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Environmental Management
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Date: **AUG 28 2017**
Symbol: EPC-DO: 17-302
LA-UR: 17-27282
Locates Action No.: U1601822

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: Integrity Testing of Distribution Piping from CrEX-1, CrEX-2, and CrEX-3 to CrIN-1, CrIN-2, CrIN-3, CrIN-4, and CrIN-5, Discharge Permit DP-1835, Class V Underground Injection Control Wells

Dear Ms. Hunter:

In accordance with Condition No. 3 of Discharge Permit DP-1835, the U.S. Department of Energy and Los Alamos National Security, LLC (DOE/LANS) are submitting mechanical integrity test results to the New Mexico Environment Department (NMED) for the distribution piping installed as part of the Chromium Plume Control Interim Measure. This submittal includes the results for the distribution piping from CrEX-1, CrEX-2, and CrEX-3 to CrIN-1, CrIN-2, CrIN-3, CrIN-4, and CrIN-5.

On October 14, 2016 DOE/LANS submitted a mechanical integrity test method for review and approval by the NMED (EPC-DO-16-299). NMED approved the test method on October 17, 2016. Results for the distribution piping from CrEX-1 to CrIN-4 and CrIN-5 was submitted to NMED on November 15, 2016 (EPC-DO-16-345).

DOE/LANS has completed integrity testing of additional segments of piping in accordance with the NMED-approved test methods for the high-density polyethylene (HDPE) pipelines connecting extraction wells CrEX-1, CrEX-2, and CrEX-3 with injection wells CrIN-1, CrIN-2, CrIN-3, CrIN-4 and CrIN-5 which were not included in the November 15, 2016 submittal. Enclosure 1 provides a cross-reference of the integrity testing completed to date. Enclosure 2 contains the inspection reports

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(on CD) of all tests completed through August 8, 2017, including those submitted on November 15, 2016. All test results demonstrated satisfactory pipe integrity per the specified test method.

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

Enclosure(s):

- 1) Summary Table of Distribution Piping Integrity Test Results
- 2) Distribution Piping Integrity Test Results (CD) for Pipelines Connecting Extraction Wells CrEX-1, CrEX-2, and CrEX-3 with injection wells CrIN-1, CrIN-2, CrIN-3, CrIN-4 and CrIN-5

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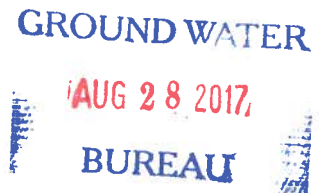
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Dear Ms. Hunter:

In accordance with Condition No. 3 of Discharge Permit DP-1835, the U.S. Department of Energy and Los Alamos National Security, LLC (DOE/LANS) are submitting mechanical integrity test results to the New Mexico Environment Department (NMED) for the distribution piping installed as part of the Chromium Plume Control Interim Measure. This submittal includes the results for the distribution piping from CrEX-1, CrEX-2, and CrEX-3 to CrIN-1, CrIN-2, CrIN-3, CrIN-4, and CrIN-5.

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DOE/LANS has completed integrity testing of additional segments of piping in accordance with the NMED-approved test methods for the high-density polyethylene (HDPE) pipelines connecting extraction wells CrEX-1, CrEX-2, and CrEX-3 with injection wells CrIN-1, CrIN-2, CrIN-3, CrIN-4 and CrIN-5 which were not included in the November 15, 2016 submittal. Enclosure 1 provides a cross-reference of the integrity testing completed to date. Enclosure 2 contains the inspection reports

ENCLOSURE 1

Summary Table of Distribution Piping Integrity Test Results

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Enclosure 1
Summary Table of Distribution Piping Integrity Test Results

Report Number	Rev	Discipline	Short Description	Test Type	Current Action
INP-103371-00001	0	Mechanical	visual weld inspection of 10% of s.s. well casing welds at CrEX-3	NA	Complete
INP-103371-00002	0	Mechanical	visual weld inspection of 6 s.s. well casing welds at CrEX-3	NA	Complete
INP-103371-00003 ¹	0	Mechanical	Hydrostatic pressure test on approx. 735 ft. of 6" HDPE piping at CrIN4/5 well pad	Hydrostatic	Complete
INP-103371-00004 ¹	0	Mechanical	Hydrostatic pressure test on approx. 720 ft. of 6" HDPE piping from CrIN-4/5 cutoff to CrEX-1 pad	Hydrostatic	Complete
INP-103371-00005 ¹	0	Mechanical	Hydrostatic pressure test on approx. 210 ft. of 6" HDPE piping from CrEX-1 treatment container up to first 6" isolation valve uphill, towards cutoff to CrIN-4/5 pad	Hydrostatic	Complete
INP-103371-00006 ¹	0	Mechanical	Hydrostatic pressure test on approx. 160 ft. of 4" HDPE piping from CrIN-4 vault to CrIN-5 vault	Hydrostatic	Complete
INP-103371-00007	0	Mechanical	Hydrostatic pressure retest on approx. 160 ft. of 4" HDPE piping from CrIN-4 vault to CrIN-5 vault	Hydrostatic	Complete
INP-103371-00011	0	Mechanical	Observation of proper torqueing of 160 valve flange bolts / sample verification	Torque	Complete
INP-103371-00012	0	Mechanical	Hydrostatic pressure test on HDPE piping from CrIN-4/CrIN-5 vaults to CrEX-1 well pad	Hydrostatic	Complete
INP-103371-00019	0	Mechanical	Hydrostatic pressure test on the threaded and flanged galv. piping from the CrEX-1 well head to the POC at treatment container	Hydrostatic	Complete
INP-103371-0024	0	Mechanical	Hydrostatic pressure test on approx. 2240 feet of 4" HDPE pipe from approx. CrIn-3 to approx. R45	Hydrostatic	Complete
INP-103371-0027	0	Mechanical	Hydrostatic pressure test, per ASTM F2164 /Spec. 22-0813, of approx. 205 ft. of 4" HDPE (CrIN-2)	Hydrostatic	Complete
INP-103371-0028	0	Mechanical	visual weld inspection of 16 thermal fusion 4" HDPE piping joints (CrIN-2)	NA	Complete
INP-103371-0029	0	Mechanical	Visual weld inspection of 12 thermal fusion HDPE piping joints (CrIN-1)	NA	Complete

Enclosure 1
Summary Table of Distribution Piping Integrity Test Results

Report Number	Rev	Discipline	Short Description	Test Type	Current Action
INP-103371-0034	0	Mechanical	Hydrostatic pressure test, per ASTM F-2164/Spec. 22-0813, of approx. 420 ft. of 4" HDPE pipe - CrIN-1	Hydrostatic	Complete
INP-103371-0036	0	Mechanical	Hydrostatic pressure test performed on S.S. threaded piping in Treatment Container at R-42	Hydrostatic	Complete
INP-103371-0045	0	Mechanical	Observation of 44 6" HDPE fusion joints, and 1 HDPE electro fusion joint - CrEX-1 towards CrIN-1	NA	Complete
INP-103371-0046	0	Mechanical	Observation of 19 6" HDPE thermal fusion joints - CrEX-1 towards CrIN-1	NA	Complete
INP-103371-0047	0	Mechanical	Hydrostatic pressure testing of approx. 1250 ft. of 6" HDPE pipe, CrEX-1 downhill towards CrIN-1	Hydrostatic	Complete
INP-103371-0048	0	Mechanical	visual weld inspection of 18 6" HDPE thermal fusion piping joints, and 1 electrofusion saddle joint	NA	Complete
INP-103371-0050	0	Mechanical	Visual weld inspection of 16 thermal fusion HDPE piping joints	NA	Complete
INP-103371-0051	0	Mechanical	Visual weld inspection of 20 thermal fusion HDPE piping joints (#8-6 through #8-25)	NA	Complete
INP-103371-0060	0	Mechanical	Hydrostatic pressure test of approx. 1250 ft. 6" dia. HDPE pipe	Hydrostatic	Complete
INP-103371-0061	0	Mechanical	Observation of handling of 6" HDPE pipe from CrEX-1 downhill towards R45 entrance	NA	Complete
INP-103371-0061	1	Mechanical	Observation of handling of 6" HDPE pipe from CrEX-1 downhill towards R45 entrance	Hydrostatic	Complete
INP-103371-0062	0	Mechanical	visual weld inspection of 21 HDPE piping joints	NA	Complete
INP-103371-0063	0	Mechanical	Hydrostatic and Pneumatic pressure tests of approx. 770 ft. of 4" x 8" HDPE piping	Hydrostatic	Complete
INP-103371-0064	0	Mechanical	visual weld inspection of 14 - 8" dia. HDPE thermal fusion piping joints	NA	Complete
INP-103371-0066	0	Mechanical	Visual weld inspection of 15 - 4" x 8" HDPE thermal fusion piping joints	NA	Complete
INP-103371-0071	0	Mechanical	Hydrostatic and Pneumatic pressure tests of approx. 520 ft. of 4" x 8" HDPE piping	Hydrostatic	Complete

Enclosure 1
Summary Table of Distribution Piping Integrity Test Results

Report Number	Rev	Discipline	Short Description	Test Type	Current Action
INP-103371-0072	0	Mechanical	Visual weld inspection of 19 HDPE piping joints -	NA	Complete
INP-103371-0073	0	Mechanical	Visual weld inspection of 18 HDPE piping joints -	NA	Complete
INP-103371-0074	0	Mechanical	Hydrostatic pressure test of approx. 1010 ft. of 4" x 8" dia. HDPE pipe	Hydrostatic	Complete
INP-103371-0075	0	Mechanical	Pneumatic pressure test of approx. 490 ft. of 8" containment pipe (of section of 4" x 8" HDPE X2)	Pneumatic	Complete
INP-103371-0076	0	Mechanical	Pneumatic pressure test of approx. 520 ft. of 8" containment pipe (of section of 4" x 8" HDPE X2)	Pneumatic	Complete
INP-103371-0077	0	Mechanical	Visual weld inspection of 20 4" x 8" HDPE piping joints -	NA	Complete
INP-103371-0078	0	Mechanical	Hydrostatic and Pneumatic pressure tests of approx. 511 ft. of 4" x 8" HDPE piping	Pneumatic	Complete
INP-103371-0080	0	Mechanical	Hydrostatic pressure test of approx. 1010 ft. of 4" x 8" dia. HDPE pipe	Hydrostatic	Complete
INP-103371-0081	0	Mechanical	Visual weld inspection of 32 various size HDPE piping joints -	NA	Complete
INP-103371-0082	0	Mechanical	Torque verification of 42 - 3/4" s.s. flange bolts on 3 6" isolation valves	Torque	Complete
INP-103371-0083	0	Mechanical	Hydrostatic and Pneumatic pressure tests of approx. 600 ft. of 4" x 8" HDPE piping	Pneumatic	Complete
INP-103371-0084	0	Mechanical	Hydrostatic and Pneumatic pressure tests of approx. 485 ft. of 4" x 8" HDPE piping	Pneumatic	Complete
INP-103371-0085	0	Mechanical	Hydrostatic and Pneumatic pressure tests of approx. 485 ft. of 4" x 8" HDPE piping	Pneumatic	Complete
INP-103371-0086	0	Mechanical	Visual weld inspection of 32 various size HDPE piping joints -	NA	Complete
INP-103371-0087	0	Mechanical	Visual weld inspection of 16 various size HDPE piping joints -	NA	Complete
INP-103371-0088	0	Mechanical	Hydrostatic pressure test of a single 4" saddle tee (for CAV) in vault, near CrEX-1	Hydrostatic	Complete
INP-103371-0089	0	Mechanical	Hydrostatic pressure test of a single 6" saddle tee (for CAV) in vault, near CrEX-1	Hydrostatic	Complete
INP-103371-0090	0	Mechanical	Hydrostatic and Pneumatic pressure tests of approx. 940 ft. of 4" x 8" HDPE piping	Hydrostatic	Complete

Enclosure 1
Summary Table of Distribution Piping Integrity Test Results

Report Number	Rev	Discipline	Short Description	Test Type	Current Action
INP-103371-0094	0	Mechanical	Visual weld inspection of 19 various size and types of HDPE piping fusion welds	NA	Complete
INP-103371-0095	0	Mechanical	Torque verification of 40 flange bolts	Torque	Complete
INP-103371-0096	0	Mechanical	Hydrostatic and Pneumatic pressure tests of approx. 80 ft. of 4" x 8" HDPE piping	Pneumatic	Complete
INP-103371-0097	0	Mechanical	Hydrostatic and Pneumatic pressure tests of approx. 440 ft. of 4" x 8" HDPE piping	Pneumatic	Complete
INP-103371-0098	0	Mechanical	Hydrostatic leak test of approx. 2400 ft. of 6" HDPE pipeline, flanges, and valves	Hydrostatic	Complete
INP-103371-0099	0	Mechanical	Visual weld inspection of 23 various size HDPE piping joints -	NA	Complete
INP-103371-0120	0	Mechanical	Hydrostatic and Pneumatic pressure tests of approx. 350 ft. of 4" x 8" HDPE piping	Pneumatic	Complete
INP-103371-0121	0	Mechanical	Visual weld inspection of 8 HDPE thermal fusion / electro fusion welded piping joints	NA	Complete
INP-103371-0122	0	Mechanical	Visual weld inspection of 7 HDPE piping joints -	NA	Complete
INP-103371-0129	0	Mechanical	Visual weld inspection of 25 HDPE thermal fusion / electro fusion welded piping joints	NA	Complete
INP-103371-0130	0	Mechanical	Visual weld inspection of 14 HDPE piping joints -	NA	Complete
INP-103371-0131	0	Mechanical	Hydrostatic and Pneumatic pressure tests of approx. 380 ft. of 6" HDPE piping	Hydrostatic	Complete
INP-103371-0132	0	Mechanical	Hydrostatic pressure test of HDPE piping assembly near R28 well pad; frac tanks and treatment units	Hydrostatic	Complete
INP-103371-0135	0	Mechanical	Hydrostatic and Pneumatic pressure tests of approx. 1300 ft. of HDPE piping	Hydrostatic	Complete
INP-103371-0137	0	Mechanical	Visual weld inspection a a min. of 10% of s.s. well casing joints CrIN-6	NA	Complete
INP-103371-0138	0	Mechanical	Visual weld inspection of 19 various size HDPE piping joints -	NA	Complete
INP-103371-0140	0	Mechanical	Visual weld inspection of 18 various size HDPE piping joints -	NA	Complete

Enclosure 1
Summary Table of Distribution Piping Integrity Test Results

Report Number	Rev	Discipline	Short Description	Test Type	Current Action
INP-103371-0141	0	Mechanical	Torque verification of 152 flange bolts	Torque	Complete
INP-103371-0142	0	Mechanical	Pre -operational hydrostatic leak test of portion of 6" HDPE piping	Hydrostatic	Complete
INP-103371-0146	0	Mechanical	Pneumatic pressure tests of approx. 20 ft. of HDPE piping	Pneumatic	Complete
INP-103371-0147	0	Mechanical	Hydrostatic and Pneumatic pressure tests of approx. 460 ft. of 6" HDPE piping	Hydrostatic	Complete
INP-103371-0148	0	Mechanical	Hydrostatic and Pneumatic pressure tests of approx. 400 ft. of HDPE piping	Hydrostatic	Complete
INP-103371-0149	0	Mechanical	Hydrostatic pressure testing of 2 - 1" on 6" HDPE Saddle tees	Hydrostatic	Complete
INP-103371-0150	0	Mechanical	Visual weld inspection of 18 various size HDPE piping joints -	NA	Complete
INP-103371-0151	0	Mechanical	Hydrostatic and Pneumatic pressure tests of approx. 350 ft. of 6" HDPE piping	Hydrostatic	Complete
INP-103371-0154	0	Mechanical	Visual weld inspection of 28 various size HDPE piping joints -	NA	Complete
INP-103371-0155	0	Mechanical	Hydrostatic and Pneumatic pressure tests of approx. 130 ft. of 6" HDPE piping	Hydrostatic	Complete
INP-103371-0158	0	Mechanical	Visual weld inspection of 28 various size HDPE piping joints -	NA	Complete
INP-103371-0174	0	Mechanical	Visual weld inspection of 22 various size HDPE piping joints -	NA	Complete
INP-103371-0175	0	Mechanical	Visual weld inspection of 61 various size HDPE piping joints -	NA	Complete
INP-103371-0176	0	Mechanical	visual weld inspection of 19 HDPE thermal fusion welded piping joints	NA	Complete
INP-103371-0177	0	Mechanical	Hydrostatic and Pneumatic pressure tests of approx. 310 ft. of 4" x 8" HDPE piping R28 to CrEX-3	Hydrostatic	Complete
INP-103371-0178	0	Mechanical	In-service leak test at R28 Treatment Container	In-Service Leak Test	Complete
INP-103371-0179	0	Mechanical	Hydrostatic pressure test of approx. 250 ft. of 6" and 4" HDPE piping - various spool pcs.	Hydrostatic	Complete
INP-103371-0180	0	Mechanical	Observation of Flange Bolt Torquing in CrEX-2 Vault	Torque	Complete
INP-103371-0181	0	Mechanical	Observation of Flange Bolt Torquing at 4 - Frac Tank (Fill Line) flanged connections to HDPE	Torque	Complete

Enclosure 1
Summary Table of Distribution Piping Integrity Test Results

Report Number	Rev	Discipline	Short Description	Test Type	Current Action
INP-103371-0182	0	Mechanical	Hydrostatic pressure test of approx. 500 ft. of 4" x 8" HDPE from CrEX-2 vault to 1st manhole down	Hydrostatic	Complete
INP-103371-0183	0	Mechanical	Hydrostatic and Pneumatic pressure tests of approx. 130 ft. of 4" x 8" HDPE piping at CrEX-1	Hydrostatic	Complete

Notes:

1. Test result previously submitted on November 15, 2016 (EPC-DO-16-345).

ENCLOSURE 2

**Distribution Piping Integrity Test Results (CD) for
Pipelines Connecting Extraction Wells CrEX-1, CrEX-2,
and CrEX-3 with injection wells CrIN-1, CrIN-2, CrIN-3,
CrIN-4 and CrIN-5**

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ABSTRACT: ENCLOSURE 2 CD (1)

Enclosure 2 contains one CD which provides the integrity test results for pipelines connecting extraction wells CrEX-1, CrEX-2, and CrEX-3 with treatment systems and connecting the booster pump system with injection wells CrIN-1, CrIN-2, CrIN-3, CrIN-4 and CrIN-5. These pipelines are located in and adjacent to Mortandad Canyon within Technical Area (TA)-05.