifier	Detect Flag	Filtered	Lab Method	Report Detection Limit
CTUA	CTUA-17-131773	05/31/17	Perchlorate	0.0647	ug/L	J	Y	Y	SW-846:6850	0.05
CTUA	CTUA-17-131775	06/07/17	Perchlorate	0.107	ug/L	J	Y	Y	SW-846:6850	0.05
CTUA	CTUA-17-131778	06/14/17	Perchlorate	0.141	ug/L	J	Y	Y	SW-846:6850	0.05
CTUA	CTUA-17-139169	06/21/17	Perchlorate	0.162	ug/L	J	Y	Y	SW-846:6850	0.05
CTUA	CTUA-17-139171	06/26/17	Perchlorate	0.203	ug/L		Y	Y	SW-846:6850	0.05
CTUA	CTUA-17-131781	04/12/17	Sulfate	11.0	mg/L		Y	Y	EPA:300.0	0.133
CTUA	CTUA-17-131780	04/26/17	Sulfate	20.4	mg/L		Y	Y	EPA:300.0	0.266
CTUA	CTUA-17-131773	05/31/17	Sulfate	11.4	mg/L		Y	Y	EPA:300.0	0.133
CTUA	CTUA-17-131775	06/07/17	Sulfate	11.7	mg/L		Y	Y	EPA:300.0	0.133
CTUA	CTUA-17-131778	06/14/17	Sulfate	20.2	mg/L		Y	Y	EPA:300.0	0.266
CTUA	CTUA-17-139169	06/21/17	Sulfate	21.2	mg/L		Y	Y	EPA:300.0	0.266
CTUA	CTUA-17-139171	06/26/17	Sulfate	20.8	mg/L		Y	Y	EPA:300.0	0.266
CTUA	CTUA-17-131781	04/12/17	Total Dissolved Solids	249	mg/L		Y	Y	EPA:160.1	3.4
CTUA	CTUA-17-131780	04/26/17	Total Dissolved Solids	207	mg/L		Y	Y	EPA:160.1	3.4
CTUA	CTUA-17-131773	05/31/17	Total Dissolved Solids	221	mg/L		Y	Y	EPA:160.1	3.4
CTUA	CTUA-17-131775	06/07/17	Total Dissolved Solids	207	mg/L		Y	Y	EPA:160.1	3.4
CTUA	CTUA-17-131778	06/14/17	Total Dissolved Solids	226	mg/L		Y	Y	EPA:160.1	3.4
CTUA	CTUA-17-139169	06/21/17	Total Dissolved Solids	156	mg/L		Y	Y	EPA:160.1	3.4
CTUA	CTUA-17-139171	06/26/17	Total Dissolved Solids	216	mg/L		Y	Y	EPA:160.1	3.4

Notes:

U - in the lab qualifier column means analyte is classified as not detected.

J - in the lab qualifier comment means the analyte is classified as estimated.

N - in the detect flag column means the analyte was undetected.

Y - in the detect flag column means the analyte was detected.

ENCLOSURE 3

Groundwater Elevation Contour Map –
2017 Quarter 2, DP-1835

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Date: AUG 2 1 2017

ENCLOSURE 3

Explanation of groundwater elevation contour map. The regional aquifer beneath Los Alamos National Laboratory (LANL) is a complex hydrogeological system. The top of the aquifer is predominantly under phreatic (water-table) conditions, including in the area of the chromium plume beneath Mortandad Canyon. Groundwater flow directions and fluxes that control contaminant transport in the aquifer are generally dictated by the shape of the regional water table. The general shape of the regional water table beneath Pajarito Plateau is predominantly controlled by the areas of regional recharge to the west (the flanks of Sierra de los Valles and the Pajarito fault zone) and discharge to the east (the Rio Grande and the White Rock Canyon Springs). At more local scales such as the chromium site, the structure of the regional phreatic flow is also expected to be influenced by (1) local infiltration zones (e.g., beneath canyons); (2) heterogeneity and anisotropy in the aquifer properties; and (3) discharge zones (municipal water-supply wells, springs, and extraction wells within the chromium project area).

At the chromium site, the water-table elevations vary in time as a result of transient effects that include (1) extraction-well pumping in the chromium project area from extraction wells and (2) injection wells, and pumping of Los Alamos County's water-supply wells. The effects of water-supply pumping are very small compared to the local effect that may be caused by extraction and injection at project wells. Furthermore, a long-term water decline of about 0.5-1 ft/yr is observed in the regional water levels throughout the aquifer beneath the Pajarito Plateau. The decline might be caused by long-term changes in the aquifer recharge and discharge conditions.

Because of the long-term declines and pumping transients described above, the water-level data and the respective water-table maps are time dependent and representative of specific periods of time. This water-table map uses the average water-level data for May 2017. The averaged water levels are computed for the well screens near the water table in the chromium project area. Well screens deeper in the aquifer (>~75 ft) such as R-35a, R-44 Screen 2 and R-45 Screen 2 are not included in the analysis. The actual water levels applied in the contouring process are shown next to each well in Figure E3-1.

The process of water-table contouring is theoretically constrained by conformity rules: (1) the contour lines should be perpendicular to the flowpaths and (2) the length and the width of the flownet cells formed by the contour lines between two adjacent flowpaths should have the same ratios. These rules are theoretically valid only for the case of two-dimensional (lateral) groundwater flow in a uniform, isotropic aquifer with no recharge/discharge sources within flownet cells. Deviations from the conformity rules are caused by three-dimensional flow effects, aquifer heterogeneity and anisotropy as well as groundwater recharge/discharge wells/zones. This water table map, Figure E3-1, is contoured by attempting to satisfy the following goals simultaneously: (1) to match the water-level data at the monitoring wells, (2) to generally preserve flownet conformity, (3) to account for pumping effects, (4) to account for injection effects, and (5) to account for conceptual models of groundwater flow in the regional aquifer. The contouring is performed using a combination of manual and automated techniques; the automated contouring is done using the Minimum Curvature Surface method.

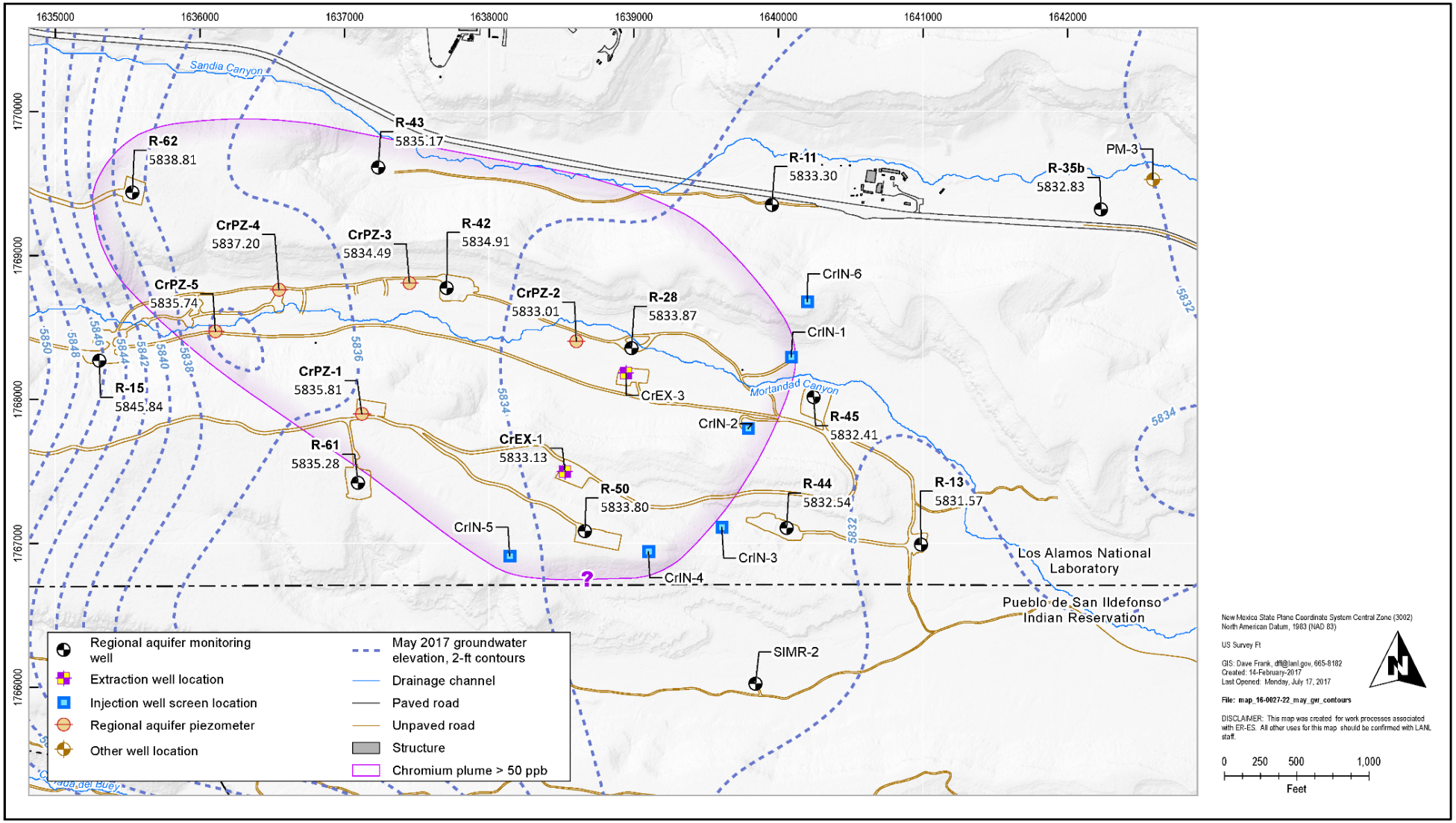
Long-term water-level data suggests that the water table is quite flat in the area of the chromium plume. The low gradient in this area may be related to: (1) the relatively high permeability of Puye Formation and Miocene pumiceous sediments, (2) anisotropy of the regional aquifer, (3) localized aquifer recharge along the canyons above the regional aquifer, (4) faults or other lineaments that affect regional-scale hydraulic conductivity, and (5) nearby water-supply

pumping. Note that observations of transients in the water levels observed at the monitoring wells within the plume (e.g., R-28, R-11, R-36, R-35b, R-42, R-43, and R-50) do not appear to be substantially affected by the water-supply pumping at the nearby production wells (PM-3, PM-5, PM-2, PM-4, and O-4) (LANL 2009, 107453).

CrEX-1 was pumped continuously for most of this reporting quarter. The exception is the period between April 27 and May 30. In addition, pumping of CrEX-1 also stopped on June 26 and had not re-started by the end of the reporting period. CrEX-3 was not pumped during the quarter except during sampling events. Injection wells CrIN-4 and CrIN-5 received treated water from CrEX-1 during the periods when CrEX-1 was pumping.

ENCLOSURE 3

Figure E3-1. Groundwater Elevation Contour Map – 2017 Quarter 2, DP-1835



ENCLOSURE 4

Groundwater Monitoring Wells
Analytical Results Summary Table –
2017 Quarter 2, DP-1835

EPC-DO: 17-274

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Date: AUG 2 1 2017

ENCLOSURE 4
Table E4-1
Groundwater Monitoring Wells Analytical Results Summary Table - 2017 Quarter 2, DP1835

Sample	Location ID	Sample Date	Parameter Name	Result	Report Units	Lab Qualifier	Detect Flag	Filtered	Lab Method	Report Detection Limit
CAMO-17-132319	R-11	05-05-2017	Chloride	4.61	mg/L		Y	Y	EPA:300.0	0.2
CAMO-17-132319	R-11	05-05-2017	Perchlorate	0.816	ug/L		Y	Y	SW-846:6850	0.2
CAMO-17-132319	R-11	05-05-2017	Chromium	16.4	ug/L		Y	Y	SW-846:6020	10.0
CAMO-17-132319	R-11	05-05-2017	Fluoride	0.403	mg/L		Y	Y	EPA:300.0	0.1
CAMO-17-132319	R-11	05-05-2017	Nitrate-Nitrite as Nitrogen	5.2	mg/L		Y	Y	EPA:353.2	1.25
CAMO-17-132319	R-11	05-05-2017	Sulfate	11.6	mg/L		Y	Y	EPA:300.0	0.4
CAMO-17-132319	R-11	05-05-2017	Total Dissolved Solids	193	mg/L		Y	Y	EPA:160.1	14.3
CAMO-17-132202	R-13	05-16-2017	Chloride	2.68	mg/L		Y	Y	EPA:300.0	0.2
CAMO-17-132202	R-13	05-16-2017	Perchlorate	0.418	ug/L		Y	Y	SW-846:6850	0.2
CAMO-17-132202	R-13	05-16-2017	Chromium	4.12	ug/L	J	Y	Y	SW-846:6020	10.0
CAMO-17-132202	R-13	05-16-2017	Fluoride	0.274	mg/L		Y	Y	EPA:300.0	0.1
CAMO-17-132202	R-13	05-16-2017	Nitrate-Nitrite as Nitrogen	0.734	mg/L		Y	Y	EPA:353.2	0.05
CAMO-17-132202	R-13	05-16-2017	Sulfate	3.63	mg/L		Y	Y	EPA:300.0	0.4
CAMO-17-132202	R-13	05-16-2017	Total Dissolved Solids	147	mg/L		Y	Y	EPA:160.1	14.3
CASA-17-132323	R-43 S1	05-08-2017	Chloride	9.39	mg/L		Y	Y	EPA:300.0	0.2
CASA-17-132323	R-43 S1	05-08-2017	Perchlorate	0.878	ug/L		Y	Y	SW-846:6850	0.2
CASA-17-132323	R-43 S1	05-08-2017	Chromium	172	ug/L		Y	Y	SW-846:6020	50.0
CASA-17-132323	R-43 S1	05-08-2017	Fluoride	0.362	mg/L		Y	Y	EPA:300.0	0.1
CASA-17-132323	R-43 S1	05-08-2017	Nitrate-Nitrite as Nitrogen	4.98	mg/L		Y	Y	EPA:353.2	1.25
CASA-17-132323	R-43 S1	05-08-2017	Sulfate	19.0	mg/L		Y	Y	EPA:300.0	0.4
CASA-17-132323	R-43 S1	05-08-2017	Total Dissolved Solids	190	mg/L		Y	Y	EPA:160.1	14.3
CASA-17-132324	R-43 S2	05-08-2017	Chloride	6.3	mg/L		Y	Y	EPA:300.0	0.2
CASA-17-132324	R-43 S2	05-08-2017	Perchlorate	0.892	ug/L		Y	Y	SW-846:6850	0.2
CASA-17-132324	R-43 S2	05-08-2017	Chromium	14.5	ug/L		Y	Y	SW-846:6020	10.0
CASA-17-132324	R-43 S2	05-08-2017	Fluoride	0.31	mg/L		Y	Y	EPA:300.0	0.1
CASA-17-132324	R-43 S2	05-08-2017	Nitrate-Nitrite as Nitrogen	3.38	mg/L		Y	Y	EPA:353.2	1.25
CASA-17-132324	R-43 S2	05-08-2017	Sulfate	9.19	mg/L		Y	Y	EPA:300.0	0.4
CASA-17-132324	R-43 S2	05-08-2017	Total Dissolved Solids	173	mg/L		Y	Y	EPA:160.1	14.3
CAMO-17-132523	R-44 S1	05-18-2017	Chloride	2.56	mg/L		Y	Y	EPA:300.0	0.2
CAMO-17-132523	R-44 S1	05-18-2017	Perchlorate	0.431	ug/L		Y	Y	SW-846:6850	0.2
CAMO-17-132523	R-44 S1	05-18-2017	Chromium	13.9	ug/L		Y	Y	SW-846:6020	10.0
CAMO-17-132523	R-44 S1	05-18-2017	Fluoride	0.321	mg/L		Y	Y	EPA:300.0	0.1
CAMO-17-132523	R-44 S1	05-18-2017	Nitrate-Nitrite as Nitrogen	1.18	mg/L		Y	Y	EPA:353.2	0.05
CAMO-17-132523	R-44 S1	05-18-2017	Sulfate	3.64	mg/L		Y	Y	EPA:300.0	0.4

ENCLOSURE 4
Table E4-1
Groundwater Monitoring Wells Analytical Results Summary Table - 2017 Quarter 2, DP1835

Sample	Location ID	Sample Date	Parameter Name	Result	Report Units	Lab Qualifier	Detect Flag	Filtered	Lab Method	Report Detection Limit
CAMO-17-132523	R-44 S1	05-18-2017	Total Dissolved Solids	150	mg/L		Y	Y	EPA:160.1	14.3
CAMO-17-132210	R-44 S2	05-18-2017	Chloride	2.4	mg/L		Y	Y	EPA:300.0	0.2
CAMO-17-132210	R-44 S2	05-18-2017	Perchlorate	0.335	ug/L		Y	Y	SW-846:6850	0.2
CAMO-17-132210	R-44 S2	05-18-2017	Chromium	6	ug/L	J	Y	Y	SW-846:6020	10.0
CAMO-17-132210	R-44 S2	05-18-2017	Fluoride	0.345	mg/L		Y	Y	EPA:300.0	0.1
CAMO-17-132210	R-44 S2	05-18-2017	Nitrate-Nitrite as Nitrogen	0.736	mg/L		Y	Y	EPA:353.2	0.05
CAMO-17-132210	R-44 S2	05-18-2017	Sulfate	2.83	mg/L		Y	Y	EPA:300.0	0.4
CAMO-17-132210	R-44 S2	05-18-2017	Total Dissolved Solids	126	mg/L		Y	Y	EPA:160.1	14.3
CAMO-17-132211	R-45 S1	05-17-2017	Chloride	6.07	mg/L		Y	Y	EPA:300.0	0.2
CAMO-17-132211	R-45 S1	05-17-2017	Perchlorate	0.605	ug/L		Y	Y	SW-846:6850	0.2
CAMO-17-132211	R-45 S1	05-17-2017	Chromium	41.7	ug/L		Y	Y	SW-846:6020	10.0
CAMO-17-132211	R-45 S1	05-17-2017	Fluoride	0.326	mg/L		Y	Y	EPA:300.0	0.1
CAMO-17-132211	R-45 S1	05-17-2017	Nitrate-Nitrite as Nitrogen	3.13	mg/L		Y	Y	EPA:353.2	0.5
CAMO-17-132211	R-45 S1	05-17-2017	Sulfate	9.34	mg/L		Y	Y	EPA:300.0	0.4
CAMO-17-132211	R-45 S1	05-17-2017	Total Dissolved Solids	160	mg/L		Y	Y	EPA:160.1	14.3
CAMO-17-132212	R-45 S2	05-17-2017	Chloride	4.44	mg/L		Y	Y	EPA:300.0	0.2
CAMO-17-132212	R-45 S2	05-17-2017	Perchlorate	0.411	ug/L		Y	Y	SW-846:6850	0.2
CAMO-17-132212	R-45 S2	05-17-2017	Chromium	20.6	ug/L		Y	Y	SW-846:6020	10.0
CAMO-17-132212	R-45 S2	05-17-2017	Fluoride	0.393	mg/L		Y	Y	EPA:300.0	0.1
CAMO-17-132212	R-45 S2	05-17-2017	Nitrate-Nitrite as Nitrogen	0.906	mg/L		Y	Y	EPA:353.2	0.05
CAMO-17-132212	R-45 S2	05-17-2017	Sulfate	5.21	mg/L		Y	Y	EPA:300.0	0.4
CAMO-17-132212	R-45 S2	05-17-2017	Total Dissolved Solids	153	mg/L		Y	Y	EPA:160.1	14.3
CAMO-17-132659	R-50 S1	04-25-2017	Chromium	117.7	ug/L		Y	Y	EPA:200.8	
CAMO-17-132214	R-50 S1	05-17-2018	Chloride	8.48	mg/L		Y	Y	EPA:300.0	0.4
CAMO-17-132214	R-50 S1	05-17-2018	Perchlorate	0.598	ug/L		Y	Y	SW-846:6850	0.2
CAMO-17-132214	R-50 S1	05-17-2018	Chromium	128	ug/L		Y	Y	SW-846:6020	10.0
CAMO-17-132214	R-50 S1	05-17-2018	Fluoride	0.291	mg/L		Y	Y	EPA:300.0	0.1
CAMO-17-132214	R-50 S1	05-17-2018	Nitrate-Nitrite as Nitrogen	2.07	mg/L		Y	Y	EPA:353.2	0.25
CAMO-17-132214	R-50 S1	05-17-2018	Sulfate	14.3	mg/L		Y	Y	EPA:300.0	0.4
CAMO-17-132214	R-50 S1	05-17-2018	Total Dissolved Solids	161	mg/L		Y	Y	EPA:160.1	14.3
CAMO-17-132660	R-50 S2	04-26-2017	Chromium	3.87	ug/L		Y	Y	EPA:200.8	
CAMO-17-132215	R-50 S2	05-18-2017	Chloride	2.32	mg/L		Y	Y	EPA:300.0	0.2
CAMO-17-132215	R-50 S2	05-18-2017	Perchlorate	0.346	ug/L		Y	Y	SW-846:6850	0.2
CAMO-17-132215	R-50 S2	05-18-2017	Chromium	3.98	ug/L	J	Y	Y	SW-846:6020	10.0

ENCLOSURE 4

Table E4-1

Groundwater Monitoring Wells Analytical Results Summary Table - 2017 Quarter 2, DP1835

Sample	Location ID	Sample Date	Parameter Name	Result	Report Units	Lab Qualifier	Detect Flag	Filtered	Lab Method	Report Detection Limit
CAMO-17-132215	R-50 S2	05-18-2017	Fluoride	0.383	mg/L		Y	Y	EPA:300.0	0.1
CAMO-17-132215	R-50 S2	05-18-2017	Nitrate-Nitrite as Nitrogen	0.477	mg/L		Y	Y	EPA:353.2	0.05
CAMO-17-132215	R-50 S2	05-18-2017	Sulfate	2.75	mg/L		Y	Y	EPA:300.0	0.4
CAMO-17-132215	R-50 S2	05-18-2017	Total Dissolved Solids	133	mg/L		Y	Y	EPA:160.1	14.3
CAMO-17-132524	R-62	05-08-2017	Chloride	11.8	mg/L		Y	Y	EPA:300.0	0.4
CAMO-17-132524	R-62	05-08-2017	Perchlorate	0.82	ug/L		Y	Y	SW-846:6850	0.2
CAMO-17-132524	R-62	05-08-2017	Chromium	228	ug/L		Y	Y	SW-846:6020	50.0
CAMO-17-132524	R-62	05-08-2017	Fluoride	0.18	mg/L		Y	Y	EPA:300.0	0.1
CAMO-17-132524	R-62	05-08-2017	Nitrate-Nitrite as Nitrogen	1.49	mg/L		Y	Y	EPA:353.2	0.5
CAMO-17-132524	R-62	05-08-2017	Sulfate	21.4	mg/L		Y	Y	EPA:300.0	0.8
CAMO-17-132524	R-62	05-08-2017	Total Dissolved Solids	161	mg/L		Y	Y	EPA:160.1	14.3
CAMO-17-129304	SIMR-2[2]	02-15-2017	Chloride	2.17	mg/L		Y	Y	EPA:300.0	0.2
CAMO-17-129304	SIMR-2[2]	02-15-2017	Perchlorate	0.429	ug/L		Y	Y	SW-846:6850	0.2
CAMO-17-129304	SIMR-2[2]	02-15-2017	Chromium	5.19	ug/L	J	Y	Y	SW-846:6020	10.0
CAMO-17-129304	SIMR-2[2]	02-15-2017	Fluoride	0.138	mg/L		Y	Y	EPA:300.0	0.1
CAMO-17-129304	SIMR-2[2]	02-15-2017	Nitrate-Nitrite as Nitrogen	0.66	mg/L		Y	Y	EPA:353.2	0.05
CAMO-17-129304	SIMR-2[2]	02-15-2017	Sulfate	2.79	mg/L		Y	Y	EPA:300.0	0.4
CAMO-17-129304	SIMR-2[2]	02-15-2017	Total Dissolved Solids	160	mg/L		Y	Y	EPA:160.1	14.3
CAMO-17-131758	SIMR-2[2]	03-30-2017	Chromium	4.71	ug/L		Y	Y	SW-846:6020	10.0
-	SIMR-2[1]	-	-	-	-	-	-	-	-	-

Notes:

[1] Second Quarter 2017 data has been collected but is unavailable at the time of this report's preparation in accordance with the Memorandum of Agreement between Pueblo de San Ildefonso and DOE/LANS. This data will be presented in the next quarterly report.

[2] First Quarter 2017 SIMR-2 data reported here in accordance with DP-1835 First Quarter 2017 Report (EPC-DO 17-166). Data was unavailable at the time of that report's preparation in accordance with the Memorandum of Agreement between Pueblo de San Ildefonso and DOE/LANS.

J - in the lab qualifier comment means the analyte is classified as estimated.

Y - in the detect flag column means the analyte was detected.

Y - in the filtered column means the sample was filtered.

ENCLOSURE 5

Treated Groundwater Injection and Extraction Summary Tables – 2017 Quarter 2, DP-1835

EPC-DO: 17-274

LA-UR-17-25771

U1601822

Date: AUG 2 1 2017

Table E5-1
Daily Injection Summary Table -
2017 Quarter 2, DP1835

Date	CrIN-1[1] (gal)	CrIN-2[1] (gal)	CrIN-3[1] (gal)	CrIN-4 (gal)	CrIN-5 (gal)	CrIN-6[1] (gal)
4/1/2017	0	0	0	36,856	54,485	0
4/2/2017	0	0	0	37,294	56,310	0
4/3/2017	0	0	0	44,368	66,361	0
4/4/2017	0	0	0	37,227	55,584	0
4/5/2017	0	0	0	41,224	61,638	0
4/6/2017	0	0	0	39,090	58,898	0
4/7/2017	0	0	0	37,589	55,947	0
4/8/2017	0	0	0	36,649	55,021	0
4/9/2017	0	0	0	39,227	58,577	0
4/10/2017	0	0	0	41,960	62,662	0
4/11/2017	0	0	0	41,781	62,514	0
4/12/2017	0	0	0	37,433	56,020	0
4/13/2017	0	0	0	40,246	60,421	0
4/14/2017	0	0	0	38,781	58,083	0
4/15/2017	0	0	0	37,481	56,275	0
4/16/2017	0	0	0	37,257	47,686	0
4/17/2017	0	0	0	44,062	51,791	0
4/18/2017	0	0	0	39,719	42,598	0
4/19/2017	0	0	0	36,448	46,294	0
4/20/2017	0	0	0	40,280	40,198	0
4/21/2017	0	0	0	39,558	39,563	0
4/22/2017	0	0	0	51,187	51,233	0
4/23/2017	0	0	0	39,101	39,111	0
4/24/2017	0	0	0	27,710	27,602	0
4/25/2017	0	0	0	38,773	38,761	0
4/26/2017	0	0	0	39,537	39,456	0
4/27/2017	0	0	0	56,171	45,874	0
4/28/2017	0	0	0	0	0	0
4/29/2017	0	0	0	0	0	0
4/30/2017	0	0	0	0	0	0
5/1/2017	0	0	0	0	0	0
5/2/2017	0	0	0	0	0	0
5/3/2017	0	0	0	0	0	0
5/4/2017	0	0	0	0	0	0
5/5/2017	0	0	0	0	0	0
5/6/2017	0	0	0	0	0	0
5/7/2017	0	0	0	0	0	0
5/8/2017	0	0	0	0	0	0
5/9/2017	0	0	0	0	0	0
5/10/2017	0	0	0	0	0	0

Table E5-1
Daily Injection Summary Table -
2017 Quarter 2, DP1835

Date	CrIN-1[1] (gal)	CrIN-2[1] (gal)	CrIN-3[1] (gal)	CrIN-4 (gal)	CrIN-5 (gal)	CrIN-6[1] (gal)
5/11/2017	0	0	0	0	0	0
5/12/2017	0	0	0	0	0	0
5/13/2017	0	0	0	0	0	0
5/14/2017	0	0	0	0	0	0
5/15/2017	0	0	0	0	0	0
5/16/2017	0	0	0	0	0	0
5/17/2017	0	0	0	0	0	0
5/18/2017	0	0	0	0	0	0
5/19/2017	0	0	0	0	0	0
5/20/2017	0	0	0	0	0	0
5/21/2017	0	0	0	0	0	0
5/22/2017	0	0	0	0	0	0
5/23/2017	0	0	0	0	0	0
5/24/2017	0	0	0	0	0	0
5/25/2017	0	0	0	0	0	0
5/26/2017	0	0	0	0	0	0
5/27/2017	0	0	0	0	0	0
5/28/2017	0	0	0	0	0	0
5/29/2017	0	0	0	0	0	0
5/30/2017	0	0	0	6,823	5,371	0
5/31/2017	0	0	0	31,235	39,216	0
6/1/2017	0	0	0	39,893	40,172	0
6/2/2017	0	0	0	38,964	36,782	0
6/3/2017	0	0	0	37,795	31,835	0
6/4/2017	0	0	0	54,636	54,464	0
6/5/2017	0	0	0	26,797	31,465	0
6/6/2017	0	0	0	40,169	35,121	0
6/7/2017	0	0	0	39,330	39,133	0
6/8/2017	0	0	0	38,560	38,406	0
6/9/2017	0	0	0	40,909	40,719	0
6/10/2017	0	0	0	35,585	35,476	0
6/11/2017	0	0	0	39,585	39,340	0
6/12/2017	0	0	0	42,993	42,863	0
6/13/2017	0	0	0	45,528	45,236	0
6/14/2017	0	0	0	32,755	40,148	0
6/15/2017	0	0	0	39,751	32,227	0
6/16/2017	0	0	0	39,427	39,151	0
6/17/2017	0	0	0	49,165	49,179	0
6/18/2017	0	0	0	41,979	41,944	0
6/19/2017	0	0	0	29,419	29,221	0

Table E5-1
Daily Injection Summary Table -
2017 Quarter 2, DP1835

Date	CrIN-1[1] (gal)	CrIN-2[1] (gal)	CrIN-3[1] (gal)	CrIN-4 (gal)	CrIN-5 (gal)	CrIN-6[1] (gal)
6/20/2017	0	0	0	39,612	39,505	0
6/21/2017	0	0	0	44,581	44,369	0
6/22/2017	0	0	0	37,316	37,149	0
6/23/2017	0	0	0	36,082	35,928	0
6/24/2017	0	0	0	36,148	35,658	0
6/25/2017	0	0	0	37,008	37,228	0
6/26/2017	0	0	0	49,929	49,763	0
6/27/2017	0	0	0	0	0	0
6/28/2017	0	0	0	0	0	0
6/29/2017	0	0	0	0	0	0
6/30/2017	0	0	0	0	0	0

Notes:

[1] Treated groundwater not injected into UIC well during the reporting period.

Table E5-2
Daily Extraction Summary Table -
2017 Quarter 2, DP1835

Date	CrEX-1 (gal)	CrEX-2 (gal)	CrEX-3 (gal)
4/1/2017	90,529	N/A	N/A
4/2/2017	75,792	N/A	N/A
4/3/2017	89,161	N/A	N/A
4/4/2017	80,097	N/A	N/A
4/5/2017	82,954	N/A	N/A
4/6/2017	106,157	N/A	N/A
4/7/2017	94,385	N/A	N/A
4/8/2017	87,286	N/A	N/A
4/9/2017	78,986	N/A	N/A
4/10/2017	100,278	N/A	N/A
4/11/2017	79,295	N/A	N/A
4/12/2017	79,608	N/A	N/A
4/13/2017	81,231	N/A	N/A
4/14/2017	79,644	N/A	N/A
4/15/2017	75,808	N/A	N/A
4/16/2017	74,938	N/A	N/A
4/17/2017	89,054	N/A	N/A
4/18/2017	78,984	N/A	N/A
4/19/2017	74,823	N/A	N/A
4/20/2017	81,196	N/A	N/A
4/21/2017	79,732	N/A	N/A
4/22/2017	114,515	N/A	N/A
4/23/2017	82,811	N/A	N/A
4/24/2017	83,317	N/A	N/A
4/25/2017	78,967	N/A	N/A
4/26/2017	78,791	N/A	N/A
4/27/2017	91,606	N/A	N/A
4/28/2017	-	N/A	N/A
4/29/2017	-	N/A	N/A
4/30/2017	-	N/A	N/A
5/1/2017	-	N/A	N/A
5/2/2017	-	N/A	N/A
5/3/2017	-	N/A	N/A
5/4/2017	-	N/A	N/A
5/5/2017	-	N/A	N/A
5/6/2017	-	N/A	N/A
5/7/2017	-	N/A	N/A
5/8/2017	-	N/A	N/A
5/9/2017	-	N/A	N/A
5/10/2017	-	N/A	N/A
5/11/2017	-	N/A	N/A

Table E5-2
Daily Extraction Summary Table -
2017 Quarter 2, DP1835

Date	CrEX-1 (gal)	CrEX-2 (gal)	CrEX-3 (gal)
5/12/2017	-	N/A	N/A
5/13/2017	-	N/A	N/A
5/14/2017	-	N/A	N/A
5/15/2017	-	N/A	N/A
5/16/2017	-	N/A	N/A
5/17/2017	-	N/A	N/A
5/18/2017	-	N/A	N/A
5/19/2017	-	N/A	N/A
5/20/2017	-	N/A	N/A
5/21/2017	-	N/A	N/A
5/22/2017	-	N/A	N/A
5/23/2017	-	N/A	N/A
5/24/2017	-	N/A	N/A
5/25/2017	-	N/A	N/A
5/26/2017	-	N/A	N/A
5/27/2017	-	N/A	N/A
5/28/2017	-	N/A	N/A
5/29/2017	-	N/A	N/A
5/30/2017	-	N/A	N/A
5/31/2017	91,344	N/A	N/A
6/1/2017	100,665	N/A	N/A
6/2/2017	92,493	N/A	N/A
6/3/2017	79,352	N/A	N/A
6/4/2017	137,237	N/A	N/A
6/5/2017	80,224	N/A	N/A
6/6/2017	106,912	N/A	N/A
6/7/2017	78,772	N/A	N/A
6/8/2017	96,612	N/A	N/A
6/9/2017	102,699	N/A	N/A
6/10/2017	89,195	N/A	N/A
6/11/2017	99,263	N/A	N/A
6/12/2017	108,164	N/A	N/A
6/13/2017	114,338	N/A	N/A
6/14/2017	81,823	N/A	N/A
6/15/2017	100,520	N/A	N/A
6/16/2017	99,009	N/A	N/A
6/17/2017	121,913	N/A	N/A
6/18/2017	105,659	N/A	N/A
6/19/2017	73,181	N/A	N/A
6/20/2017	97,194	N/A	N/A
6/21/2017	98,278	N/A	N/A

Table E5-2
Daily Extraction Summary Table -
2017 Quarter 2, DP1835

Date	CrEX-1 (gal)	CrEX-2 (gal)	CrEX-3 (gal)
6/22/2017	108,511	N/A	N/A
6/23/2017	88,916	N/A	N/A
6/24/2017	92,695	N/A	N/A
6/25/2017	92,298	N/A	N/A
6/26/2017	125,014	N/A	N/A
6/27/2017	-	N/A	N/A
6/28/2017	-	N/A	N/A
6/29/2017	-	N/A	N/A
6/30/2017	-	N/A	N/A

Notes:
N/A - If groundwater was extracted on this day from this location it was not treated and injected through the UIC wells.

ENCLOSURE 6

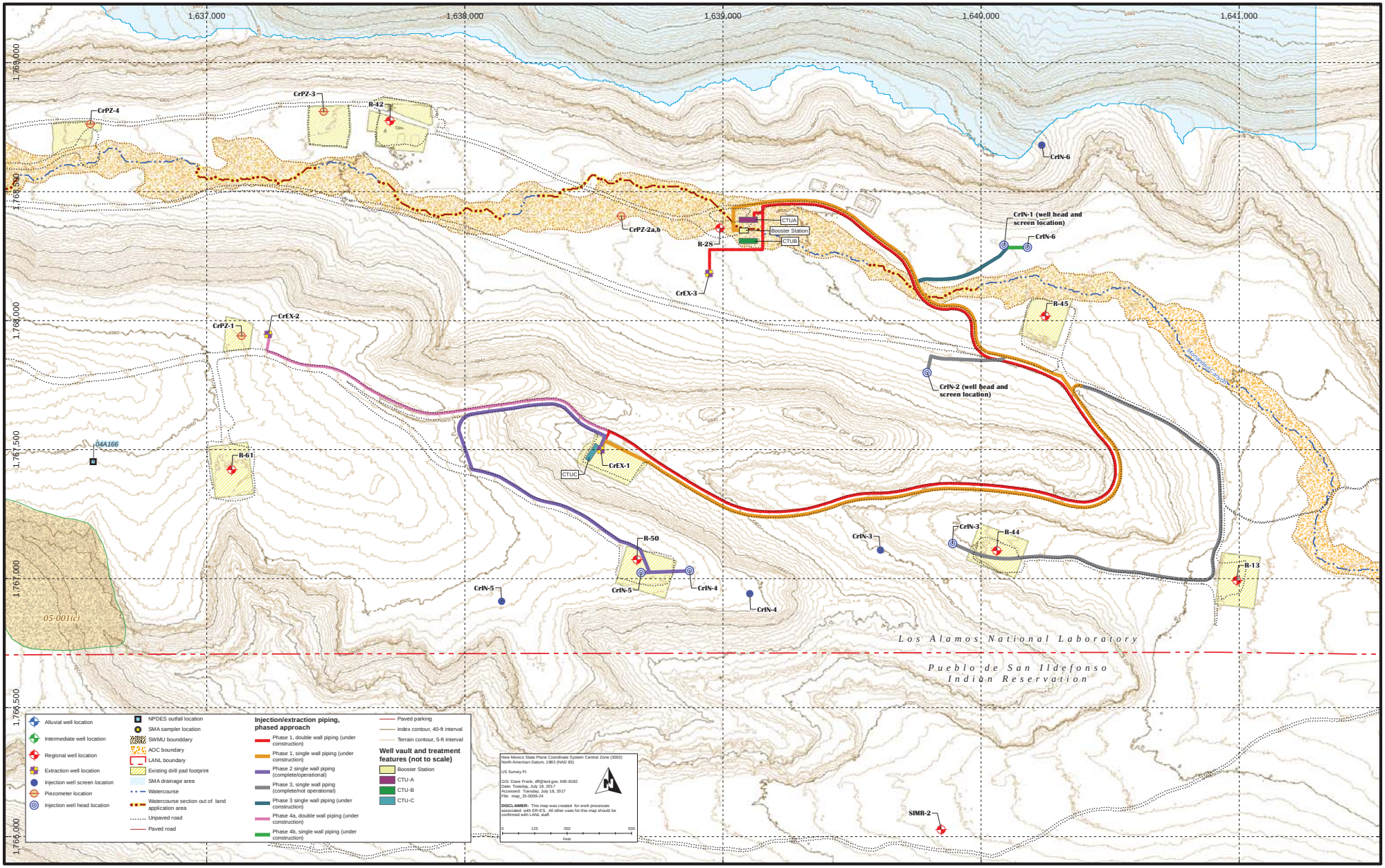
Facility Layout Map –
2017 Quarter 2, DP-1835

EPC-DO: 17-274

LA-UR-17-25771

U1601822

Date: AUG 2 1 2017



Document Path: \\slip\gis\GIS\Projects\15-Projects\15-0059\mxd\map_15-0059-24.mxd