

**MONTHLY PROGRESS REPORT #8
FOR NOVEMBER 1997**

**EPA REGION I ADMINISTRATIVE ORDER SDWA I-97-1019
MASSACHUSETTS MILITARY RESERVATION
TRAINING RANGE AND IMPACT AREA**

The following summary of progress is for the period from November 1 to November 30, 1997. Scheduled actions are for the six-week period ending January 12, 1998.

1. SUMMARY OF ACTIONS TAKEN

UXO Survey

No UXO surveys were performed in November. Remaining UXO surveys are scheduled to be completed in December.

Plans and Reports

NGB submitted a Draft Field Sampling Plan (FSP) for Storm Water on November 6, and for Surface Water and Sediment on November 7, 1997. NGB submitted a Final FSP for Areas 12/13 on November 25, 1997. These areas and the status of plans are summarized in Table 1.

Drilling

Ogden, D.L. Maher (the drilling contractor), and Valeri Construction (Maher's road building subcontractor) continued work on the site in November. TRC (EPA's oversight contractor) and the U.S. Geological Survey (USGS) were present for oversight of drilling activities during the month. Wells 5S, 5D, 7M1, 7M2, 13S, 13D, 18M1, and 18M2 were installed in November. Table 2 presents a summary of monitoring wells completed to date. Draft boring logs for these wells have been distributed to EPA, MADEP, USGS, and TRC during the weekly project review meetings.

Sampling

Soil sampling and groundwater profiling were performed at Wells 5 and 13 during the month. Hand auger samples were collected from the 18-24 inch depth interval from Areas 1, 2, 3, 9, 10, 14, and 41. Groundwater samples were collected from Wells 2D, 4S, 6S, 10S, 10D, 11S, 12S, 14S, 16S, 16D, 17S, 17D, 20S, 23M1, 23M2, 23M3, 24S, 28S, and 29S during November.

Analytical Results

Electronic Data Deliverables (EDDs) had been received from ITS (the laboratory contractor) for Sample Delivery Groups (SDGs) 1-10, 14, and 16 as of the end of the month. Ogden determined that none of the EDDs were complete upon initial receipt, and had requested additional information from ITS. This information was pending as of the end of November.

Hardcopy data deliverables had been received from ITS for SDGs 24-26 during November.

Validation

Ogden continued validation of hardcopy deliverables during November. All data contained in SDGs 1-5, 7, and 8 had been validated by the end of the month, and portions of the data for SDGs 9-21 and 23-26 had been validated.

Water Level Measurements

Water level recording devices that were installed in LRWS-2, CS-19 (MW-7E), and CS-10 (AEHA- 11) recorded water levels until their removal on November 25. Continuous water level measurements at these wells are now complete for a 3-month period.

Meetings

A November 20 meeting of the Impact Area Groundwater Study Review Team was convened by EPA to discuss progress on the project. Weekly project review meetings continued during the month with EPA, MADEP, USGS, TRC, and JPO.

2. SUMMARY OF DATA RECEIVED

Data validated prior to November 14 were entered on spreadsheets and provided to EPA and the Review Team at the November 20 meeting. Data that have been validated during November 14-30 were extracted from a preliminary electronic database and are provided in Attachment 1, and discussed briefly in the following paragraphs. Attachment 1 includes a key that explains how to determine sample location from the sample ID number, and a key to the validation codes and qualifiers. Locations of monitoring wells are shown in Figure 1. Locations of soil sampling Areas are shown in the figures provided in the Field Sampling Plans. Note that the results in Attachment 1 do not include compounds that were not detected in the samples.

Water Samples --

No validated data were received for samples from monitoring wells. Validated data were

received for groundwater profiling samples collected during the installation of Wells 1, 8, 15, 16, 18, 21, 25, and 27. Detected compounds included explosives and volatile organic compounds. Note that with the exception of RDX and HMX, the explosives compounds detected in profiling samples have not been confirmed in the samples from monitoring wells constructed at the same depths. Also note that the profiling sample results were intended to be used solely for deciding where to install monitoring well screens, and not for evaluation of chemical concentrations in the aquifer.

Soil Samples --

Validated data were received for soil samples collected during drilling (sample ID begins with "S") of Wells 1, 2, 9, 15, 16, 19, 25, and 27. Detected compounds included explosives, metals and other inorganics, and herbicides. Validated data were also received for surface soil samples collected by hand auger from Areas 2, 9, 10, and 14 (sample ID begins with "B"). Detected compounds included explosives, metals and other inorganics, and volatile organic compounds.

3. DELIVERABLES SUBMITTED

Deliverables submitted during the reporting period included the following:

| | |
|--|-------------------|
| Draft Field Sampling Plan for Storm Water | November 6, 1997 |
| Weekly Progress Update (October 31 - November 6) | November 7, 1997 |
| Draft Field Sampling Plan for Surface Water and Sediment | November 7, 1997 |
| Monthly Progress Report for October, 1997 | November 10, 1997 |
| Weekly Progress Update (November 7 - November 13) | November 14, 1997 |
| Weekly Progress Update (November 14 - November 20) | November 21, 1997 |
| Final Field Sampling Plan for Areas 12 and 13 | November 25, 1997 |

4. SCHEDULED ACTIONS

Actions for the next six weeks are indicated in Figure 2. This figure provides a Gantt chart based on the Final Action Plan, updated to reflect progress and proposed work.

Field Sampling Plans will continue to be finalized during December. Drilling, sampling, and analysis will continue during December.

A meeting of the Impact Area Groundwater Study Review Team will be convened on December 16, 1997.

| Table 1 Summary of Sampling Areas and Field Sampling Plan Status As of November 30, 1997 | | | | |
|---|----------------------|--|---|--|
| Area ^a | Well No. (depth) | Location name/Description in Action Plan | Sample methods/media | FSP status |
| 1 | 3 (S/I/D) | Area of Depression w/ Ground Scar | barber rig (soil) hand auger (soil) groundwater | final 7/18 final 10/17 final 10/28 |
| 2 | 2 (S/I/D), 26 (S) | Site 3/Target Area/Burn Area | barber rig (soil) hand auger (soil) groundwater | final 7/18 final 8/1 final 10/28 |
| 3 | 1(S/I/D) | Site 1 Target Area | barber rig (soil) hand auger (soil) groundwater | final 7/18 final 8/1 final 10/28 |
| 4 | 27 (S) | Site 4 Mounds | barber rig (soil) hand auger (soil) groundwater | final 7/18 final 10/6 final 10/28 |
| 5 | | Site 5 | hand auger (soil) | draft 10/13 |
| 6 | 7 (S/I/D) | Burn Area (southeast of Turpentine) | barber rig (soil) hand auger (soil) groundwater | final 7/18 final 9/26 final 10/28 |
| 7 | 8(S) | Burn Areas (southwest of Turpentine) | barber rig (soil) hand auger (soil) groundwater | final 7/18 final 9/26 final 10/28 |
| 8 | | Succonsette Pond | sediment/surface water hand auger (soil) | draft 11/7 final 9/26 |
| 9 | 4 (S) | (well on Pocasset Road north of Five Corners) | barber rig (soil) hand auger (soil: control area) groundwater | final 7/18 final 9/26 final 10/28 |
| 10 | 5 (S/I/D) | (well north of Wood Road) | barber rig (soil) hand auger (soil: control area) groundwater | final 7/18 final 9/26 final 10/28 |
| 11 | 25 (S) | (well southeast of CS-19) | barber rig (soil) hand auger (soil: control area) groundwater | final 7/18 final 9/26 final 10/28 |
| | 6 (S) | (well north of Area 5) | barber rig (soil) groundwater | final 7/18 final 10/28 |

| Table 1 Summary of Sampling Areas and Field Sampling Plan Status As of November 30, 1997 | | | | |
|---|---------------------|---|---|--|
| Area ^a | Well No. (depth) | Location name/Description in Action Plan | Sample methods/media | FSP status |
| 12 | 19 (S/D) | Demo Area 1 | barber rig (soil) hand auger (soil) groundwater | final 7/18 final 11/25 final 10/28 |
| 13 | 16 (S/D) | Demo Area 2 | barber rig (soil) hand auger (soil) groundwater | final 7/18 final 11/25 final 10/28 |
| 14 | | (access road to MW-7) | hand auger (soil: control area) | final 9/26 |
| | 9 (S) | none (well southwest of CS-19) | barber rig (soil) groundwater | final 7/18 final 10/28 |
| | 10 (S/I/D) | none (well on west Jefferson Road) | rotosonic rig (soil) groundwater | final 7/18 final 10/28 |
| | 11 (S) | none (well midway along Jefferson) | barber rig (soil) groundwater | final 7/18 final 10/28 |
| | 12 (S) | none (well on Barlow south of Wood) | barber rig (soil) groundwater | final 7/18 final 10/28 |
| | 13 (S/D) | none (well near J-3 range south of Chadwick) | barber rig (soil) groundwater | final 7/18 final 10/28 |
| | 14 (S) | none (well at the corner of Wheelock and Turpentine) | barber rig (soil) groundwater | final 7/18 final 10/28 |
| | 15 (S/D) | none (well at the corner of Spruce Swamp and Sandwich) | barber rig (soil) groundwater | final 7/18 final 10/28 |
| 15 | | Site 6 | hand auger (soil) | final 10/30 |
| | 28 (S) | none (well at corner of Wheelock and Chadwick) | barber rig (soil) groundwater | final 7/18 final 10/28 |
| | 29 (S) | none (well at the corner of Barlow and Chadwick) | barber rig (soil) groundwater | final 7/18 final 10/28 |
| | 17 (S/D) | none (well southeast of Demo-2) | rotosonic rig (soil) groundwater | final 7/18 final 10/28 |
| | 18 (S/I/D) | none (well on east end of Gibbs) | rotosonic rig (soil) groundwater | final 7/18 final 10/28 |

| Table 1 Summary of Sampling Areas and Field Sampling Plan Status As of November 30, 1997 | | | | |
|---|---------------------|---|-------------------------------------|---------------------------|
| Area ^a | Well No. (depth) | Location name/Description in Action Plan | Sample methods/media | FSP status |
| | 20 (S) | none (well on west end of Pocasset Forestdale) | rotosonic rig (soil) groundwater | final 7/18 final 10/28 |
| | 21 (S/D) | none (well on south end of Burgoyne) | rotosonic rig (soil) groundwater | final 7/18 final 10/28 |
| | 22 (S) | none (well midway on Burgoyne) | rotosonic rig (soil) groundwater | final 7/18 final 10/28 |
| | 23 (S/I/D) | none (well north end of Burgoyne) | rotosonic rig (soil) groundwater | final 7/18 final 10/28 |
| | 24 (S) | none (well near Rod & Gun Club) | rotosonic rig (soil) groundwater | final 7/18 final 10/28 |
| 16 | | GP-9 (High-use gun position) | hand auger (soil) | draft 9/19 |
| 17 | | Mixed-use gun position | hand auger (soil) | draft 9/19 |
| 18 | | Low-use gun position | hand auger (soil) | draft 9/19 |
| 19 | | High-use mortar position | hand auger (soil) | draft 9/19 |
| 20 | | Mixed-use mortar position | hand auger (soil) | draft 9/19 |
| 21 | | Low-use mortar position | hand auger (soil) | draft 9/19 |
| 22 | | Control area near mortar positions | hand auger (soil: control) | draft 9/19 |
| 23 | | Drainage swale (N of Snake Pd.) | hand auger (soil) | (b) |
| 24 | | Drainage swale (NW of Snake Pd.) | hand auger (soil) | (b) |
| 25 | | Rod & Gun Club pond | sediment/surface water | draft 11/7 |
| 26 | | Deep Bottom Pond | sediment/surface water | draft 11/7 |
| 27 | | Round Swamp | sediment/surface water | draft 11/7 |
| 28 | | Grassy Pond | sediment/surface water | draft 11/7 |
| 29 | | Ox Pond | sediment/surface water | draft 11/7 |
| 30 | | Donnelly Pond | sediment/surface water | draft 11/7 |
| 31 | | Little Halfway Pond | sediment/surface water | draft 11/7 |
| 32 | | Raccoon Swamp/Pond | sediment/sur face water (control) | draft 11/7 |

| Table 1 Summary of Sampling Areas and Field Sampling Plan Status As of November 30, 1997 | | | | |
|---|------------------|--|----------------------------|------------|
| Area ^a | Well No. (depth) | Location name/Description in Action Plan | Sample methods/media | FSP status |
| 33 | | Snake Pond | sediment/surface water | draft 11/7 |
| 34 | | Bailey's Pond | sediment/surface water | draft 11/7 |
| 35 | | Gibbs Pond | sediment/surface water | draft 11/7 |
| 36 | | Opening Pond | sediment/surface water | draft 11/7 |
| 37 | | Bypass Bog | sediment/surface water | draft 11/7 |
| 38 | | Control area near gun positions | hand auger (soil: control) | draft 9/19 |

Notes: (a) Boring sampling locations do not have unique area numbers
 (b) The drainage areas are included in the FSP for Surface Water & Sediment (draft 11/7)

| Table 2 Summary of Monitoring Wells Completed As of November 30, 1997 | | | |
|--|----------------------------|--------------------------------|----------------|
| Monitoring Well | Screen Interval (feet bgs) | Location | Date Completed |
| MW-14S | 96.0-106.0 | Water Table | 7/28 |
| MW-23S | 122.5-132.5 | Water Table | 7/29 |
| MW-23D | 272.0-282.0 | Bottom of Aquifer ¹ | 7/29 |
| MW-28S | 95.2-105.2 | Water Table | 7/30 |
| MW-29S | 98.5-108.5 | Water Table | 8/1 |
| MW-12S | 96.7-106.7 | Water Table | 8/7 |
| MW-10S | 145.0-155.0 | Water Table | 8/11 |
| MW-10D | 351.5-361.5 | Bottom of Aquifer ² | 8/11 |
| MW-11S | 122.0-132.0 | Water Table | 8/12 |
| MW-4S | 137.0-147.0 | Water Table | 8/18 |

| Table 2 Summary of Monitoring Wells Completed As of November 30, 1997 | | | |
|--|----------------------------|--------------------------------|----------------|
| Monitoring Well | Screen Interval (feet bgs) | Location | Date Completed |
| MW-7S | 103.0-113.0 | Water Table | 8/27 |
| MW-7D | 332.0-342.0 | Bottom of Aquifer ¹ | 8/27 |
| MW-17S | 120.0-130.0 | Water Table | 8/27 |
| MW-17D | 320.0-330.0 | Bottom of Aquifer ¹ | 8/27 |
| MW-18S | 35.0-45.0 | Water Table | 9/9 |
| MW-18D | 265.0-275.0 | Bottom of Aquifer ¹ | 9/9 |
| MW-1D | 290.0-300.0 | Bottom of Aquifer ¹ | 9/15 |
| MW-1M | 160.0-165.0 | 45 feet Below Water Table | 9/18 |
| MW-1S | 114.0-124.0 | Water Table | 9/18 |
| MW-15S | 105.0-115.0 | Water Table | 9/18 |
| MW-15D | 324.0-334.0 | Bottom of Aquifer ¹ | 9/18 |
| MW-21S | 164.0-174.0 | Water Table | 9/22 |
| MW-21D | 302.0-312.0 | Bottom of Aquifer ¹ | 9/22 |
| MW-25S | 108.0-118.0 | Water Table | 9/23 |
| MW-22S | 170.5-180.5 | Water Table | 9/24 |
| MW-6S | 106.0-116.0 | Water Table | 9/25 |
| MW-9S | 113.0-123.0 | Water Table | 9/25 |
| MW-20S | 92.0-102.0 | Water Table | 9/25 |
| MW-23M1 | 225.0-235.0 | 100 feet Below Water Table | 10/1 |
| MW-23M2 | 189.0-194.0 | 70 feet Below Water Table | 10/1 |
| MW-23M3 | 156.0-161.0 | 30 feet Below Water Table | 10/2 |

| Table 2 Summary of Monitoring Wells Completed As of November 30, 1997 | | | |
|---|----------------------------|--------------------------------|----------------|
| Monitoring Well | Screen Interval (feet bgs) | Location | Date Completed |
| MW-8S | 103.0-113.0 | Water Table | 10/2 |
| MW-27S | 117.0-127.0 | Water Table | 10/7 |
| MW-16S | 123.0-135.0 | Water Table | 10/15 |
| MW-16D | 355.0-360.0 | Bottom of Aquifer ¹ | 10/15 |
| MW-10M | 280.0-285.0 | 130 feet Below Water Table | 10/16 |
| MW-24S | 6.0-16.0 | Water Table | 10/16 |
| MW-2S | 137.0-147.0 | Water Table | 10/28 |
| MW-2D | 355.0-360.0 | Bottom of Aquifer ¹ | 10/28 |
| MW-30S | 26.0-36.0 | Water Table | 10/28 |
| MW-13S | 73.0-83.0 | Water Table | 11/4 |
| MW-13D | 220.0-225.0 | Bottom of Aquifer ¹ | 11/4 |
| MW-5S | 119.0-129.0 | Water Table | 11/18 |
| MW-5D | 335.0-340.0 | Bottom of Aquifer ¹ | 11/18 |
| MW-7M1 | 240.0-245.0 | 135 feet Below Water Table | 11/18 |
| MW-7M2 | 170.0-175.0 | 65 feet Below Water Table | 11/18 |
| MW-18M1 | 171.0-176.0 | 128 feet Below Water Table | 11/20 |
| MW-18M2 | 107.0-112.0 | 64 feet Below Water Table | 11/20 |
| 1 =Well constructed on top of till layer overlying bedrock. 2 =Well constructed on top of bedrock. | | | |