MONTHLY PROGRESS REPORT #237
FOR DECEMBER 2016

EPA REGION I ADMINISTRATIVE ORDERS SDWA 1-97-1019 and 1-2000-0014

JOINT BASE CAPE COD (JBCC)
TRAINING RANGE AND IMPACT AREA

The following summary of progress is for the period from 1 December to 31 December 2016.

1. SUMMARY OF REMEDIATION ACTIONS

The following is a description of Remediation Actions (RA) underway at Camp Edwards as of December 2016.

Demolition Area 1 Comprehensive Groundwater RA

The Demolition Area 1 Comprehensive Groundwater RA consists of the removal and treatment of contaminated groundwater to control further migration of explosives compounds and perchlorate. Extraction, treatment, and recharge (ETR) systems at Frank Perkins Road, Pew Road, Base Boundary, and the Leading Edge include extraction wells, ex-situ treatment processes to remove explosives compounds and perchlorate from the groundwater, and injection wells to return treated water to the aquifer.

The Frank Perkins Road Treatment Facility has been optimized as part of the Environmental and System Performance Monitoring (ESPM) program at Demolition Area 1. The treatment facility is operating at a flow rate of 175 gpm following the planned reductions in flow described below, with over 2.450 billion gallons of water treated and re-injected as of 30 December 2016. The following Frank Perkins Road facility shut down occurred in December:

- As part of optimization, the pumping rate for EW-501 was reduced from 150 gpm to 100 gpm and EW-502 was turned off on 1 December 2016 at 0710.

The Pew Road Mobile Treatment Unit (MTU) continues to operate at a flow rate of 105 gpm with over 501.2 million gallons of water treated and re-injected as of 30 December 2016. No Pew Road MTU shut downs occurred in December.

The Base Boundary RA is operating at a flow rate of 65 gpm with over 150.6 million gallons of water treated and re-injected as of 30 December 2016. No Base Boundary MTU shut downs occurred during November.

The Leading Edge system continues to operate at a flow rate of 100 gpm with over 24.18 million gallons of water treated and re-injected as of 30 December 2016. No system shut downs occurred in December.

J-1 Range Groundwater RA

Southern Plant

The J-1 Range Southern Groundwater RA consists of removal and treatment of contaminated groundwater to control further migration of explosives compounds. The ETR system includes two

extraction wells, ex-situ treatment process to remove explosives compounds from the groundwater, and an infiltration trench to return treated water to the aquifer.

The Southern MTU continues to operate at a flow rate of 125 gpm. As of 30 December 2016, over 375 million gallons of water have been treated and re-injected. No J-1 Range Southern system shut downs occurred in December.

Northern Plant

The J-1 Range Northern Groundwater RA consists of removal and treatment of contaminated groundwater to control further migration of explosives compounds and perchlorate. The ETR system includes two extraction wells, ex-situ treatment process to remove explosives compounds and perchlorate from the groundwater, and an infiltration trench to return treated water to the aquifer.

The Northern MTU continues to operate at a total system flow rate of 250 gpm. As of 30 December 2016, over 358 million gallons of water have been treated and re-injected. The following J-1 Range Northern MTU shut down occurred in December:

- Shut down on 5 December 2016 at 1115 for system maintenance and was restarted on 5 December 2016 at 1130.

J-3 Range Groundwater RA

The J-3 Range Groundwater RA consists of removal and treatment of contaminated groundwater to control further migration of explosives compounds and perchlorate. The ETR system includes four extraction wells, ex-situ treatment process to remove explosives compounds and perchlorate from the groundwater and use of the existing Fuel Spill-12 (FS-12) infiltration gallery to return treated water to the aquifer.

The J-3 system continues to operate at a flow rate of 255 gpm. As of 30 December 2016, over 967.2 million gallons of water have been treated and re-injected. The following J-3 Range system shut downs occurred in December:

- Extraction well EWIP1 was shut down on 1 December 2016 at 0653 due to a system alarm and was restarted on 1 December 2016 at 1003;
- Extraction well EWIP1 was shut down on 3 December 2016 at 2346 due to a system alarm and was restarted on 5 December 2016 at 1015;
- Extraction well EW-IP1 was shut down on 5 December 2016 at 1345 due to a system alarm and was restarted on 6 December 2016 at 1110;
- Extraction well EW-IP1 was shut down on 6 December 2016 at 1151 due to a system alarm and was restarted on 6 December 2016 at 1254;
- Extraction well EW-IP1 was shut down on 6 December 2016 at 2022 due to a system alarm and was restarted on 7 December 2016 at 0842;
- Extraction well EW-IP1 was shut down on 7 December 2016 at 1018 due to a system alarm and was restarted on 7 December 2016 at 1112;
- Extraction well EW-IP1 was shut down on 8 December 2016 at 0213 due to a system alarm and was restarted on 8 December 2016 at 0835;
- Extraction well EW-IP1 was shut down on 8 December 2016 at 1415 due to a system alarm and was restarted on 9 December 2016 at 0825;

- Extraction well EW-IP1 was shut down on 9 December 2016 at 0841 due to a system alarm and was restarted on 9 December 2016 at 1008;
- Extraction well EW-IP1 was shut down on 9 December 2016 at 1033 due to a system alarm and was restarted on 9 December 2016 at 1158;
- Extraction well EW-IP1 was shut down on 9 December 2016 at 1242 due to a system alarm and was restarted on 9 December 2016 at 1252;
- Extraction well EW-IP1 was shut down on 9 December 2016 at 1340 due to a system alarm and was restarted on 9 December 2016 at 1355;
- Extraction well EW-IP1 was shut down on 9 December 2016 at 1533 due to a system alarm and was restarted on 12 December 2016 at 0831; and
- The system was shut down on 14 December 2016 at 1038 due to a system alarm and was restarted on 14 December 2016 at 1258.

J-2 Range Groundwater RA

Northern Plant

The J-2 Range Northern Treatment facility consists of removal and treatment of contaminated groundwater to control further migration of explosives compounds and perchlorate. The Extraction, Treatment, and Re-infiltration system includes three extraction wells, ex-situ treatment process to remove explosives compounds and perchlorate from the groundwater, and an infiltration basin to return treated water to the aquifer.

The Northern Treatment Building continues to operate at a flow rate of 225 gpm. As of 30 December 2016, over 823.5 million gallons of water have been treated and re-injected. No Northern Treatment Building shut down occurred in December.

The Northern MTUs E and F continue to operate at a flow rate of 250 gpm. As of 30 December 2016, over 1.310 billion gallons of water have been treated and re-injected. The following J-2 Range Northern MTU shut downs occurred in December:

- MTUs E and F were shut down on 13 December 2016 at 0855 to repair the infiltration gallery and were restarted on 19 December 2016 at 0927.

Eastern Plant

The J-2 Range Eastern Treatment facility consists of removal and treatment of groundwater to minimize downgradient migration of explosives compounds and perchlorate. The ETI system includes the following components: three extraction wells in an axial array, an ex-situ treatment process consisting of an ion exchange (IX) resin and granular activated carbon (GAC) media to treat perchlorate and explosives compounds and three infiltration trenches located along the lateral boundaries of the plume where treated water will enter the vadose zone and infiltrate into the aquifer. The J-2 Range Eastern system is running at a combined total flow rate of 495 gpm.

The MTUs H and I continue to operate at a flow rate of 250 gpm. As of 30 December 2016, over 900.5 million gallons of water have been treated and re-injected. No MTUs H and I shut downs occurred in December.

MTU J continues to operate at a flow rate of 120 gpm. As of 30 December 2016, over 406 million gallons of water have been treated and re-injected. No shut downs of MTU J occurred in December.

MTU K continues to operate at a flow rate of 125 gpm. As of 30 December 2016, over 511 million gallons of water have been treated and re-injected. No shut downs of MTU K occurred in December.

Central Impact Area RA

The Central Impact Area (CIA) Groundwater treatment facility consists of removal and treatment of groundwater to minimize downgradient migration of explosives compounds and perchlorate. The ETR system includes the following components: three extraction wells, an ex-situ treatment process consisting of an ion exchange (IX) resin and granular activated carbon (GAC) media to treat explosives compounds and three infiltration galleries to return treated water to the aquifer. The CIA systems 1, 2, and 3 continue to run at a combined total flow rate of 750 gpm. As of 30 December 2016, over 804 million gallons of water have been treated and re-injected. The following CIA treatment facility shut downs occurred in December:

- System 2 shut down on 2 December 2016 at 1410 to prepare for infiltration gallery repair and was restarted on 8 December 2016 at 1455.

SUMMARY OF ACTIONS TAKEN

Samples collected during the reporting period are summarized in Table 1.

Process water samples were collected at Frank Perkins Road, Pew Road, Base Boundary, Leading Edge, J-1 Range Southern, J-1 Range Northern, J-2 Range Northern, J-2 Range Eastern, J-3 Range, and Central Impact Area (CIA).

Environmental and system performance monitoring groundwater samples were collected at Demolition Area 1, Demolition Area 2, J-1 Range Southern, J-3 Range, Northwest Corner, Western Boundary, and L Range.

Soil samples were collected at J-2 Range Eastern, B Range, C Range, D Range, G Range, U Range, and CIA.

Completed excavation (5^{th} lift) at one B Range grid.

Completed excavation (4^{th} lift) at one D Range grid.

Completed excavation of 5^{th} lifts at three C Range grids.

Began excavation of 4^{th} lifts at nine Former B Range grids.

Began excavation and staging of previously stockpiled soil at D Range.

Continued transportation and disposal of soil from Small Arms Ranges.

Performed daily inspection of BEM cover at the CIA to ensure cover is secure and intact.

Completed intrusive investigation of anomalies in phase II area 2 and Metalmapper collection of cued data in Phase II area 3 at the CIA. Began intrusive investigation of anomalies in phase II area 3.

Completed demolition operations at the CIA.

Continued drive point investigation at J-1 Range Southern.

Repaired infiltration gallery at J-2 Range Northern.

Performed vegetation clearance on well pads and roads.

JBCC IAGWSP Tech Update Meeting

No tech update meetings occurred during the month of December 2016.

JBCC Cleanup Team Meeting

The next meeting of the JBCC Cleanup Team (JBCCCT), formerly the MMR Cleanup Team (MMRCT) has not been scheduled. The Cleanup Team meeting discusses late breaking news and responses to action items, as well as updates from the IAGWSP and the Installation Restoration Program (IRP). The JBCCCT meetings provide a forum for community input regarding issues related to both the IRP and the IAGWSP.

SUMMARY OF DATA RECEIVED

Table 2 summarizes the validated detections of explosives compounds and perchlorate for all groundwater results received from 1 December to 31 December 2016. These results are compared to the Maximum Contaminant Levels/Health Advisory (MCL/HA) values for respective analytes. Explosives and perchlorate are the primary contaminants of concern (COC) at Camp Edwards.

There are currently twelve operable units (OU) under investigation and cleanup at Camp Edwards. The OUs include: Central Impact Area, Demolition Area 1, Demolition Area 2, Former A Range, J-1 Range, J-2 Range, J-3 Range, L Range, Northwest Corner, Small Arms Ranges, Training Areas, and Western Boundary. Environmental monitoring reports for each OU are generated each year to evaluate the current year groundwater results. These reports are available on the site Environmental Data Management System (EDMS) and at the project document repositories (IAGWSP office and Jonathan Bourne Library).

2. DELIVERABLES SUBMITTED

Deliverables submitted during the reporting period include the following:

- Monthly Progress Report No. 236 for November 2016 12/10/2016
- Final Western Boundary 2016 Supplemental Environmental Monitoring Report 12/20/2016
- Draft J-2 Range Eastern and Northern 2016 Environmental Monitoring Report 12/28/2016
- Draft Small Arms Ranges Environmental Monitoring Work Plan 12/29/2016
- Draft J-3 Range 2016 Interim Environmental Monitoring Report 12/29/2016

3. SCHEDULED ACTIONS

The following documents are being prepared or revised during January 2017:

- Training Areas Draft Investigation Report;
- Training Areas Draft Remedy Selection Plan;
- CIA 2016 Annual Environmental Monitoring Report;
- CIA Draft Startup Report;
- Draft 2015 BIP Report;
- Demolition Area 1 2016 Annual Environmental Monitoring Report;
- Demolition Area 1 Startup Report;
- J-3 Range 2016 Interim Environmental Monitoring Report;
- J-3 Range Startup Report;
- Northwest Corner 2016 Annual Environmental Monitoring Report;
- J-2 Range Eastern and J-2 Range Northern 2016 Environmental Monitoring Report;
- Small Arms Ranges Environmental Monitoring Work Plan;
- Land Use Control Monitoring Report;
- Five Year Review Report; and
- Former A Range Demonstration of Compliance Report.

TABLE 1

Sampling Progress: 1 December to 31 December 2016

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
Demolition Area 1	MW-341M3	MW-341M3_F16	N	12/29/2016	Ground Water	209.5	219.5
Demolition Area 1	MW-341M2	MW-341M2_F16	N	12/29/2016	Ground Water	264.5	269.5
Demolition Area 1	MW-341M2	MW-341M2_F16D	FD	12/29/2016	Ground Water	264.5	269.5
Demolition Area 1	MW-211M1	MW-211M1_F16	N	12/29/2016	Ground Water	200	210
Demolition Area 1	MW-659M2	MW-659M2_F16	N	12/28/2016	Ground Water	85	95
Demolition Area 1	MW-659M1	MW-659M1_F16	N	12/28/2016	Ground Water	120	130
Demolition Area 1	XX9514	XX9514_F16	N	12/28/2016	Ground Water	102	112
Demolition Area 1	MW-663D	MW-663D_R1	N	12/20/2016	Ground Water	240.6	250.6
Northwest Corner	MW-441M2	MW-441M2_F16	N	12/20/2016	Ground Water	109.5	119.5
Western Boundary	4036000-03G	4036000-03G_16Q4	N	12/20/2016	Ground Water	50	60
Western Boundary	4036000-06G	4036000-06G_16Q4	N	12/20/2016	Ground Water	108	128
Western Boundary	4036000-01G	4036000-01G_16Q4	N	12/20/2016	Ground Water	38	70
J1 Range Southern	MW-669M2	MW-669M2_R1	N	12/19/2016	Ground Water	201.7	211.7
J1 Range Southern	MW-669M1	MW-669M1_R1	N	12/19/2016	Ground Water	223.7	233.7
J1 Range Southern	MW-670M2	MW-670M2_R1	N	12/19/2016	Ground Water	198.5	208.5
J1 Range Southern	MW-670M1	MW-670M1_R1	N	12/19/2016	Ground Water	220.5	230.5
Demolition Area 1	MW-231M1	MW-231M1_F16	N	12/15/2016	Ground Water	210.5	220.5
Demolition Area 1	MW-231M1	MW-231M1_F16D	FD	12/15/2016	Ground Water	210.5	220.5
Demolition Area 1	MW-431	MW-431_F16	N	12/15/2016	Ground Water	88	188
Demolition Area 1	EW-658	EW-658_F16	N	12/15/2016	Ground Water	96	136
Demolition Area 1	MW-19S	MW-19S_F16	N	12/15/2016	Ground Water	52.7	62.7
Demolition Area 1	MW-19S	MW-19S_F16D	FD	12/15/2016	Ground Water	52.7	62.7
Demolition Area 1	MW-73S	MW-73S_F16	N	12/15/2016	Ground Water	52.2	61.7
Demolition Area 1	MW-648M1	MW-648M1_F16	N	12/14/2016	Ground Water	112	122
Demolition Area 1	MW-31S	MW-31S_F16	N	12/14/2016	Ground Water	98	103
Demolition Area 1	MW-31S	MW-31S_F16D	FD	12/14/2016	Ground Water	98	103
Demolition Area 1	MW-31M	MW-31M_F16	N	12/14/2016	Ground Water	113	123
Demolition Area 1	MW-76M2	MW-76M2_F16	N	12/14/2016	Ground Water	105	115
U Range	SSURFL06A	URFL06A_B	N	12/14/2016	Soil	0	0.25
Demolition Area 1	MW-77M2	MW-77M2_F16	N	12/14/2016	Ground Water	120	130
U Range	SSURFL05A	URFL05A_F	FR	12/14/2016	Soil	0	0.25
U Range	SSURFL05A	URFL05A_E	FR	12/14/2016	Soil	0	0.25
U Range	SSURFL05A	URFL05A_D	N	12/14/2016	Soil	0	0.25
U Range	SSURFL01A	URFL01A_B	N	12/14/2016	Soil	0	0.25
J2 Range Eastern	SSJ2N15A	J2N15A_F	FR	12/13/2016	Soil	0	0.25
J2 Range Eastern	SSJ2N15A	J2N15A_E	FR	12/13/2016	Soil	0	0.25
J2 Range Eastern	SSJ2N15A	J2N15A_D	N	12/13/2016	Soil	0	0.25
B Range	SSBRNGSW02	BRNGSW02_I	FR	12/13/2016	Soil	0	0.25
B Range	SSBRNGSW02	BRNGSW02_H	FR	12/13/2016	Soil	0	0.25
B Range	SSBRNGSW02	BRNGSW02_G	N	12/13/2016	Soil	0	0.25
C Range	SSCRNGS02	CRNGS02_C	N	12/13/2016	Soil	0	0.25
C Range	SSCRNGMID02	CRNGMID02_C	N	12/13/2016	Soil	0	0.25
C Range	SSCRNGBR5-6A	CRNGBR5-6A_I	FR	12/13/2016	Soil	0	0.25
C Range	SSCRNGBR5-6A	CRNGBR5-6A_H	FR	12/13/2016	Soil	0	0.25
C Range	SSCRNGBR5-6A	CRNGBR5-6A_G	N	12/13/2016	Soil	0	0.25
D Range	SSDR01A	DR01A_I	FR	12/13/2016	Soil	0	0.25
D Range	SSDR01A	DR01A_H	FR	12/13/2016	Soil	0	0.25
D Range	SSDR01A	DR01A_G	N	12/13/2016	Soil	0	0.25
G Range	SSGR01A	GR01A_I	FR	12/13/2016	Soil	0	0.25
G Range	SSGR01A	GR01A_H	FR	12/13/2016	Soil	0	0.25
G Range	SSGR01A	GR01A_G	N	12/13/2016	Soil	0	0.25
G Range	SSGR01DR	GR01DR_C	N	12/13/2016	Soil	0	0.25
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-99A	N	12/08/2016	Process Water	0	0
J2 Range Eastern	J2E-MID-2H	J2E-MID-2H-99A	N	12/08/2016	Process Water	0	0
J2 Range Eastern	J2E-MID-1H	J2E-MID-1H-99A	N	12/08/2016	Process Water	0	0
J2 Range Eastern	J2E-MID-2I	J2E-MID-2I-99A	N	12/08/2016	Process Water	0	0
J2 Range Eastern	J2E-MID-1I	J2E-MID-1I-99A	N	12/08/2016	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1

Sampling Progress: 1 December to 31 December 2016

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J2 Range Eastern	J2E-INF-I	J2E-INF-I-99A	N	12/08/2016	Process Water	0	0
J2 Range Eastern	J2E-EFF-K	J2E-EFF-K-99A	N	12/08/2016	Process Water	0	0
J2 Range Eastern	J2E-MID-2K	J2E-MID-2K-99A	N	12/08/2016	Process Water	0	0
J2 Range Eastern	J2E-MID-1K	J2E-MID-1K-99A	N	12/08/2016	Process Water	0	0
J2 Range Eastern	J2E-INF-K	J2E-INF-K-99A	N	12/08/2016	Process Water	0	0
J2 Range Eastern	J2E-EFF-J	J2E-EFF-J-99A	N	12/08/2016	Process Water	0	0
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-99A	N	12/08/2016	Process Water	0	0
J2 Range Eastern	J2E-MID-1J	J2E-MID-1J-99A	N	12/08/2016	Process Water	0	0
J2 Range Eastern	J2E-INF-J	J2E-INF-J-99A	N	12/08/2016	Process Water	0	0
Demolition Area 1	MW-544M3	MW-544M3_F16	N	12/07/2016	Ground Water	77.5	87.5
Demolition Area 1	MW-544M2	MW-544M2_F16	N	12/07/2016	Ground Water	112	122
Central Impact Area	SSCIAMM1145	DA120616CIA03_30A	N	12/07/2016	Soil	0	0.25
Demolition Area 1	MW-544M1	MW-544M1_F16	N	12/07/2016	Ground Water	162	172
J3 Range	J3-EFF	J3-EFF-123A	N	12/07/2016	Process Water	0	0
J3 Range	J3-MID-2	J3-MID-2-123A	N	12/07/2016	Process Water	0	0
J3 Range	J3-MID-1	J3-MID-1-123A	N	12/07/2016	Process Water	0	0
J3 Range	J3-INF	J3-INF-123A	N	12/07/2016	Process Water	0	0
Demolition Area 1	MW-545M4	MW-545M4_F16	N	12/07/2016	Ground Water	72	82
Demolition Area 1	MW-545M3	MW-545M3_F16	N	12/07/2016	Ground Water	101.5	111.5
J2 Range Northern	J2N-EFF-G	J2N-EFF-G-123A	N	12/07/2016	Process Water	0	0
J2 Range Northern	J2N-MID-2G	J2N-MID-2G-123A	N	12/07/2016	Process Water	0	0
J2 Range Northern	J2N-MID-1G	J2N-MID-1G-123A	N	12/07/2016	Process Water	0	0
J2 Range Northern	J2N-INF-G	J2N-INF-G-123A	N	12/07/2016	Process Water	0	0
Demolition Area 1	MW-545M2	MW-545M2_F16	N	12/07/2016	Ground Water	142	152
J2 Range Northern	J2N-EFF-EF	J2N-EFF-EF-123A	N	12/07/2016	Process Water	0	0
J2 Range Northern	J2N-MID-2F	J2N-MID-2F-123A	N	12/07/2016	Process Water	0	0
J2 Range Northern	J2N-MID-1F	J2N-MID-1F-123A	N	12/07/2016	Process Water	0	0
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-123A	N	12/07/2016	Process Water	0	0
J2 Range Northern	J2N-MID-2E	J2N-MID-2E-123A	N	12/07/2016	Process Water	0	0
J2 Range Northern	J2N-MID-1E	J2N-MID-1E-123A	N	12/07/2016	Process Water	0	0
Demolition Area 1	MW-545M1	MW-545M1_F16	N	12/07/2016	Ground Water	162	172
Demolition Area 1	MW-558M1	MW-558M1_F16	N	12/06/2016	Ground Water	134	144
Demolition Area 1	MW-559M1	MW-559M1_F16	N	12/06/2016	Ground Water	135.6	145.6
J1 Range Northern	J1N-EFF	J1N-EFF-38A	N	12/06/2016	Process Water	0	0
Demolition Area 1	MW-556M1	MW-556M1_F16	N	12/06/2016	Ground Water	153	163
J1 Range Northern	J1N-MID2	J1N-MID2-38A	N	12/06/2016	Process Water	0	0
J1 Range Northern	J1N-MID1	J1N-MID1-38A	N	12/06/2016	Process Water	0	0
J1 Range Northern	J1N-INF2	J1N-INF2-38A	N	12/06/2016	Process Water	0	0
J1 Range Southern	J1S-EFF	J1S-EFF-109A	N	12/06/2016	Process Water	0	0
J1 Range Southern	J1S-MID-2	J1S-MID-2-109A	N	12/06/2016	Process Water	0	0
J1 Range Southern	J1S-INF-2	J1S-INF-2-109A	N	12/06/2016	Process Water	0	0
Demolition Area 1	MW-554M2	MW-554M2_F16	N	12/06/2016	Ground Water	89.1	99.1
Demolition Area 1	MW-554M1	MW-554M1_F16	N	12/06/2016	Ground Water	120	130
Demolition Area 1	PR-EFF	PR-EFF-129A	N	12/06/2016	Process Water	0	0
Demolition Area 1	PR-MID-2	PR-MID-2-129A	N	12/06/2016	Process Water	0	0
Demolition Area 1	PR-MID-1	PR-MID-1-129A	N	12/06/2016	Process Water	0	0
Demolition Area 1	PR-INF	PR-INF-129A	N	12/06/2016	Process Water	0	0
Demolition Area 1	FPR-2-EFF-A	FPR-2-EFF-A-129A	N	12/06/2016	Process Water	0	0
Demolition Area 1	FPR-2-GAC-MID1A	FPR-2-GAC-MID1A-129A	N	12/06/2016	Process Water	0	0
Demolition Area 1	FPR2-POST-IX-A	FPR2-POST-IX-A-129A	N	12/06/2016	Process Water	0	0
Demolition Area 1	FPR-2-INF	FPR-2-INF-129A	N	12/06/2016	Process Water	0	0
L Range	MW-651M1	MW-651M1_R3	N	12/06/2016	Ground Water	242.3	252.3
L Range	MW-650M1	MW-650M1_R3	N	12/05/2016	Ground Water	260	270
J3 Range	MW-653M1	MW-653M1_R3	N	12/05/2016	Ground Water	147.5	157.5
J3 Range	MW-653M2	MW-653M2_R3	N	12/05/2016	Ground Water	59.3	69.3
Demolition Area 1	D1LE-EFF	D1LE-EFF-05A	N	12/05/2016	Process Water	0	0
Demolition Area 1	D1LE-MID2	D1LE-MID2-05A	N	12/05/2016	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1

Sampling Progress: 1 December to 31 December 2016

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
Demolition Area 1	D1LE-MID1	D1LE-MID1-05A	N	12/05/2016	Process Water	0	0
Demolition Area 1	D1LE-INF	D1LE-INF-05A	N	12/05/2016	Process Water	0	0
Demolition Area 1	D1-EFF	D1-EFF-77A	N	12/05/2016	Process Water	0	0
Demolition Area 1	D1-MID-2	D1-MID-2-77A	N	12/05/2016	Process Water	0	0
Demolition Area 1	D1-MID-1	D1-MID-1-77A	N	12/05/2016	Process Water	0	0
Demolition Area 1	D1-INF	D1-INF-77A	N	12/05/2016	Process Water	0	0
Demolition Area 2	MW-404M2	MW-404M2_F16	N	12/05/2016	Ground Water	200	210
Demolition Area 2	MW-404M1	MW-404M1_F16	N	12/05/2016	Ground Water	219.5	229.5
Central Impact Area	CIA3-EFF	CIA3-EFF-06A	N	12/05/2016	Process Water	0	0
Central Impact Area	CIA3-MID2	CIA3-MID2-06A	N	12/05/2016	Process Water	0	0
Central Impact Area	CIA3-MID1	CIA3-MID1-06A	N	12/05/2016	Process Water	0	0
Central Impact Area	CIA3-INF	CIA3-INF-06A	N	12/05/2016	Process Water	0	0
Demolition Area 2	MW-572M1	MW-572M1_F16	N	12/01/2016	Ground Water	164.9	174.9
Central Impact Area	CIA2-EFF	CIA2-EFF-35A	N	12/01/2016	Process Water	0	0
Central Impact Area	CIA2-MID2	CIA2-MID2-35A	N	12/01/2016	Process Water	0	0
Central Impact Area	CIA2-MID1	CIA2-MID1-35A	N	12/01/2016	Process Water	0	0
Central Impact Area	CIA2-INF	CIA2-INF-35A	N	12/01/2016	Process Water	0	0
Central Impact Area	CIA1-EFF	CIA1-EFF-35A	N	12/01/2016	Process Water	0	0
Central Impact Area	CIA1-MID2	CIA1-MID2-35A	N	12/01/2016	Process Water	0	0
Demolition Area 2	MW-311M1	MW-311M1_F16	N	12/01/2016	Ground Water	222	232
Central Impact Area	CIA1-INF	CIA1-INF-35A	N	12/01/2016	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received December 2016

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
J1 Range Northern	MW-563M1	MW-563M1_F16	215	225	11/09/2016	SW6850	Perchlorate	0.052	J	ug/L	2.0		0.019	0.20
J1 Range Northern	MW-564M1	MW-564M1_F16	227	237	11/09/2016	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.44		ug/L	400		0.019	0.20
J1 Range Northern	MW-564M1	MW-564M1_F16	227	237	11/09/2016	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	3.0		ug/L	0.60	X	0.025	0.20
J1 Range Northern	MW-564M1	MW-564M1_F16	227	237	11/09/2016	SW6850	Perchlorate	34.7		ug/L	2.0	X	0.095	1.0
J1 Range Northern	MW-564M1	MW-564M1_F16D	227	237	11/09/2016	SW6850	Perchlorate	34.3		ug/L	2.0	X	0.095	1.0
J1 Range Northern	MW-549M2	MW-549M2_F16	187.3	197.3	11/09/2016	SW6850	Perchlorate	0.036	J	ug/L	2.0		0.019	0.20
J1 Range Northern	MW-549M1	MW-549M1_F16	227.4	237.4	11/09/2016	SW6850	Perchlorate	2.0		ug/L	2.0		0.019	0.20
J1 Range Northern	MW-547M2	MW-547M2_F16	178	188	11/09/2016	SW6850	Perchlorate	0.021	J	ug/L	2.0		0.019	0.20
J1 Range Northern	MW-547M1	MW-547M1_F16	237	247	11/09/2016	SW6850	Perchlorate	0.59		ug/L	2.0		0.019	0.20
J1 Range Northern	MW-566M1	MW-566M1_F16	232	242	11/09/2016	SW6850	Perchlorate	2.8		ug/L	2.0	X	0.019	0.20
J1 Range Northern	MW-346M4	MW-346M4_F16	140	150	11/08/2016	SW6850	Perchlorate	0.021	J	ug/L	2.0		0.019	0.20
J1 Range Northern	MW-346M3	MW-346M3_F16	175	185	11/08/2016	SW6850	Perchlorate	0.11	J	ug/L	2.0		0.019	0.20
J1 Range Northern	MW-346M2	MW-346M2_F16	205.3	215.3	11/07/2016	SW6850	Perchlorate	1.6		ug/L	2.0		0.019	0.20
J1 Range Northern	MW-346M2	MW-346M2_F16	205.3	215.3	11/07/2016	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	4.8		ug/L	0.60	X	0.025	0.20
J1 Range Northern	MW-346M2	MW-346M2_F16D	205.3	215.3	11/07/2016	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	4.7		ug/L	0.60	X	0.025	0.20
J1 Range Northern	MW-346M1	MW-346M1_F16	245	255	11/07/2016	SW6850	Perchlorate	14.9		ug/L	2.0	X	0.019	0.20
J1 Range Northern	MW-346M1	MW-346M1_F16	245	255	11/07/2016	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	7.8		ug/L	0.60	X	0.025	0.20
J1 Range Northern	MW-346M1	MW-346M1_F16D	245	255	11/07/2016	SW6850	Perchlorate	14.8		ug/L	2.0	X	0.019	0.20
J1 Range Northern	MW-346M1	MW-346M1_F16D	245	255	11/07/2016	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	7.8		ug/L	0.60	X	0.025	0.20
J1 Range Northern	MW-245M2	MW-245M2_F16	204	214	11/07/2016	SW6850	Perchlorate	55.5		ug/L	2.0	X	0.19	2.0
J1 Range Northern	MW-245M2	MW-245M2_F16	204	214	11/07/2016	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	65.0		ug/L	0.60	X	0.13	1.0
J1 Range Northern	MW-245M2	MW-245M2_F16	204	214	11/07/2016	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	9.8		ug/L	400		0.019	0.20
J1 Range Northern	MW-245M2	MW-245M2_F16D	204	214	11/07/2016	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	10.3		ug/L	400		0.019	0.20
J1 Range Northern	MW-245M2	MW-245M2_F16D	204	214	11/07/2016	SW6850	Perchlorate	55.9		ug/L	2.0	X	0.19	2.0
J1 Range Northern	MW-245M2	MW-245M2_F16D	204	214	11/07/2016	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	67.5		ug/L	0.60	X	0.13	1.0
J1 Range Northern	MW-245M1	MW-245M1_F16	244	254	11/07/2016	SW6850	Perchlorate	0.25		ug/L	2.0		0.019	0.20
J1 Range Northern	MW-349M2	MW-349M2_F16	195	205	11/07/2016	SW6850	Perchlorate	0.022	J	ug/L	2.0		0.019	0.20
J1 Range Southern	MW-647M2	MW-647M2_F16	189.3	199.3	10/24/2016	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.20		ug/L	0.60		0.025	0.20
J1 Range Southern	MW-647M1	MW-647M1_F16	211.3	221.3	10/24/2016	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	7.3		ug/L	0.60	X	0.025	0.20
J1 Range Southern	MW-647M1	MW-647M1_F16D	211.3	221.3	10/24/2016	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	7.4		ug/L	0.60	X	0.025	0.20
J1 Range Southern	MW-524M1	MW-524M1_F16	148	158	10/20/2016	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.32		ug/L	400		0.019	0.20
J1 Range Southern	MW-524M1	MW-524M1_F16	148	158	10/20/2016	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.9		ug/L	0.60	X	0.025	0.20
J1 Range Southern	MW-524M1	MW-524M1_F16D	148	158	10/20/2016	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.31		ug/L	400		0.019	0.20
J1 Range Southern	MW-524M1	MW-524M1_F16D	148	158	10/20/2016	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.9		ug/L	0.60	X	0.025	0.20
J1 Range Southern	MW-592M1	MW-592M1_F16	201	211	10/19/2016	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.0		ug/L	0.60	X	0.025	0.20
J1 Range Southern	MW-482M2	MW-482M2_F16	172.6	182.6	10/17/2016	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.4		ug/L	0.60	X	0.025	0.20
J1 Range Southern	MW-482M2	MW-482M2_F16D	172.6	182.6	10/17/2016	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.4		ug/L	0.60	X	0.025	0.20
J1 Range Southern	MW-645M1	MW-645M1_F16	183.5	193.5	10/17/2016	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.2		ug/L	0.60	X	0.025	0.20
J3 Range	J3EWIP2	J3EWIP2_D7	149.5	169.5	08/04/2016	SW6850	Perchlorate	19.7		ug/L	2.0	X	0.019	0.20
J3 Range	J3EWIP2	J3EWIP2_D1	149.5	169.5	07/29/2016	SW6850	Perchlorate	42.5		ug/L	2.0	X	0.095	1.0

J = Estimated Result
MDL = Method Detection Limit
RL = Reporting LImit

MCL/HA= Either the MCL or Lowest Health Advisory Limit

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received December 2016

Area of Concern	Location ID	Field Sample ID	Top Depth (ft bgs)	Bottom Depth (ft bgs)	Date Sampled	Test Method	Analyte	Result Value	Qualifier	Units	MCL/HA	> MCL/HA	MDL	RL
Central Impact Area	CIA3-INF	CIAEW3-INF_071216	0	0	07/12/2016	SW6850	Perchlorate	0.11	J	ug/L	2.0		0.019	0.20
Central Impact Area	CIA3-INF	CIAEW3-INF_071216	0	0	07/12/2016	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.3		ug/L	0.60	X	0.025	0.20
Central Impact Area	CIA3-INF	CIAEW3-INF_070716	0	0	07/07/2016	SW6850	Perchlorate	0.27		ug/L	2.0		0.019	0.20
Central Impact Area	CIA3-INF	CIAEW3-INF_070716	0	0	07/07/2016	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.4		ug/L	0.60	X	0.025	0.20
Central Impact Area	CIA3-INF	CIAEW3-INF_070516	0	0	07/05/2016	SW6850	Perchlorate	0.11	J	ug/L	2.0		0.019	0.20
Central Impact Area	CIA3-INF	CIAEW3-INF_070516	0	0	07/05/2016	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.5		ug/L	0.60	X	0.025	0.20
Central Impact Area	CIA3-INF	CIAEW3-INF_063016	0	0	06/30/2016	SW6850	Perchlorate	0.14	J	ug/L	2.0		0.019	0.20
Central Impact Area	CIA3-INF	CIAEW3-INF_063016	0	0	06/30/2016	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.5		ug/L	0.60	X	0.025	0.20

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MCL/HA= Either the MCL or Lowest Health Advisory Limit