MONTHLY PROGRESS REPORT #9
FOR DECEMBER 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 December 1 to December 31, 1997. Scheduled actions are for the six-week period ending February 12, 1998.

1. SUMMARY OF ACTIONS TAKEN

UXO Survey

During the weeks of December 8 and December 15, CMS (the UXO Contractor) performed the down-hole clearance at the MW-3 deep and intermediate drilling locations; cleared the remaining soil sampling grids at Areas 1, 4, 5, 12, 13, 15, and Mortar Position 3; cleared the 11 stormwater sampling locations; and excavated two pits at Area 5 (J-1 Range). No live rounds were located at the northwestern pit location shown in Figure A.12-4 of the Draft Area 5 FSP. This 8-foot square pit had steel sides, and a steel bottom 3 feet below grade with a 10-inch square hole in the bottom. A soil sample was collected from soil 0-6 inches beneath this hole.

UXO were removed from the southeastern pit location shown in Figure A.12-4 of the Draft Area 5 FSP. Approximately 500 rounds were removed from the pit and stacked nearby. The rusted condition of the rounds precludes positive identification as HE or inert, although several appear to be HE based on coloration. A fence has been erected around these munitions to limit human access. An inventory of these rounds will be made at a later date. The majority of the rounds were 81mm mortars, with a few 105mm projectiles. One 105mm round was fused, all other rounds were unfused with fuses buried with the rounds. This pit was excavated to 8 feet square by 10 feet deep as specified in the scope of work for CMS. The limits of buried UXO were not reached with this excavation. Determination of these limits will be made during a future mobilization, after modification of the scope of work.

Plans and Reports

NGB was resolving EPA and MADEP comments on the Draft Gun/Mortar Position FSP and the Draft Surface Water/Sediment FSP during December. NGB received letters from EPA approving the resolution of comments letters for the Final Background FSP and the Draft Area 5 FSP during December, and began preparation of final versions of these documents. NGB awaits EPA comments on the Draft Storm Water FSP, and the Gun Position portion of the Draft Gun and Mortar Positions FSP. These areas and the status of plans are summarized in Table 1.

Drilling

Ogden and D.L. Maher (the drilling contractor) continued work on the site in December. TRC (EPA's oversight contractor) was present for oversight of drilling activities during the month. An intermediate depth well was installed at MW-1, screened at 220-225 feet bgs based on groundwater profiling data for the deep boring at MW-1. 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 was performed at background locations at the Four Ponds Conservation Area in Bourne during December.

Analytical Results

Complete Electronic Data Deliverables (EDDs) were received from ITS (the laboratory contractor) for Sample Delivery Groups (SDGs) 1-19 in December. Hardcopy data deliverables have been received from ITS for SDGs 1-30 as of the end of the month. Results for SDGs 31-40 were being prepared for submittal as of the end of December.

Validation

Ogden continued validation of hardcopy deliverables during December. All data contained in SDGs 1-5, 7, 8, and 14 had been validated by the end of the month, and portions of the data for SDGs 9-13 and 15-30 had been validated.

Water Level Measurements

A synoptic round of water level measurements was collected on December 30, 1997 at wells in and around the Impact Area. Results of these measurements are illustrated in Figure 1, which provides draft water table contours for this date.

Meetings

A December 16 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

The preliminary electronic database that has been used to summarize validated data prior to December is being discontinued due to a concern with the completeness of the draft deliverables from the laboratory. All future deliverables of validated data will be prepared from the final database that is populated from checked EDDs. Although this database contains results for approximately half of the samples collected to date, most of these results have already been reported in either the previous monthly or the package of validated data provided at the November 20 Review Team meeting. Further, not all of the validation qualifiers from the hardcopy have been entered into the database. Therefore, a new summary of validated results is not possible at this time. A summary of all validated results for the project to date will be provided in the next monthly report. This summary will include statistics such as ranges and mean concentrations for approximately half of the samples collected to date.

3. DELIVERABLES SUBMITTED

Deliverables submitted during the reporting period included the following:

Monthly Progress Report for November 1997	December 10, 1997
Weekly Progress Update (November 21 - December 18)	December 19, 1997
Weekly Progress Update (December 19 - December 30)	December 31, 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 January. Drilling, sampling, and analysis will continue during January.

A meeting of the Impact Area Groundwater Study Review Team will be convened on January 28, 1998.

Table 1
Summary of Sampling Areas and Field Sampling Plan Status
As of December 31, 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 December 31, 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 December 31, 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		Donnely Pond	sediment/surface water	draft 11/7
31		Little Halfway Pond	sediment/surface water	draft 11/7
32		Raccoon Swamp	sediment/surface water (control)	draft 10/24

Table 1
Summary of Sampling Areas and Field Sampling Plan Status
As of December 31, 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
39		Great Pond	sediment/surface water (control)	draft 10/24
40		Doughnut Pond	sediment/surface water (control)	draft 10/24
41		Shawme-Crowell State Forest	hand auger (soil: control)	draft 10/24
42		Four Ponds Conservation Area	hand auger (soil: control)	
43		Upper Pond	sediment/surface water (control)	

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

Table 2
Summary of Monitoring Wells Completed
As of December 31, 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

Table 2
Summary of Monitoring Wells Completed
As of December 31, 1997

Monitoring Well	Screen Interval (feet bgs)	Location	Date Completed
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
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

Table 2
Summary of Monitoring Wells Completed
As of December 31, 1997

Monitoring Well	Screen Interval (feet bgs)	Location	Date Completed
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
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

Table 2
Summary of Monitoring Wells Completed
As of December 31, 1997

Monitoring Well	Screen Interval (feet bgs)	Location	Date Completed

1 =Well constructed on top of till layer overlying bedrock.
2 =Well constructed on top of bedrock.