

**MONTHLY PROGRESS REPORT #12
FOR MARCH 1998**

**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 March 2 to March 31, 1998. Scheduled actions are for the six-week period ending April 14, 1998.

1. SUMMARY OF ACTIONS TAKEN

UXO Survey

Inventorying, excavation, and removal of UXO continued at the pit located at Grid O on the J-1 Range (Area 5). The munitions removed in December amounted to 1030 81-mm mortars (possible HE), 4 81-mm illumination rounds (non-HE), 54 60-mm mortars (spotting smoke charge), 2 105-mm projectiles (HE), 2 105-mm HEAT (possible HE), and 134 M52 series PD fuses (non-HE). The excavation was extended to approximately 25 feet square and 15 feet deep, at which time no additional munitions were uncovered or magnetic anomalies were observed. An additional 37 81-mm mortars (possible HE) and 3 60-mm mortars (spotting smoke charge) were recovered during this operation.

In addition, 30 by 30 foot grids were cleared of UXO at GP-16 and GP-18. A 50 by 50 foot area in Area 4 was cleared for air monitoring equipment.

Plans and Reports

All Final FSPs are complete at this time. Revision pages for the Groundwater FSP are currently being prepared.

Drilling

Ogden and D.L. Maher (the drilling contractor) continued work on the site in February. Two intermediate wells, MW-3M1 and MW-3M2 were installed at 240-245 feet bgs and 180-185 feet bgs. The remaining drill rig has demobilized from the site. Table 1 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 was performed at 0-6 inches bgs at Areas 16 and 18. Soil sampling was performed at 18-24 inches bgs at Areas 1, 4, 5, 12, 13, 16, 17, 18, and 20. Groundwater samples were collected from monitoring wells MW-3S, MW-3D, MW-3M1, MW-3M2, MW-19S, MW-19D, and CS-19/MW-2. Stormwater samples were collected at locations 1, 3, 4, 5, and 6 on March 19 during a storm of >1 inch. Stormwater sampling locations 2, 7, 8, and 9 did not receive stormwater run off during this event.

Analytical Results

Electronic Data Deliverables (EDDs) were received from ITS (the laboratory contractor) for Sample Delivery Groups (SDGs) 48-57 in March. Hardcopy data deliverables were received from ITS for SDGs 51-60 during the month. Results for SDGs 61-71 were being prepared by ITS as of the end of March.

Validation

Ogden continued validation of hardcopy deliverables during March. All data contained in SDGs 33, 34, and 39 had been validated by the end of the month. Additional data have been validated but have not been entered into the database. All validated data entered in the database are attached to this report, and are summarized in Section 2. Validation is underway for SDGs 18-21, 31, 32, 35-38, and 40-50.

Water Level Measurements

The next round of synoptic water level measurements around the Impact Area is scheduled for April 1, 1998.

Meetings

The Impact Area Groundwater Study Review Team met on March 2, 1998 and March 31, 1998. Weekly project review meetings continued during the month with EPA, MADEP, USGS, TRC, and JPO.

2. SUMMARY OF DATA RECEIVED

The data validated during the month are presented in an attachment to this progress report. The attached results include field samples (having sample numbers that end in "A", or "D" for Duplicate) as well as quality control samples (ending in "E" for Equipment blank, "F" for Field blank, or "T" for Trip blank). The attachment includes a list of qualifier codes to explain the

validation results.

The validated results include samples from 10 groundwater monitoring wells and three duplicate samples. The samples were collected from new wells MW-6S, -10D, 10S, -11S, -12S, 14S, and -27S, Bourne well 97-3, and Long Range Water Supply wells 2-3 and 7-1. Detected compounds and concentration ranges for the monitoring well samples are summarized in Table 2. No explosive compounds were detected for these wells. Volatile organic compounds (VOCs) detected in groundwater samples include chloroform (MW -6S, -10S, 7-1), and total xylenes (MW-11S). Bis (2-ethylhexyl) phthalate (BEHP) was the only semivolatile organic compound (SVOC) detected in groundwater samples (MW-6S, -10D, -11S, -12S, -14S, Bourne 97-3, LRWS 2-3, LRWS 7-1). No pesticides or herbicides were detected in these wells. Among the 23 metallic analytes, only arsenic, lead, selenium, and thallium were not detected. Background levels for metallic analytes have not yet been established.

The validated soil results include samples from borings MW-1, 2, 5, 6, 7, 8, 9, 12, 13, 14, 15, 25, 27, and 29; and from grids in Areas 3 and 41. Detected compounds and concentration ranges for these samples are summarized in Table 3. This table includes preliminary background concentrations which have been proposed to EPA and MADEP based on the preliminary results of sampling in Areas 41 (Shawme Crowell State Forest) and 42 (Four Ponds Conservation Area). No explosive compounds were detected in these samples using EPA Method 8330. VOCs detected included acetone (grids 41C and 41E), methylene chloride (boring MW-9), and toluene (boring MW-13). Fluoranthene was the only SVOC detected (boring MW-13). No PCBs were detected. The following pesticides were detected: DDT (grids 3A, 41B, 41C, 41D, 41E, 41F, 41G, 41H, 41I, 41J), DDE (grids 3A, 41B, 41C, 41D, 41E, 41G, 41H), beta-BHC (boring MW-13), delta-BHC (boring MW-13), and endosulfan sulfate (grid 41D). Six herbicides were detected: MCPA (grids 3A, 41B, 41D, 41E, 41F, 41G, 41H, 41I, 41J), Dicamba (grid 41D), 2,4,5-T (grid 41D and boring MW-13), pentachlorophenol (grid 41H), bentazon (boring MW-13), and acifluorfen (boring MW-13). Among the 23 metallic analytes, only cadmium, silver, and sodium were not detected.

3. DELIVERABLES SUBMITTED

Deliverables submitted during the reporting period included the following:

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|--|----------------|
| Weekly Progress Update (February 27 - March 5) | March 6, 1998 |
| Monthly Progress Report for February 1998 | March 10, 1998 |
| Weekly Progress Update (March 6 - March 12) | March 13, 1998 |
| Weekly Progress Update (March 13 - March 19) | March 20, 1998 |
| Weekly Progress Update (March 20 - March 26) | March 27, 1998 |

4. SCHEDULED ACTIONS

Actions for the next six weeks are indicated in Figure 1. This figure provides a Gantt chart based on the Final Action Plan, updated to reflect progress and proposed work.

Drilling and sampling soil, surface water, and sediment have been completed in accordance with existing sampling plans. Groundwater sampling remains to be performed at five wells around FS-12 and three wells northwest of Snake Pond in accordance with the Response Plan for 90WT0013. Additional investigations are anticipated in accordance with a Response Plan for MW-19. A meeting of the Impact Area Groundwater Study Review Team will be convened on April 30, 1998.

| Table 1 Summary of Monitoring Wells Completed As of March 31, 1998 | | | |
|---|---------------------------------------|--------------------------------|---------------------------|
| 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 |
| 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 |

| Table 1 Summary of Monitoring Wells Completed As of March 31, 1998 | | | |
|---|----------------------------|--------------------------------|----------------|
| Monitoring Well | Screen Interval (feet bgs) | Location | Date Completed |
| 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 |
| 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 |

| Table 1 Summary of Monitoring Wells Completed As of March 31, 1998 | | | |
|---|----------------------------|--------------------------------|----------------|
| Monitoring Well | Screen Interval (feet bgs) | Location | Date Completed |
| 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 |
| MW-1M1 | 220.0-225.0 | 104 feet Below Water Table | 12/19 |
| MW-2M1 | 212.0-217.0 | 73 feet Below Water Table | 1/9 |
| MW-2M2 | 170.0-175.0 | 31 feet Below Water Table | 1/9 |
| MW-26 | 129.0-139.0 | Water Table | 1/16 |
| MW-5M1 | 210.0-215.0 | 89 feet Below Water Table | 1/28 |
| MW-5M2 | 170.0-175.0 | 49 feet Below Water Table | 1/28 |
| MW-3D | 262.0-267.0 | Bottom of Aquifer ¹ | 2/19 |
| MW-3S | 44.0-54.0 | Water Table | 2/19 |
| MW-19D | 293.0-298.0 | Bottom of Aquifer ¹ | 2/23 |

| Table 1 Summary of Monitoring Wells Completed As of March 31, 1998 | | | |
|---|-------------------------------|----------------------------|-------------------|
| Monitoring Well | Screen Interval (feet bgs) | Location | Date Completed |
| MW-19S | 38.0-48.0 | Water Table | 2/23 |
| MW-3M1 | 240.0-245.0 | 193 feet Below Water Table | 3/4 |
| MW-3M2 | 180.0-185.0 | 133 feet Below Water Table | 3/4 |
| 1 =Well constructed on top of till layer overlying bedrock. 2 =Well constructed on top of bedrock. | | | |