

**MONTHLY PROGRESS REPORT #218
FOR MAY 2015**

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 May to 31 May 2015.

1. SUMMARY OF REMEDIATION ACTIONS

The following is a description of Remediation Actions (RA) underway at Camp Edwards as of May 2015. Remediation Actions may include Rapid Response Actions (RRA). An RRA is an interim action that may be conducted prior to risk assessments or remedial investigations to address a known, ongoing threat of contamination to groundwater and/or soil.

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, and the Base Boundary 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 was operating at a flow rate of 250 gpm with over 2.223 billion gallons of water treated and re-injected as of 29 May 2015. No shut downs of the Frank Perkins Road facility occurred in May.

The Pew Road Mobile Treatment Unit (MTU) continues to operate at a flow rate of 105 gpm with over 414 million gallons of water treated and re-injected as of 29 May 2015. The following Pew Road MTU shut downs occurred in May:

- Shut down on 4 May 2015 at 2010 due to a system alarm, and was restarted on 5 May 2015 at 0726;
- Shut down on 5 May 2015 at 1744 due to a system alarm, and was restarted on 6 May 2015 at 1350; and
- Shut down on 19 May 2015 at 1040 due to a power interruption, and was restarted on 19 May 2015 at 1059.

The Base Boundary RA continues to operate at a flow rate of 65 gpm with over 113.2 million gallons of water treated and re-injected as of 29 May 2015. No Base Boundary MTU shut downs occurred in May.

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 29 May 2015, over 259 million gallons of water have been treated and re-injected. No J-1 Range Southern system shut downs occurred in May.

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 will continue to operate at a total system flow rate of 250 gpm. As of 29 May 2015, over 162 million gallons of water have been treated and re-injected. The following J-1 Range Northern MTU shut down occurred in May:

- Pump P-101 was shut down on 1 May 2015 at 2248 due to a system alarm, and was restarted on 4 May 2015 at 1327.

J-3 Range Groundwater RRA

The J-3 Range Groundwater RRA consists of removal and treatment of contaminated groundwater to control further migration of explosives compounds and perchlorate. The ETR system includes three 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 195 gpm. As of 29 May, over 813 million gallons of water have been treated and re-injected. No J-3 Range system shut downs occurred in May.

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 Infiltration (ETI) 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 29 May 2015, over 603 million gallons of water have been treated and re-injected. The following Northern Treatment Building shut down occurred in May:

- Shut down on 13 May 2015 at 2330 due to a power interruption, and was restarted on 14 May 2015 at 0808.

The Northern MTUs E and F continue to operate at a flow rate of 250 gpm. As of 29 May 2015, over 995 million gallons of water have been treated and re-injected. The following J-2 Range Northern MTUs shut downs occurred in May:

- MTUs E and F shut down on 13 May 2015 at 2330, due to a power interruption and were restarted on 14 May 2015 at 0754 and 0750, respectively; and
- MTUs E and F shut down on 19 May 2015 at 0912 and 0902, respectively, due to a system alarm and were restarted on 19 May 2015 at 1443 and 1439, respectively.

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 29 May 2015, over 682 million gallons of water have been treated and re-injected. The following MTU H and I shut downs of MTUs H and I occurred in May:

- MTU I was shut down on 20 May 2015 at 1344 due to a media change-out, and was restarted on 21 May 2015 at 1019; and
- MTUs H and I were shut down on 27 May 2015 at 0752 due to a media change-out, and was restarted on 28 May 2015 at 0904.

MTU J continues to operate at a flow rate of 120 gpm. As of 29 May 2015, over 323 million gallons of water have been treated and re-injected. No shut downs of MTU J occurred in May.

MTU K continues to operate at a flow rate of 125 gpm. As of 29 May 2015, over 386 million gallons of water have been treated and re-injected. No shut downs of MTU K occurred in May.

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: two 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 two infiltration galleries to return treated water to the aquifer. The CIA systems 1 and 2 continue to run at a combined total flow rate of 500 gpm. As of 29 May 2015, over 350 million gallons of water have been treated and re-injected. No CIA treatment facility shutdowns occurred in May.

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, 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 from Demolition Area 1, Demolition Area 2, J-1 Range Northern, J-1 Range Southern, CIA, and Western Boundary.

Collected additional delineation soil samples at grids behind firing line at U Range at the Training Area.

Collected cued Metalmapper data in phase II area 1 (10 acres), and continued intrusive investigation of the 16-acre area (phase I blue grids).

JBCC IAGWSP Tech Update Meeting Minutes 14 May 2015

Project and Field Work Update

IAGWSP reported that last week the U.S. Fish and Wildlife Service listed the Northern Long-Eared Bat as a threatened species under the Endangered Species Act. The listing will impact many IAGWSP projects as surveys will be required before any fieldwork can be conducted. IAGWSP funded a contract, managed by Jake McCumber, the natural resources Program Manager for the Massachusetts Army National Guard, to purchase equipment and perform required surveys. IAGWSP met with Mr. McCumber to prioritize projects and surveys have already begun. It was noted that while it will not affect groundwater or soil sampling, any major projects e.g. well drilling or treatment system construction will be impacted. IAGWSP agreed to send to the agencies a list of the affected projects including maps.

The CIA annual source removal report responses to comments was discussed. USACE explained the discrepancies in the different numbers presented for the 100% grid. It was explained that it resulted from attempts to simplify the material by excluding "shared hits" i.e. when there are different target IDs resulting from the same piece of metal. Discussion was held on the terminology used in the report and consistency with ESTCP verbiage. It was explained that because munitions classification is a relatively new technology, the language is rapidly evolving and some has even changed since the project began. It was agreed to try and define terms in the report. Changes based on the discussion will be captured in the MOR for the 2014 source removal report.

Action Items

The action items were discussed and updated

J-1 Range Monitoring Presentation

A monitoring presentation was provided on the J-1 Range Northern and Southern annual monitoring reports. For the northern plume, it was noted that during the reporting period (February 2014 to December 2014), six new monitoring wells were added to the network and a new infiltration gallery was activated. System performance statistics were reviewed. Groundwater monitoring results and trends were reviewed and discussed. The maximum detection was 82.1 ppb for RDX and 71.3 ppb for perchlorate. An overview of the hydraulic monitoring and capture zone analysis was presented. There were two synoptic water level rounds and levels were consistent with past results.

The capture zones were developed manually and by model and it appears that the existing systems are adequately capturing the plumes. A comparison to the Decision Document (DD) criteria was reviewed. The 2011 DD predicted that for RDX, the risk based cleanup level of 0.6 ppb would be reached between 2035 and 2047; for perchlorate the cleanup level of 2 ppb would be reached between 2035 and 2037. At this time there are no changes to the model predicted cleanup times. MassDEP disagreed noting that the amount of higher mass would most likely extend the cleanup times. IAGWSP is recommending the addition of MW-370M1 to the chemical monitoring program to confirm the bifurcation of the plume indicated by trends at MW-370M2 and an additional round of hydraulic monitoring in the fall.

For the southern plume, it was noted that during the reporting period (February 2014 to December 2014), no new drilling or construction work was completed but the Final System Startup Report for J2SEW002 was submitted. System performance statistics were reviewed. Groundwater monitoring results and trends were reviewed and discussed. The maximum RDX detection on base was 9.2 ppb, off-base was 3.8 ppb. The southern leading edge of the plume appears to be in a declining trend; it has been less than 1 ppb since October 2013. An overview of hydraulic monitoring and capture zone analysis was presented. There was one synoptic water level round and levels were consistent with past results. The capture zones were developed manually and by model and it appears that the existing systems are adequately capturing the plume. A comparison to the DD criteria was reviewed. The 2011 DD predicted that for RDX, the risk based cleanup level of 0.6 ppb would be reached by 2024. At this time there are no changes to the model predicted cleanup times. IAGWSP is recommending the addition of three new off-base monitoring wells and replacement of MW-483PZ/M1 for the hydraulic monitoring network. It was recommended that the plume shell update be suspended until the off-base investigation is completed.

JBCC IAGWSP Tech Update Meeting Minutes 28 May 2015

Project and Field Work Update

IAGWSP introduced Jake McCumber, the Natural Resources Program Manager for the Massachusetts Army National Guard, to discuss the recent listing of the Northern Long-Eared Bat as a threatened species under the Endangered Species Act. He explained that because of the severity of the decline of the species, Fish and Wildlife is being conservative in preserving maternal roost colonies which will impact many IAGWSP projects scheduled between April and October (active season for the bats). The standards set are quite limiting and any cutting of trees over three inches in diameter will require consultation with Fish and Wildlife. He stated that he has begun performing acoustic surveys, starting with the Central Impact Area; however, weather conditions have not been favorable to meet the survey criteria to date. A request to broaden the definition of what will be allowed for the surveys is being submitted later this week. Mr. McCumber explained that he is trying to blanket the site with acoustic detectors; there are currently five on-site and four more on order. The next site to be surveyed is Demolition Area 1 off-base in Pocasset.

He noted that until there is sufficient survey data to indicate the presence or absence of bats, projects cannot move forward. IAGWSP had met with Mr. McCumber to prioritize projects and he indicated that there are some that are clearly not a habitat and he can make a determination of no adverse effect, e.g. N Range, J-2 Range and KD Range. However there are others that are exceptional habitat, e.g. Demolition Area 1 off-site. IAGWSP will continue to coordinate with the Natural Resources office and provide updates at technical meetings.

Small Arms Ranges Sampling Results and Next Steps

A spreadsheet and figures with the results of recent soil sampling from the Small Arms Ranges were distributed and discussed. Options for subsequent efforts, including additional sampling, XRF surveys and excavation, were discussed. MassDEP noted that they were most interested in the Former C Range

sampling and how that effects the Small Arms Ranges Decision Document. IAGWSP will draft a project note outlining their proposal for follow-up sampling at Former C Range.

Action Items

The action items were discussed and updated

JBCC Cleanup Team Meeting

The JBCC Cleanup Team (JBCCCT), formerly the MMR Cleanup Team (MMRCT) is next scheduled to meet on July 8, 2015. 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 May through 31 May 2015. 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, Jonathan Bourne Library, Falmouth Public Library, and Sandwich Public Library).

2. DELIVERABLES SUBMITTED

Deliverables submitted during the reporting period include the following:

- Monthly Progress Report No. 217 for April 2015 5/10/2015
- Changes to the J-3 Range Chemical Monitoring Well Network Project Note 5/08/2015
- L Range – Proposed Off Based Borings and Revised Plume Shell Project Note 5/12/2015
- J-3 Range Confirmatory Geophysical Investigation Project Note 5/14/2015
- J-3 Range Confirmatory Sampling Program Project Note 5/14/2015
- Final Central Impact Area 2014 Interim Environmental Monitoring Report 5/15/2015
- Changes to the J-2 Range Eastern and J-2 Range Northern Chemical Monitoring Well Network Project Note 5/18/2015
- Final J-3 Range 2014 Interim Environmental Monitoring Report 5/21/2015

3. SCHEDULED ACTIONS

The following documents are being prepared or revised during June 2015:

- CIA 2014 Source Report;
- CIA Phase II Work Plan;
- CIA Groundwater Treatment Design;
- Demolition Area 1 Startup Plan;
- Demolition Area 1 Source Area Optimization Extraction Well Project Note;
- J-2 Range Project Note for Additional Wells to Evaluate Source Response;
- J-3 Range Decision Document;
- Small Arms Ranges Decision Document;
- Training Areas Draft Investigation Report;
- Demolition Area 2 Decision Document Addendum;
- CIA 2014 Interim Environmental Monitoring Report;
- J-3 Range 2014 Environmental Monitoring Report;
- J-2 Range Eastern and J-2 Range Northern 2014 Environmental Monitoring Report;
- J-1 Range Northern and J-1 Range Southern 2015 Environmental Monitoring Report;
- Gun & Mortar Firing Positions Groundwater Monitoring Well Abandonment Project Note; and
- Small Arms Ranges 2015 Annual Interim Environmental Monitoring Report.

TABLE 1
Sampling Progress: 1 May to 31 May 2015

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J1 Range Northern	J1N-INF1B	J1N-INF1B_S15	N	05/28/2015	Process Water	0	0
J1 Range Northern	J1N-INF1A	J1N-INF1A_S15	N	05/28/2015	Process Water	0	0
Western Boundary	MW-213M3	MW-213M3_S15	N	05/27/2015	Ground Water	77	82
Western Boundary	MW-213M2	MW-213M2_S15	N	05/27/2015	Ground Water	89	99
Western Boundary	MW-213M2	MW-213M2_S15D	FD	05/27/2015	Ground Water	89	99
Western Boundary	MW-80M2	MW-80M2_S15	N	05/27/2015	Ground Water	99	109
Western Boundary	MW-80M1	MW-80M1_S15	N	05/27/2015	Ground Water	130	140
Western Boundary	MW-233M3	MW-233M3_S15	N	05/27/2015	Ground Water	231	241
J1 Range Northern	MW-303M3	MW-303M3_S15	N	05/26/2015	Ground Water	139.7	149.7
J1 Range Northern	MW-303M2	MW-303M2_S15	N	05/26/2015	Ground Water	235.1	245.1
J1 Range Northern	MW-590M2	MW-590M2_S15	N	05/26/2015	Ground Water	238	248
J1 Range Northern	MW-590M1	MW-590M1_S15	N	05/26/2015	Ground Water	258	268
J1 Range Northern	MW-584M2	MW-584M2_S15	N	05/26/2015	Ground Water	228	238
J1 Range Northern	MW-584M1	MW-584M1_S15	N	05/26/2015	Ground Water	248	258
U Range	SSURFL06	URFL06_A	N	05/25/2015	Soil	0	0.25
U Range	SSURFL05	URFL05_C	FR	05/25/2015	Soil	0	0.25
U Range	SSURFL05	URFL05_B	FR	05/25/2015	Soil	0	0.25
U Range	SSURFL05	URFL05_A	N	05/25/2015	Soil	0	0.25
J1 Range Northern	MW-401M3	MW-401M3_S15	N	05/21/2015	Ground Water	228.5	238.5
J1 Range Northern	MW-245M2	MW-245M2_S15	N	05/21/2015	Ground Water	204	214
J1 Range Northern	MW-245M2	MW-245M2_S15D	FD	05/21/2015	Ground Water	204	214
J1 Range Northern	MW-401M1	MW-401M1_S15	N	05/21/2015	Ground Water	256.1	266.1
J1 Range Northern	MW-606M2	MW-606M2_S15	N	05/21/2015	Ground Water	193.2	203.2
J1 Range Northern	MW-606M1	MW-606M1_S15	N	05/21/2015	Ground Water	233.3	243.3
J1 Range Northern	MW-541M1	MW-541M1_S15	N	05/20/2015	Ground Water	210	220
J1 Range Northern	MW-430M2	MW-430M2_S15	N	05/20/2015	Ground Water	188.4	198.4
J1 Range Northern	MW-430M1	MW-430M1_S15	N	05/20/2015	Ground Water	245.2	255.2
J1 Range Northern	MW-540M1	MW-540M1_S15	N	05/20/2015	Ground Water	258	268
Central Impact Area	MW-626M2	MW-626M2_R2	N	05/20/2015	Ground Water	237.2	247.2
Central Impact Area	MW-626M2	MW-626M2_R2D	FD	05/20/2015	Ground Water	237.2	247.2
Central Impact Area	MW-626M1	MW-626M1_R2	N	05/20/2015	Ground Water	282.2	292.2
J1 Range Northern	MW-566M1	MW-566M1_S15	N	05/14/2015	Ground Water	232	242
J1 Range Northern	MW-564M1	MW-564M1_S15	N	05/14/2015	Ground Water	227	237
J1 Range Northern	MW-564M1	MW-564M1_S15D	FD	05/14/2015	Ground Water	227	237
J1 Range Northern	MW-549M2	MW-549M2_S15	N	05/14/2015	Ground Water	187.3	197.3
J1 Range Northern	MW-549M1	MW-549M1_S15	N	05/14/2015	Ground Water	227.4	237.4
J1 Range Northern	MW-567M1	MW-567M1_S15	N	05/14/2015	Ground Water	215.5	225.5
J1 Range Northern	MW-567M1	MW-567M1_S15D	FD	05/14/2015	Ground Water	215.5	225.5
J1 Range Northern	MW-605M2	MW-605M2_S15	N	05/13/2015	Ground Water	182.2	192.2
J1 Range Northern	MW-605M1	MW-605M1_S15	N	05/13/2015	Ground Water	220.2	230.2
J1 Range Northern	MW-370M2	MW-370M2_S15	N	05/13/2015	Ground Water	215.5	225.5
Central Impact Area	MW-370M1	MW-370M1_S15	N	05/13/2015	Ground Water	245	255
J1 Range Northern	MW-370M1	MW-370M1_S15	N	05/13/2015	Ground Water	245	255
Demolition Area 2	MW-160S	MW-160S_S15	N	05/13/2015	Ground Water	137.5	147.5
Demolition Area 2	MW-161S	MW-161S_S15	N	05/13/2015	Ground Water	145.5	155.5
Demolition Area 2	MW-161S	MW-161S_S15D	FD	05/13/2015	Ground Water	145.5	155.5
Demolition Area 2	MW-16S	MW-16S_S15	N	05/12/2015	Ground Water	125	135
Demolition Area 2	MW-311M2	MW-311M2_S15	N	05/12/2015	Ground Water	200	210
Demolition Area 2	MW-311M1	MW-311M1_S15	N	05/12/2015	Ground Water	222	232
Demolition Area 2	MW-380M2	MW-380M2_S15	N	05/12/2015	Ground Water	205.7	215.7
Demolition Area 2	MW-380M1	MW-380M1_S15	N	05/12/2015	Ground Water	226.6	236.6
Demolition Area 2	MW-259M1	MW-259M1_S15	N	05/07/2015	Ground Water	189	199
Demolition Area 2	MW-262M1	MW-262M1_S15	N	05/07/2015	Ground Water	226	236
J1 Range Southern	J1S-EFF	J1S-EFF-90A	N	05/07/2015	Process Water	0	0
J1 Range Southern	J1S-MID	J1S-MID-90A	N	05/07/2015	Process Water	0	0
J1 Range Southern	J1S-INF-2	J1S-INF-2-90A	N	05/07/2015	Process Water	0	0
J3 Range	J3-EFF	J3-EFF-104A	N	05/07/2015	Process Water	0	0
J3 Range	J3-MID-2	J3-MID-2-104A	N	05/07/2015	Process Water	0	0
J3 Range	J3-MID-1	J3-MID-1-104A	N	05/07/2015	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 May to 31 May 2015

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
J3 Range	J3-INF	J3-INF-104A	N	05/07/2015	Process Water	0	0
Demolition Area 2	MW-404M2	MW-404M2_S15	N	05/07/2015	Ground Water	200	210
Demolition Area 1	D1-EFF	D1-EFF-58A	N	05/07/2015	Process Water	0	0
Demolition Area 1	D1-MID-2	D1-MID-2-58A	N	05/07/2015	Process Water	0	0
Demolition Area 1	D1-MID-1	D1-MID-1-58A	N	05/07/2015	Process Water	0	0
Demolition Area 1	D1-INF	D1-INF-58A	N	05/07/2015	Process Water	0	0
Demolition Area 2	MW-404M1	MW-404M1_S15	N	05/07/2015	Ground Water	219.5	229.5
Demolition Area 1	FPR-2-EFF-A	FPR-2-EFF-A-110A	N	05/07/2015	Process Water	0	0
Demolition Area 1	FPR-2-GAC-MID3A	FPR-2-GAC-MID3A-110A	N	05/07/2015	Process Water	0	0
Demolition Area 1	FPR2-POST-IX-A	FPR2-POST-IX-A-110A	N	05/07/2015	Process Water	0	0
Demolition Area 1	FPR-2-INF	FPR-2-INF-110A	N	05/07/2015	Process Water	0	0
Demolition Area 1	PR-EFF	PR-EFF-110A	N	05/07/2015	Process Water	0	0
Demolition Area 1	PR-MID-2	PR-MID-2-110A	N	05/07/2015	Process Water	0	0
Demolition Area 1	PR-MID-1	PR-MID-1-110A	N	05/07/2015	Process Water	0	0
Demolition Area 1	PR-INF	PR-INF-110A	N	05/07/2015	Process Water	0	0
Demolition Area 2	MW-572M1	MW-572M1_S15	N	05/06/2015	Ground Water	164.9	174.9
J2 Range Northern	J2N-EFF-G	J2N-EFF-G-104A	N	05/06/2015	Process Water	0	0
J2 Range Northern	J2N-MID-2G	J2N-MID-2G-104A	N	05/06/2015	Process Water	0	0
J2 Range Northern	J2N-MID-1G	J2N-MID-1G-104A	N	05/06/2015	Process Water	0	0
J2 Range Northern	J2N-INF-G	J2N-INF-G-104A	N	05/06/2015	Process Water	0	0
Demolition Area 2	MW-406M2	MW-406M2_S15	N	05/06/2015	Ground Water	202.5	212.5
Demolition Area 2	MW-406M1	MW-406M1_S15	N	05/06/2015	Ground Water	224.7	229.7
J2 Range Northern	J2N-EFF-EF	J2N-EFF-EF-104A	N	05/06/2015	Process Water	0	0
J2 Range Northern	J2N-MID-2F	J2N-MID-2F-104A	N	05/06/2015	Process Water	0	0
J2 Range Northern	J2N-MID-1F	J2N-MID-1F-104A	N	05/06/2015	Process Water	0	0
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-104A	N	05/06/2015	Process Water	0	0
J2 Range Northern	J2N-MID-2E	J2N-MID-2E-104A	N	05/06/2015	Process Water	0	0
Demolition Area 2	MW-573M2	MW-573M2_S15	N	05/06/2015	Ground Water	155.4	165.4
Demolition Area 2	MW-573M1	MW-573M1_S15D	FD	05/06/2015	Ground Water	155.4	165.4
J2 Range Northern	J2N-MID-1E	J2N-MID-1E-104A	N	05/06/2015	Process Water	0	0
J1 Range Northern	J1N-EFF	J1N-EFF-19A	N	05/06/2015	Process Water	0	0
J1 Range Northern	J1N-MID2	J1N-MID2-19A	N	05/06/2015	Process Water	0	0
Demolition Area 2	MW-573M1	MW-573M1_S15	N	05/06/2015	Ground Water	176.4	186.4
J1 Range Northern	J1N-MID1	J1N-MID1-19A	N	05/06/2015	Process Water	0	0
J1 Range Northern	J1N-INF2	J1N-INF2-19A	N	05/06/2015	Process Water	0	0
Demolition Area 2	MW-435M2	MW-435M2_S15	N	05/06/2015	Ground Water	149.6	159.6
Demolition Area 2	MW-435M1	MW-435M1_S15	N	05/06/2015	Ground Water	169.9	180
J1 Range Southern	MW-591M2	MW-591M2_S15	N	05/05/2015	Ground Water	165	175
Central Impact Area	CIA2-EFF	CIA2-EFF-16A	N	05/05/2015	Process Water	0	0
Central Impact Area	CIA2-MID2	CIA2-MID2-16A	N	05/05/2015	Process Water	0	0
J1 Range Southern	MW-591M1	MW-591M1_S15	N	05/05/2015	Ground Water	200	210
Central Impact Area	CIA2-MID1	CIA2-MID1-16A	N	05/05/2015	Process Water	0	0
Central Impact Area	CIA2-INF	CIA2-INF-16A	N	05/05/2015	Process Water	0	0
Central Impact Area	CIA1-EFF	CIA1-EFF-16A	N	05/05/2015	Process Water	0	0
Central Impact Area	CIA1-MID2	CIA1-MID2-16A	N	05/05/2015	Process Water	0	0
Central Impact Area	CIA1-MID1	CIA1-MID1-16A	N	05/05/2015	Process Water	0	0
Central Impact Area	CIA1-INF	CIA1-INF-16A	N	05/05/2015	Process Water	0	0
J1 Range Southern	MW-592M2	MW-592M2_S15	N	05/05/2015	Ground Water	158	168
J1 Range Southern	MW-592M1	MW-592M1_S15	N	05/05/2015	Ground Water	201	211
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-80A	N	05/05/2015	Process Water	0	0
J2 Range Eastern	J2E-MID-2H	J2E-MID-2H-80A	N	05/05/2015	Process Water	0	0
J2 Range Eastern	J2E-MID-1H	J2E-MID-1H-80A	N	05/05/2015	Process Water	0	0
J2 Range Eastern	J2E-MID-2I	J2E-MID-2I-80A	N	05/05/2015	Process Water	0	0
J2 Range Eastern	J2E-MID-1I	J2E-MID-1I-80A	N	05/05/2015	Process Water	0	0
J2 Range Eastern	J2E-INF-I	J2E-INF-I-80A	N	05/05/2015	Process Water	0	0
J2 Range Eastern	J2E-EFF-K	J2E-EFF-K-80A	N	05/05/2015	Process Water	0	0
J2 Range Eastern	J2E-MID-2K	J2E-MID-2K-80A	N	05/05/2015	Process Water	0	0
J2 Range Eastern	J2E-MID-1K	J2E-MID-1K-80A	N	05/05/2015	Process Water	0	0
J2 Range Eastern	J2E-INF-K	J2E-INF-K-80A	N	05/05/2015	Process Water	0	0

N = Normal Sample
FD = Field Duplicate

TABLE 1
Sampling Progress: 1 May to 31 May 2015

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-EFF-J	J2E-EFF-J-80A	N	05/05/2015	Process Water	0	0
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-80A	N	05/05/2015	Process Water	0	0
J2 Range Eastern	J2E-MID-1J	J2E-MID-1J-80A	N	05/05/2015	Process Water	0	0
J2 Range Eastern	J2E-INF-J	J2E-INF-J-80A	N	05/05/2015	Process Water	0	0
J1 Range Southern	J1S-EW2-INF	J1S-EW2-INF_S15	N	05/05/2015	Process Water	0	0
J1 Range Southern	J1S-EW1-INF	J1S-EW1-INF_S15	N	05/05/2015	Process Water	0	0
J1 Range Southern	MW-402M2	MW-402M2_S15	N	05/04/2015	Ground Water	155.2	165.3
J1 Range Southern	MW-402M1	MW-402M1_S15	N	05/04/2015	Ground Water	190.1	200.1
J1 Range Southern	MW-403M2	MW-403M2_S15	N	05/04/2015	Ground Water	127.3	137.4
J1 Range Southern	MW-403M1	MW-403M1_S15	N	05/04/2015	Ground Water	159.9	169.9
Demolition Area 1	MW-274	MW-274_S15	N	05/04/2015	Ground Water	109	199
J1 Range Southern	MW-524M1	MW-524M1_S15	N	05/01/2015	Ground Water	148	158
J1 Range Southern	MW-524M1	MW-524M1_S15D	FD	05/01/2015	Ground Water	148	158
J1 Range Southern	MW-400M2	MW-400M2_S15	N	05/01/2015	Ground Water	138.9	148.9
J1 Range Southern	MW-400M1	MW-400M1_S15	N	05/01/2015	Ground Water	192.8	202.8

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
 Data Received May 2015

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	MW-25	MW-25_S15	108	118	04/24/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.88		UG/L	0.60	X	0.025	0.20
Central Impact Area	MW-485M1	MW-485M1_S15	125.3	135.3	04/24/2015	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.56		UG/L	400		0.019	0.20
Central Impact Area	MW-485M1	MW-485M1_S15	125.3	135.3	04/24/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	7.1		UG/L	0.60	X	0.025	0.20
Central Impact Area	MW-98M1	MW-98M1_S15	164	175	04/23/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.20		UG/L	0.60		0.025	0.20
Central Impact Area	MW-98M1	MW-98M1_S15	164	175	04/23/2015	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.25		UG/L	400		0.019	0.20
Central Impact Area	MW-02M2	MW-02M2_S15	170	175	04/23/2015	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.45		UG/L	400		0.019	0.20
Central Impact Area	MW-02M2	MW-02M2_S15	170	175	04/23/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.8		UG/L	0.60	X	0.025	0.20
Central Impact Area	MW-113M2	MW-113M2_S15	190	200	04/23/2015	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.30		UG/L	400		0.019	0.20
Central Impact Area	MW-113M2	MW-113M2_S15	190	200	04/23/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.6		UG/L	0.60	X	0.025	0.20
Demolition Area 1	MW-582M2	MW-582M2_S15	84	94	04/22/2015	SW6850	Perchlorate	2.8		UG/L	2.0	X	0.019	0.20
Demolition Area 1	MW-582M2	MW-582M2_S15D	84	94	04/22/2015	SW6850	Perchlorate	2.8		UG/L	2.0	X	0.019	0.20
Demolition Area 1	MW-582M1	MW-582M1_S15	134	144	04/22/2015	SW6850	Perchlorate	2.4		UG/L	2.0	X	0.019	0.20
Demolition Area 1	MW-258M1	MW-258M1_S15	109	119	04/21/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.92		UG/L	0.60	X	0.025	0.20
Demolition Area 1	MW-258M1	MW-258M1_S15	109	119	04/21/2015	SW6850	Perchlorate	11.6		UG/L	2.0	X	0.038	0.40
Demolition Area 1	MW-248M3	MW-248M3_S15	143	153	04/21/2015	SW6850	Perchlorate	0.029	J	UG/L	2.0		0.019	0.20
Demolition Area 1	MW-248M2	MW-248M2_S15	178	188	04/21/2015	SW6850	Perchlorate	0.10	J	UG/L	2.0		0.019	0.20
Demolition Area 1	MW-73S	MW-73S_S15	52.2	61.7	04/21/2015	SW6850	Perchlorate	0.37		UG/L	2.0		0.019	0.20
Demolition Area 1	MW-73S	MW-73S_S15	52.2	61.7	04/21/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.56		UG/L	0.60		0.025	0.20
Demolition Area 1	MW-258M1	MW-258M1_S15D	109	119	04/21/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.94		UG/L	0.60	X	0.025	0.20
Demolition Area 1	MW-258M1	MW-258M1_S15D	109	119	04/21/2015	SW6850	Perchlorate	11.6		UG/L	2.0	X	0.038	0.40
Demolition Area 1	MW-531M1	MW-531M1_S15	138	148	04/20/2015	SW6850	Perchlorate	0.54		UG/L	2.0		0.019	0.20
Demolition Area 1	MW-542M1	MW-542M1_S15	144	154	04/20/2015	SW6850	Perchlorate	0.11	J	UG/L	2.0		0.019	0.20
Demolition Area 1	MW-532M2	MW-532M2_S15	138	148	04/20/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.84		UG/L	0.60	X	0.025	0.20
Demolition Area 1	MW-532M2	MW-532M2_S15	138	148	04/20/2015	SW6850	Perchlorate	6.6		UG/L	2.0	X	0.019	0.20
Demolition Area 1	MW-532M1	MW-532M1_S15	168	178	04/20/2015	SW6850	Perchlorate	0.64		UG/L	2.0		0.019	0.20
Demolition Area 1	MW-210M2	MW-210M2_S15	156	166	04/20/2015	SW6850	Perchlorate	0.50		UG/L	2.0		0.019	0.20
Demolition Area 1	MW-210M1	MW-210M1_S15	201	211	04/20/2015	SW6850	Perchlorate	0.022	J	UG/L	2.0		0.019	0.20
Demolition Area 1	MW-532M2	MW-532M2_S15D	138	148	04/20/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.82		UG/L	0.60	X	0.025	0.20
Demolition Area 1	MW-532M2	MW-532M2_S15D	138	148	04/20/2015	SW6850	Perchlorate	6.6		UG/L	2.0	X	0.019	0.20
Central Impact Area	MW-623M3	MW-623M3_S15	275	285	04/17/2015	SW6850	Perchlorate	0.061	J	UG/L	2.0		0.019	0.20
Central Impact Area	MW-623M3	MW-623M3_S15	275	285	04/17/2015	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.23		UG/L	400		0.019	0.20
Central Impact Area	MW-623M3	MW-623M3_S15	275	285	04/17/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	7.7	J	UG/L	0.60	X	0.025	0.20
Central Impact Area	MW-623M1	MW-623M1_S15	340	350	04/17/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.7	J	UG/L	0.60	X	0.025	0.20
Demolition Area 1	MW-19S	MW-19S_S15	52.7	62.7	04/15/2015	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.59		UG/L	400		0.019	0.20
Demolition Area 1	MW-19S	MW-19S_S15	52.7	62.7	04/15/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.5		UG/L	0.60	X	0.025	0.20
Demolition Area 1	MW-19S	MW-19S_S15D	52.7	62.7	04/15/2015	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.59		UG/L	400		0.019	0.20
Demolition Area 1	MW-19S	MW-19S_S15D	52.7	62.7	04/15/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.6		UG/L	0.60	X	0.025	0.20

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

TABLE 2
VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS
Data Received May 2015

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
Demolition Area 1	MW-571M2	MW-571M2_S15	74	84	04/13/2015	SW6850	Perchlorate	2.1		UG/L	2.0	X	0.019	0.20
Demolition Area 1	MW-571M1	MW-571M1_S15	114	124	04/13/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.24		UG/L	0.60		0.025	0.20
Demolition Area 1	MW-571M1	MW-571M1_S15	114	124	04/13/2015	SW6850	Perchlorate	3.9		UG/L	2.0	X	0.019	0.20
Demolition Area 1	MW-571M1	MW-571M1_S15D	114	124	04/13/2015	SW6850	Perchlorate	3.7		UG/L	2.0	X	0.019	0.20
Demolition Area 1	MW-569M2	MW-569M2_S15	84	94	04/13/2015	SW6850	Perchlorate	1.2		UG/L	2.0		0.019	0.20
Demolition Area 1	MW-569M1	MW-569M1_S15	114	124	04/13/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.28		UG/L	0.60		0.025	0.20
Demolition Area 1	MW-569M1	MW-569M1_S15	114	124	04/13/2015	SW6850	Perchlorate	5.2		UG/L	2.0	X	0.019	0.20
Demolition Area 1	MW-569M1	MW-569M1_S15D	114	124	04/13/2015	SW6850	Perchlorate	5.3		UG/L	2.0	X	0.019	0.20
J2 Range Eastern	J2MW-04M1	J2MW-04M1_S15	257	267	04/13/2015	SW6850	Perchlorate	0.33		UG/L	2.0		0.019	0.20
J2 Range Eastern	J2MW-04M1	J2MW-04M1_S15	257	267	04/13/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.53		UG/L	0.60		0.025	0.20
J2 Range Eastern	J2MW-04M1	J2MW-04M1_S15	257	267	04/13/2015	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.65		UG/L	400		0.019	0.20

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