

**MONTHLY PROGRESS REPORT #219  
FOR JUNE 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 June to 30 June 2015.

**1. SUMMARY OF REMEDIATION ACTIONS**

The following is a description of Remediation Actions (RA) underway at Camp Edwards as of June 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 2.235 billion gallons of water treated and re-injected as of 26 June 2015. No shut downs of the Frank Perkins Road facility occurred in June.

The Pew Road Mobile Treatment Unit (MTU) continues to operate at a flow rate of 105 gpm with over 418 million gallons of water treated and re-injected as of 26 June 2015. The following Pew Road MTU shut downs occurred in June:

- Shut down on 23 June 2015 at 1445 due to a system alarm and was restarted on 23 June 2015 at 1457.

The Base Boundary RA continues to operate at a flow rate of 65 gpm with over 116 million gallons of water treated and re-injected as of 26 June 2015. No Base Boundary MTU shut downs occurred in June.

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 26 June 2015, over 263 million gallons of water have been treated and re-injected. No J-1 Range Southern system shut downs occurred in June.

#### 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 26 June 2015, over 170 million gallons of water have been treated and re-injected. The following J-1 Range Northern MTU shut down occurred in June:

- Shut down on 18 June 2015 at 1142 for system maintenance and was restarted on 18 June 2015 at 1232.

#### 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 26 June 2015, over 821 million gallons of water have been treated and re-injected. No J-3 Range system shut downs occurred in June.

#### 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 26 June 2015, over 610 million gallons of water have been treated and re-injected. No Northern Treatment Building shut downs occurred in June.

The Northern MTUs E and F continue to operate at a flow rate of 250 gpm. As of 26 June 2015, over 1.002 million gallons of water have been treated and re-injected. The following J-2 Range Northern MTUs shut downs occurred in June:

- MTU E shut down on 4 June 2015 at 1400 due to a system alarm and was restarted on 5 June 2015 at 0837;

- MTU E shut down on 13 June 2015 at 1522 due to a system alarm and was restarted on 15 June 2015 at 0743;
- MTU F shut down on 22 June 2015 at 0901 due to a system alarm and was restarted on 22 June 2015 at 1149; and
- MTU E shut down on 30 June 2015 at 1223 due to a system alarm (the system remained off for media change-out) and was restarted on 2 July 2015 at 1250.

### 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 26 June 2015, over 690 million gallons of water have been treated and re-injected. No shut downs of MTUs H and I occurred in June.

MTU J continues to operate at a flow rate of 120 gpm. As of 26 June 2015, over 327 million gallons of water have been treated and re-injected. No shut downs of MTU J occurred in June.

MTU K continues to operate at a flow rate of 125 gpm. As of 26 June 2015, over 390 million gallons of water have been treated and re-injected. The following shut downs of MTU K occurred in June:

- MTU K shut down on 30 June 2015 at 1432 for media change-out and was restarted on 2 July 2015 at 1050.

### 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 26 June 2015, over 370 million gallons of water have been treated and re-injected. No CIA treatment facility shutdowns occurred in June.

## **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 Northwest Corner, CIA, and Western Boundary.

Continued drilling in J-1 Range South.

Performed MEC investigation at grids in accordance with Project Note at J-2 Range.

Collected additional delineation soil samples at Former B and Former C Ranges at the Small Arms Ranges.

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

Robot vegetation clearance was performed in phase II area 2 at the CIA.

Performed daily inspection of the BEM cover to ensure cover is intact/secure.

Performed vegetation and UXO clearance at IBC Range in the Training Areas.

### **JBCC IAGWSP Tech Update Meeting Minutes 11 June 2015**

#### **Project and Field Work Update**

Metal Mapper continues to collect data in Phase II area 1. The second Metal Mapper has been repaired and returned to the site. Figures showing the status of data collection efforts in the CIA were reviewed. Jake McCumber, the Natural Resources Program Manager for the Massachusetts Army National Guard, was able to complete the bat survey in the CIA and no northern long-eared bats were identified. Therefore, beginning next week robotics will begin vegetation cutting in Phase II area 2. Bat surveys continue at Demolition Area 1 off-base in Pocasset as well as several other areas on-base. IAGWSP will continue to provide updates at tech meetings.

The drill rig completed the replacement at MW-483. IAGWSP will provide an email with recommended screens for this location. Drilling is underway at CIA EW-3 pilot boring. They are currently at 200 feet deep and drilling has been going well. After drilling is complete at the pilot boring, the rig will move into the J-1 southern wells in the neighborhood in Forestdale. It was noted that the locations were moved slightly so that no trees would require cutting.

USACE Baltimore district will be mobilizing to the site within the next couple of weeks to begin MEC work at the polygons in the CIA as well as the J-2 Range. Training Area sampling results are expected soon.

USACE explained that the original filing to the State Historic Preservation Office (SHPO) for the Demolition Area 1 off-base was reviewed by the SHPO and they requested additional information. The package has been resubmitted and is in the 30-day review process. USACE noted that they do not anticipate the review will take the full 30-days.

#### **Demolition Area 1 Optimization of Treatment System**

A presentation on the proposed optimization of the Demolition Area 1 treatment system was distributed and discussed. IAGWSP explained that while there has been a significant decline in the RDX levels at the source area (specifically MW-19S) concentrations continue to be above cleanup standards. IAGWSP is proposing an additional extraction well to help achieve the Decision Document cleanup goals (RDX 2022, perchlorate 2025). They noted that since there is existing excess treatment capacity in the Frank

Perkins Road treatment facility the cost would be relatively low. A project note was submitted to the agencies on June 2 and is being revised based on agency comments.

### **Small Arms Ranges – Sampling Results and Next Steps**

Figures illustrating the results of recent soil sampling from the Former B and Former C small arms ranges were displayed and discussed. IAGWSP is drafting a project note that will describe a proposal for additional sampling at these ranges. MassDEP noted that they will turn around review of the project note quickly since sampling could impact the Small Arms Ranges Decision Document.

### **Action Items**

The action items were discussed and updated.

### **JBCC Cleanup Team Meeting**

The JBCC Cleanup Team (JBCC CT) 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 JBCC CT 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 June through 30 June 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 and Sandwich Public Library).

**2. DELIVERABLES SUBMITTED**

Deliverables submitted during the reporting period include the following:

- Monthly Progress Report No. 218 for May 2015 6/10/2015
- Final J-2 Range Eastern 2014 Environmental Monitoring Report  
and J-2 Range Northern 2014 Environmental Monitoring Report 6/03/2015
- Demolition Area 1 System Optimization Project Note 6/23/2015
- Draft Small Arms Ranges 2015 Interim Environmental Monitoring Report 6/29/2015

**3. SCHEDULED ACTIONS**

The following documents are being prepared or revised during July 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;
- J-3 Range 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 June to 30 June 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 Southern	BH-645	J1SP-1_266-271	N	06/29/2015	GW Profile	266	271
Northwest Corner	MW-441M2	MW-441M2_S15	N	06/29/2015	Ground Water	109.5	119.5
J1 Range Southern	BH-645	J1SP-1_256-261	N	06/29/2015	GW Profile	256	261
Northwest Corner	MW-441M1	MW-441M1_S15	N	06/29/2015	Ground Water	204.6	214.6
Northwest Corner	MW-350M2	MW-350M2_S15	N	06/29/2015	Ground Water	126	136
J1 Range Southern	BH-645	J1SP-1_246-251	N	06/29/2015	GW Profile	246	251
Northwest Corner	MW-344M2	MW-344M2_S15	N	06/29/2015	Ground Water	145	155
Northwest Corner	MW-344M2	MW-344M2_S15D	FD	06/29/2015	Ground Water	145	155
Northwest Corner	MW-344S	MW-344S_S15	N	06/29/2015	Ground Water	115.5	125.5
J1 Range Southern	BH-645	J1SP-1_236-241	N	06/29/2015	GW Profile	236	241
J1 Range Southern	BH-645	J1SP-1_226-231	N	06/26/2015	GW Profile	226	231
J1 Range Southern	BH-645	J1SP-1_216-221	N	06/26/2015	GW Profile	216	221
J1 Range Southern	BH-645	J1SP-1_206-211	N	06/26/2015	GW Profile	206	211
J1 Range Southern	BH-645	J1SP-1_196-201	N	06/26/2015	GW Profile	196	201
J1 Range Southern	BH-645	J1SP-1_196-201D	FD	06/26/2015	GW Profile	196	201
J1 Range Southern	BH-645	J1SP-1_186-191	N	06/26/2015	GW Profile	186	191
J1 Range Southern	BH-645	J1SP-1_176-181	N	06/26/2015	GW Profile	176	181
J1 Range Southern	BH-645	J1SP-1_176-181D	FD	06/26/2015	GW Profile	176	181
J1 Range Southern	BH-645	J1SP-1_166-171	N	06/25/2015	GW Profile	166	171
J1 Range Southern	BH-645	J1SP-1_156-161	N	06/25/2015	GW Profile	156	161
J1 Range Southern	BH-645	J1SP-1_146-151	N	06/25/2015	GW Profile	146	151
J1 Range Southern	BH-645	J1SP-1_136-141	N	06/25/2015	GW Profile	136	141
J1 Range Southern	BH-645	J1SP-1_126-131	N	06/25/2015	GW Profile	126	131
J1 Range Southern	BH-645	J1SP-1_116-121	N	06/25/2015	GW Profile	116	121
Central Impact Area	SSCIACSL03	CIABEMPILE-A	N	06/24/2015	Soil	0	0.25
Central Impact Area	SSCIACSL03	CIABEM-A	N	06/24/2015	Soil	0	0.25
Northwest Corner	RSNW01	RSNW01_S15	N	06/24/2015	Ground Water	0	0
Northwest Corner	RSNW06	RSNW06_S15	N	06/24/2015	Ground Water	0	0
Northwest Corner	MW-284M2	MW-284M2_S15	N	06/24/2015	Ground Water	45	55
Northwest Corner	MW-284M2	MW-284M2_S15D	FD	06/24/2015	Ground Water	45	55
Northwest Corner	MW-284M1	MW-284M1_S15	N	06/24/2015	Ground Water	115	125
Northwest Corner	MW-270S	MW-270S_S15	N	06/24/2015	Ground Water	22	32
Northwest Corner	MW-270D	MW-270D_S15	N	06/24/2015	Ground Water	132	137
Northwest Corner	MW-270M1	MW-270M1_S15	N	06/24/2015	Ground Water	74	79
Northwest Corner	MW-283M1	MW-283M1_S15	N	06/24/2015	Ground Water	38	48
Northwest Corner	MW-338S	MW-338S_S15	N	06/23/2015	Ground Water	72	82
Northwest Corner	MW-323M2	MW-323M2_S15	N	06/23/2015	Ground Water	120	130
Northwest Corner	MW-323M1	MW-323M1_S15	N	06/23/2015	Ground Water	195	205
Northwest Corner	MW-323M1	MW-323M1_S15D	FD	06/23/2015	Ground Water	195	205
Northwest Corner	MW-279S	MW-279S_S15	N	06/23/2015	Ground Water	66	76
Northwest Corner	MW-279M2	MW-279M2_S15	N	06/23/2015	Ground Water	83	88
Northwest Corner	MW-279M1	MW-279M1_S15	N	06/23/2015	Ground Water	96	106
Northwest Corner	MW-314S	MW-314S_S15	N	06/22/2015	Ground Water	24	34
Northwest Corner	MW-297M1	MW-297M1_S15	N	06/22/2015	Ground Water	92	102
Western Boundary	4036000-04G	4036000-04G_15Q2	N	06/22/2015	Ground Water	55	65
Western Boundary	4036000-04G	4036000-04G_15Q2D	FD	06/22/2015	Ground Water	55	65
Western Boundary	4036000-03G	4036000-03G_15Q2	N	06/22/2015	Ground Water	50	60
Western Boundary	4036000-06G	4036000-06G_15Q2	N	06/22/2015	Ground Water	108	128
Western Boundary	4036000-01G	4036000-01G_15Q2	N	06/22/2015	Ground Water	38	70
Central Impact Area	MW-207M1	MW-207M1_S15	N	06/16/2015	Ground Water	254	264
Central Impact Area	MW-42M3	MW-42M3_S15	N	06/16/2015	Ground Water	165.8	176
Central Impact Area	MW-42M2	MW-42M2_S15	N	06/16/2015	Ground Water	185.8	196
Central Impact Area	MW-607M3	MW-607M3_S15	N	06/16/2015	Ground Water	157.4	167.4
Central Impact Area	MW-607M2	MW-607M2_S15	N	06/16/2015	Ground Water	177.4	187.4
Central Impact Area	MW-607M2	MW-607M2_S15D	FD	06/16/2015	Ground Water	177.4	187.4
Central Impact Area	MW-607M1	MW-607M1_S15	N	06/16/2015	Ground Water	207.4	217.4
Central Impact Area	MW-176M1	MW-176M1_S15	N	06/15/2015	Ground Water	270	280
Central Impact Area	MW-609M2	MW-609M2_S15	N	06/15/2015	Ground Water	182.4	192.4
Central Impact Area	MW-609M1	MW-609M1_S15	N	06/15/2015	Ground Water	210.4	220.4

**TABLE 1**  
**Sampling Progress: 1 June to 30 June 2015**

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
Central Impact Area	MW-223D	MW-223D_S15	N	06/15/2015	Ground Water	260	270
Central Impact Area	MW-223M2	MW-223M2_S15	N	06/15/2015	Ground Water	185	195
Central Impact Area	MW-223M1	MW-223M1_S15	N	06/15/2015	Ground Water	211	221
Central Impact Area	BH-644	SSCIAPilot_296-303	N	06/12/2015	Soil Profile	296	303
Central Impact Area	BH-644	CIAPilot_291-296	N	06/12/2015	GW Profile	291	296
Central Impact Area	BH-644	SSCIAPilot_286-296	N	06/12/2015	Soil Profile	286	296
Central Impact Area	BH-644	CIAPilot_281-286	N	06/12/2015	GW Profile	281	286
Central Impact Area	BH-644	CIAPilot_281-286D	FD	06/12/2015	GW Profile	281	286
Central Impact Area	BH-644	SSCIAPilot_276-286	N	06/12/2015	Soil Profile	276	286
Central Impact Area	BH-644	CIAPilot_271-276	N	06/11/2015	GW Profile	271	276
Central Impact Area	BH-644	SSCIAPilot_266-276	N	06/11/2015	Soil Profile	266	276
Central Impact Area	BH-644	CIAPilot_261-266	N	06/11/2015	GW Profile	261	266
J3 Range	90PLT01006	90PLT01006_S15	N	06/11/2015	Process Water	0	0
Central Impact Area	BH-644	SSCIAPilot_256-266	N	06/11/2015	Soil Profile	256	266
Central Impact Area	MW-629M2	MW-629M2_R3	N	06/11/2015	Ground Water	186.9	196.9
Central Impact Area	MW-629M2	MW-629M2_R3D	FD	06/11/2015	Ground Water	186.9	196.9
Central Impact Area	BH-644	CIAPilot_251-256	N	06/11/2015	GW Profile	251	256
Central Impact Area	BH-644	SSCIAPilot_246-256	N	06/11/2015	Soil Profile	246	256
Central Impact Area	MW-629M1	MW-629M1_R3	N	06/11/2015	Ground Water	216.9	226.9
Central Impact Area	MW-629M1	MW-629M1_R3D	FD	06/11/2015	Ground Water	216.9	226.9
Central Impact Area	BH-644	CIAPilot_241-246	N	06/11/2015	GW Profile	241	246
Central Impact Area	MW-638M2	MW-638M2_R3	N	06/11/2015	Ground Water	204.2	214.2
Central Impact Area	MW-638M2	MW-638M2_R3D	FD	06/11/2015	Ground Water	204.2	214.2
Central Impact Area	BH-644	SSCIAPilot_236-246	N	06/11/2015	Soil Profile	236	246
Central Impact Area	MW-638M1	MW-638M1_R3	N	06/11/2015	Ground Water	261.2	271.2
Central Impact Area	BH-644	CIAPilot_231-236	N	06/11/2015	GW Profile	231	236
Central Impact Area	BH-644	SSCIAPilot_226-236	N	06/10/2015	Soil Profile	226	236
Central Impact Area	BH-644	CIAPilot_221-226	N	06/10/2015	GW Profile	221	226
Central Impact Area	BH-644	SSCIAPilot_216-226	N	06/10/2015	Soil Profile	216	226
Central Impact Area	MW-633M2	MW-633M2_R3	N	06/10/2015	Ground Water	197	207
Central Impact Area	MW-633M1	MW-633M1_R3	N	06/10/2015	Ground Water	282	292
Central Impact Area	BH-644	CIAPilot_211-216	N	06/10/2015	GW Profile	211	216
Central Impact Area	MW-618M2	MW-618M2_R3	N	06/10/2015	Ground Water	190.5	200.5
Central Impact Area	BH-644	SSCIAPilot_206-216	N	06/10/2015	Soil Profile	206	216
Central Impact Area	MW-618M1	MW-618M1_R3	N	06/10/2015	Ground Water	238.5	248.5
Central Impact Area	MW-149M1	MW-149M1_S15	N	06/09/2015	Ground Water	237.5	247.5
Central Impact Area	MW-608M4	MW-608M4_S15	N	06/09/2015	Ground Water	185.4	195.4
Central Impact Area	MW-608M3	MW-608M3_S15	N	06/09/2015	Ground Water	220.4	230.4
Central Impact Area	MW-608M2	MW-608M2_S15	N	06/09/2015	Ground Water	253.4	263.4
Central Impact Area	MW-608M2	MW-608M2_S15D	FD	06/09/2015	Ground Water	253.4	263.4
Central Impact Area	MW-608M1	MW-608M1_S15	N	06/09/2015	Ground Water	267.4	277.4
Central Impact Area	MW-249M2	MW-249M2_S15	N	06/09/2015	Ground Water	174	184
J1 Range Southern	J1S-EFF	J1S-EFF-91A	N	06/04/2015	Process Water	0	0
J1 Range Southern	J1S-MID-2	J1S-MID-2-91A	N	06/04/2015	Process Water	0	0
J1 Range Southern	J1S-INF-2	J1S-INF-2-91A	N	06/04/2015	Process Water	0	0
Demolition Area 1	FPR-2-EFF-A	FPR-2-EFF-A-111A	N	06/04/2015	Process Water	0	0
Demolition Area 1	FPR-2-GAC-MID3A	FPR-2-GAC-MID3A-111A	N	06/04/2015	Process Water	0	0
Demolition Area 1	FPR2-POST-IX-A	FPR2-POST-IX-A-111A	N	06/04/2015	Process Water	0	0
Demolition Area 1	FPR-2-INF	FPR-2-INF-111A	N	06/04/2015	Process Water	0	0
Demolition Area 1	PR-EFF	PR-EFF-111A	N	06/04/2015	Process Water	0	0
Demolition Area 1	PR-MID-2	PR-MID-2-111A	N	06/04/2015	Process Water	0	0
Demolition Area 1	PR-MID-1	PR-MID-1-111A	N	06/04/2015	Process Water	0	0
Demolition Area 1	PR-INF	PR-INF-111A	N	06/04/2015	Process Water	0	0
Demolition Area 1	D1-EFF	D1-EFF-59A	N	06/04/2015	Process Water	0	0
Demolition Area 1	D1-MID-2	D1-MID-2-59A	N	06/04/2015	Process Water	0	0
Demolition Area 1	D1-MID-1	D1-MID-1-59A	N	06/04/2015	Process Water	0	0
Demolition Area 1	D1-INF	D1-INF-59A	N	06/04/2015	Process Water	0	0
Central Impact Area	CIA2-EFF	CIA2-EFF-17A	N	06/03/2015	Process Water	0	0
Central Impact Area	CIA2-MID2	CIA2-MID2-17A	N	06/03/2015	Process Water	0	0

**TABLE 1**  
**Sampling Progress: 1 June to 30 June 2015**

Area Of Concern	Location	Field Sample ID	Sample Type	Date Sampled	Matrix	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)
Central Impact Area	CIA2-MID1	CIA2-MID1-17A	N	06/03/2015	Process Water	0	0
Central Impact Area	CIA2-INF	CIA2-INF-17A	N	06/03/2015	Process Water	0	0
Northwest Corner	MW-277S	MW-277S_S15	N	06/03/2015	Ground Water	102	112
Central Impact Area	CIA1-EFF	CIA1-EFF-17A	N	06/03/2015	Process Water	0	0
Central Impact Area	CIA1-MID2	CIA1-MID2-17A	N	06/03/2015	Process Water	0	0
Central Impact Area	CIA1-MID1	CIA1-MID1-17A	N	06/03/2015	Process Water	0	0
Central Impact Area	CIA1-INF	CIA1-INF-17A	N	06/03/2015	Process Water	0	0
Northwest Corner	MW-277M1	MW-277M1_S15	N	06/03/2015	Ground Water	130	140
J2 Range Eastern	J2E-EFF-IH	J2E-EFF-IH-81A	N	06/03/2015	Process Water	0	0
J2 Range Eastern	J2E-MID-2H	J2E-MID-2H-81A	N	06/03/2015	Process Water	0	0
Northwest Corner	MW-278S	MW-278S_S15	N	06/03/2015	Ground Water	80	90
J2 Range Eastern	J2E-MID-1H	J2E-MID-1H-81A	N	06/03/2015	Process Water	0	0
J2 Range Eastern	J2E-MID-2I	J2E-MID-2I-81A	N	06/03/2015	Process Water	0	0
J2 Range Eastern	J2E-MID-1I	J2E-MID-1I-81A	N	06/03/2015	Process Water	0	0
J2 Range Eastern	J2E-INF-I	J2E-INF-I-81A	N	06/03/2015	Process Water	0	0
Northwest Corner	MW-278M2	MW-278M2_S15	N	06/03/2015	Ground Water	97	102
J2 Range Eastern	J2E-EFF-K	J2E-EFF-K-81A	N	06/03/2015	Process Water	0	0
J2 Range Eastern	J2E-MID-2K	J2E-MID-2K-81A	N	06/03/2015	Process Water	0	0
J2 Range Eastern	J2E-MID-1K	J2E-MID-1K-81A	N	06/03/2015	Process Water	0	0
J2 Range Eastern	J2E-INF-K	J2E-INF-K-81A	N	06/03/2015	Process Water	0	0
Northwest Corner	MW-278M1	MW-278M1_S15	N	06/03/2015	Ground Water	113	123
J2 Range Eastern	J2E-EFF-J	J2E-EFF-J-81A	N	06/03/2015	Process Water	0	0
J2 Range Eastern	J2E-MID-2J	J2E-MID-2J-81A	N	06/03/2015	Process Water	0	0
J2 Range Eastern	J2E-MID-1J	J2E-MID-1J-81A	N	06/03/2015	Process Water	0	0
J2 Range Eastern	J2E-INF-J	J2E-INF-J-81A	N	06/03/2015	Process Water	0	0
Western Boundary	MW-02-07M3	MW-02-07M3_S15	N	06/02/2015	Ground Water	47	57
Western Boundary	MW-02-08M3	MW-02-08M3_S15	N	06/02/2015	Ground Water	62	67
J3 Range	J3-EFF	J3-EFF-105A	N	06/02/2015	Process Water	0	0
J3 Range	J3-MID-2	J3-MID-2-105A	N	06/02/2015	Process Water	0	0
J3 Range	J3-MID-1	J3-MID-1-105A	N	06/02/2015	Process Water	0	0
J3 Range	J3-INF	J3-INF-105A	N	06/02/2015	Process Water	0	0
Western Boundary	MW-02-08M2	MW-02-08M2_S15	N	06/02/2015	Ground Water	82	87
Western Boundary	MW-02-09M2	MW-02-09M2_S15	N	06/02/2015	Ground Water	59	69
J2 Range Northern	J2N-EFF-G	J2N-EFF-G-105A	N	06/02/2015	Process Water	0	0
J2 Range Northern	J2N-MID-2G	J2N-MID-2G-105A	N	06/02/2015	Process Water	0	0
J2 Range Northern	J2N-MID-1G	J2N-MID-1G-105A	N	06/02/2015	Process Water	0	0
J2 Range Northern	J2N-INF-G	J2N-INF-G-105A	N	06/02/2015	Process Water	0	0
Western Boundary	MW-02-09M1	MW-02-09M1_S15	N	06/02/2015	Ground Water	74	84
J2 Range Northern	J2N-EFF-EF	J2N-EFF-EF-105A	N	06/02/2015	Process Water	0	0
J2 Range Northern	J2N-MID-2F	J2N-MID-2F-105A	N	06/02/2015	Process Water	0	0
J2 Range Northern	J2N-MID-1F	J2N-MID-1F-105A	N	06/02/2015	Process Water	0	0
J2 Range Northern	J2N-INF-EF	J2N-INF-EF-105A	N	06/02/2015	Process Water	0	0
J2 Range Northern	J2N-MID-2E	J2N-MID-2E-105A	N	06/02/2015	Process Water	0	0
J2 Range Northern	J2N-MID-1E	J2N-MID-1E-105A	N	06/02/2015	Process Water	0	0
Western Boundary	MW-268M1	MW-268M1_S15	N	06/02/2015	Ground Water	97	107
J1 Range Northern	J1N-EFF	J1N-EFF-20A	N	06/02/2015	Process Water	0	0
J1 Range Northern	J1N-MID2	J1N-MID2-20A	N	06/02/2015	Process Water	0	0
J1 Range Northern	J1N-MID1	J1N-MID1-20A	N	06/02/2015	Process Water	0	0
J1 Range Northern	J1N-INF2	J1N-INF2-20A	N	06/02/2015	Process Water	0	0
Western Boundary	MW-280M3	MW-280M3_S15	N	06/01/2015	Ground Water	185	195
Western Boundary	MW-280M2	MW-280M2_S15	N	06/01/2015	Ground Water	202	212
Western Boundary	MW-280M1	MW-280M1_S15	N	06/01/2015	Ground Water	255	265
J3 Range	LKSNK0007	LKSNK0007_S15	N	06/01/2015	Surface Water	0	4
J3 Range	LKSNK0006	LKSNK0006_S15	N	06/01/2015	Surface Water	0	1
J3 Range	LKSNK0005	LKSNK0005_S15	N	06/01/2015	Surface Water	0	4

**TABLE 2**  
**VALIDATED EXPLOSIVE AND PERCHLORATE RESULTS**  
**Data Received June 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 2	MW-161S	MW-161S_S15	145.5	155.5	05/13/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.4		UG/L	0.60	X	0.025	0.20
Demolition Area 2	MW-161S	MW-161S_S15D	145.5	155.5	05/13/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.4		UG/L	0.60	X	0.025	0.20
Demolition Area 2	MW-380M2	MW-380M2_S15	205.7	215.7	05/12/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.22		UG/L	0.60		0.025	0.20
Demolition Area 2	MW-259M1	MW-259M1_S15	189	199	05/07/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.24		UG/L	0.60		0.025	0.20
Demolition Area 2	MW-572M1	MW-572M1_S15	164.9	174.9	05/06/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.42		UG/L	0.60		0.025	0.20
Demolition Area 2	MW-573M2	MW-573M2_S15	155.4	165.4	05/06/2015	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.27	J	UG/L	400		0.019	0.20
Demolition Area 2	MW-573M2	MW-573M2_S15	155.4	165.4	05/06/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	4.3	J	UG/L	0.60	X	0.025	0.20
Demolition Area 2	MW-573M2	MW-573M2_S15D	155.4	165.4	05/06/2015	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.24		UG/L	400		0.019	0.20
Demolition Area 2	MW-573M2	MW-573M2_S15D	155.4	165.4	05/06/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	4.0		UG/L	0.60	X	0.025	0.20
Demolition Area 2	MW-435M2	MW-435M2_S15	149.6	159.6	05/06/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.52		UG/L	0.60		0.025	0.20
J1 Range Southern	MW-592M1	MW-592M1_S15	201	211	05/05/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.1		UG/L	0.60	X	0.025	0.20
Demolition Area 1	MW-274	MW-274_S15	109	199	05/04/2015	SW6850	Perchlorate	0.087	J	UG/L	2.0		0.015	0.20
J1 Range Southern	MW-524M1	MW-524M1_S15	148	158	05/01/2015	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.36		UG/L	400		0.019	0.20
J1 Range Southern	MW-524M1	MW-524M1_S15	148	158	05/01/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.3		UG/L	0.60	X	0.025	0.20
J1 Range Southern	MW-524M1	MW-524M1_S15D	148	158	05/01/2015	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.41		UG/L	400		0.019	0.20
J1 Range Southern	MW-524M1	MW-524M1_S15D	148	158	05/01/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.7		UG/L	0.60	X	0.025	0.20
Central Impact Area	MW-39M1	MW-39M1_S15	220	230	04/30/2015	SW6850	Perchlorate	0.32		UG/L	2.0		0.015	0.20
Central Impact Area	MW-39M1	MW-39M1_S15	220	230	04/30/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.6		UG/L	0.60	X	0.025	0.20
Central Impact Area	MW-39M1	MW-39M1_S15D	220	230	04/30/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.6		UG/L	0.60	X	0.025	0.20
Central Impact Area	MW-209M2	MW-209M2_S15	220	230	04/30/2015	SW6850	Perchlorate	0.54		UG/L	2.0		0.015	0.20
Central Impact Area	MW-209M1	MW-209M1_S15	240	250	04/30/2015	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.72		UG/L	400		0.019	0.20
Central Impact Area	MW-209M1	MW-209M1_S15	240	250	04/30/2015	SW6850	Perchlorate	1.4		UG/L	2.0		0.015	0.20
Central Impact Area	MW-209M1	MW-209M1_S15	240	250	04/30/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	3.3		UG/L	0.60	X	0.025	0.20
Central Impact Area	MW-43M2	MW-43M2_S15	200	210	04/29/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.21		UG/L	0.60		0.025	0.20
Central Impact Area	MW-43M1	MW-43M1_S15	223	233	04/29/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.89		UG/L	0.60	X	0.025	0.20
Central Impact Area	MW-88M2	MW-88M2_S15	213	223	04/29/2015	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.37		UG/L	400		0.019	0.20
Central Impact Area	MW-88M2	MW-88M2_S15	213	223	04/29/2015	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	MW-88M2	MW-88M2_S15	213	223	04/29/2015	SW6850	Perchlorate	4.5		UG/L	2.0	X	0.015	0.20
Central Impact Area	MW-88M2	MW-88M2_S15D	213	223	04/29/2015	SW6850	Perchlorate	4.6		UG/L	2.0	X	0.015	0.20
Central Impact Area	MW-95M2	MW-95M2_S15	167	177	04/29/2015	SW6850	Perchlorate	0.056	J	UG/L	2.0		0.015	0.20
Central Impact Area	MW-95M1	MW-95M1_S15	202	212	04/29/2015	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	0.21		UG/L	400		0.019	0.20
Central Impact Area	MW-95M1	MW-95M1_S15	202	212	04/29/2015	SW6850	Perchlorate	1.1		UG/L	2.0		0.015	0.20
Central Impact Area	MW-95M1	MW-95M1_S15	202	212	04/29/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1.9		UG/L	0.60	X	0.025	0.20
Central Impact Area	MW-89M2	MW-89M2_S15	214	224	04/29/2015	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	1.1		UG/L	400		0.019	0.20
Central Impact Area	MW-89M2	MW-89M2_S15	214	224	04/29/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	15.9		UG/L	0.60	X	0.025	0.20
Central Impact Area	MW-89M2	MW-89M2_S15	214	224	04/29/2015	SW6850	Perchlorate	7.9		UG/L	2.0	X	0.015	0.20
Central Impact Area	MW-89M2	MW-89M2_S15D	214	224	04/29/2015	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	1.1		UG/L	400		0.019	0.20
Central Impact Area	MW-89M2	MW-89M2_S15D	214	224	04/29/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	15.8		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 June 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-89M2	MW-89M2_S15D	214	224	04/29/2015	SW6850	Perchlorate	7.6		UG/L	2.0	X	0.015	0.20
Central Impact Area	MW-89M1	MW-89M1_S15	234	244	04/29/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.54		UG/L	0.60		0.025	0.20
Central Impact Area	MW-86S	MW-86S_S15	143	153	04/28/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.46		UG/L	0.60		0.025	0.20
Central Impact Area	MW-86M2	MW-86M2_S15	158	168	04/28/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.86		UG/L	0.60	X	0.025	0.20
Central Impact Area	MW-208M1	MW-208M1_S15	195	205	04/28/2015	SW6850	Perchlorate	0.034	J	UG/L	2.0		0.019	0.20
Central Impact Area	MW-87M1	MW-87M1_S15	194	204	04/27/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.65		UG/L	0.60	X	0.025	0.20
Central Impact Area	MW-87M1	MW-87M1_S15	194	204	04/27/2015	SW6850	Perchlorate	3.4		UG/L	2.0	X	0.019	0.20
Central Impact Area	MW-87M1	MW-87M1_S15D	194	204	04/27/2015	SW6850	Perchlorate	3.3		UG/L	2.0	X	0.019	0.20
Central Impact Area	MW-38M4	MW-38M4_S15	132	142	04/27/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.51		UG/L	0.60		0.025	0.20
Central Impact Area	MW-38M3	MW-38M3_S15	170	180	04/27/2015	SW6850	Perchlorate	0.47		UG/L	2.0		0.019	0.20
Central Impact Area	MW-38M3	MW-38M3_S15	170	180	04/27/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.50		UG/L	0.60		0.025	0.20
Central Impact Area	MW-184M1	MW-184M1_S15	186	196	04/27/2015	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	1.2		UG/L	400		0.019	0.20
Central Impact Area	MW-184M1	MW-184M1_S15	186	196	04/27/2015	SW6850	Perchlorate	2.2		UG/L	2.0	X	0.019	0.20
Central Impact Area	MW-184M1	MW-184M1_S15	186	196	04/27/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	6.0		UG/L	0.60	X	0.025	0.20
Central Impact Area	MW-184M1	MW-184M1_S15D	186	196	04/27/2015	SW8330	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	1.2		UG/L	400		0.019	0.20
Central Impact Area	MW-184M1	MW-184M1_S15D	186	196	04/27/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	5.9		UG/L	0.60	X	0.025	0.20
Central Impact Area	MW-204M2	MW-204M2_S15	76	86	04/27/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.3		UG/L	0.60	X	0.025	0.20
Central Impact Area	MW-623M2	MW-623M2_R3	291.8	301.8	04/17/2015	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	MW-628M2	MW-628M2_R3	120.8	130.8	04/17/2015	SW6850	Perchlorate	0.042	J	UG/L	2.0		0.019	0.20
Central Impact Area	MW-625M2	MW-625M2_R3	230	240	04/16/2015	SW6850	Perchlorate	0.031	J	UG/L	2.0		0.019	0.20
Central Impact Area	MW-625M1	MW-625M1_R3	260	270	04/16/2015	SW6850	Perchlorate	0.076	J	UG/L	2.0		0.019	0.20
Central Impact Area	MW-625M1	MW-625M1_R3	260	270	04/16/2015	SW8330	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	0.36		UG/L	0.60		0.025	0.20
Central Impact Area	MW-616M2	MW-616M2_R3	107.1	117.1	04/16/2015	SW6850	Perchlorate	0.031	J	UG/L	2.0		0.019	0.20
Central Impact Area	MW-616M1	MW-616M1_R3	217.1	227.1	04/16/2015	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	MW-617M1	MW-617M1_R3	175.8	185.8	04/16/2015	SW6850	Perchlorate	0.031	J	UG/L	2.0		0.019	0.20

J = Estimated Result  
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