

**WEEKLY PROGRESS UPDATE
FOR AUGUST 1-7, 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 August 1 to August 7, 1997.

1. SUMMARY OF ACTIONS TAKEN

UXO Survey

Ogden and CMS Environmental (the UXO contractor) continued UXO Survey work on the site during the week. Work this week focussed on Area 2, where many magnetic anomalies are present at depths greater than 2 feet, and Demo Area 1. A safety separation distance of 1200 feet is being used between CMS personnel engaged in UXO investigation/removal and other personnel in the Impact Area. The following roads and staging areas have been cleared by UXO removal to date:

- Wheelock Road, from the entrance to the Impact Area east to Chadwick Road.
- A drilling decontamination pad at the corner of Wheelock and Turpentine.
- Turpentine Road, from Wheelock Road to Area 3 ("Site 1 Target Area")
- Drilling location for MW-1 with a vehicle turnaround at Area 3.
- Chadwick Road, from Wheelock Road north to Barlow Road.
- the east end of Tank Alley, from Chadwick to Area 4 ("Mounds").
- Barlow Road, from Chadwick Road north to Jefferson Road.
- Wood Road, from Barlow Road west to Area 1 ("Valley").
- Spruce Swamp Road, from Wheelock Road to Pocasset-Sandwich Road.
- Pocasset-Sandwich Road, from Spruce Swamp Road north to Five Corners.
- Pocasset-Sandwich Road (Knot Hollow Road), from Five Corners north to Jefferson Road.
- Jefferson Road from Barlow to Spruce Swamp Road.
- Gravel staging area at Five Corners.
- Turpentine Road, from Five Corners south to Area 2 ("Site 3/Target Area").
- Gravel staging area at the corner of Barlow and Wood Roads.
- Gravel staging area at the corner of Wheelock and Spruce Swamp Roads.

Surface clearance activities have also been completed at seventeen drilling locations in the Impact Area, including MW-1, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-11, MW-12, MW-14, MW-15, MW-25, MW-26, MW-27, MW-28, and MW-29. Downhole UXO clearance has been completed at MW-4, MW-7, MW-11, MW-12, MW-14, MW-28, and MW-29, by advancing 10-foot deep boreholes at each drilling location. UXO recovered during clearance activities are summarized in Table 1. In addition, the following areas were flagged for

UXO avoidance without clearing (prior to June 25):

Area 8 (Succonsette Pond).
Access path from Spruce Swamp Road to Area 8.
Tank Alley from Turpentine Road to near Area 4 (“Mounds”)
Part of Demo Area 1

Some flags have been removed or have fallen over around Succonsette Pond. Many fresh deer tracks are visible around the pond. Portions of this area may have to be reflagged or cleared prior to sampling.

UXO present at Spruce Swamp Road, Pocasset-Sandwich Road, and drilling locations MW-1, MW-6, and MW-27 were destroyed on July 25. Some UXO are still present at Demo Area 1 from the surface clearance operations initiated in June, and additional UXO has been discovered in Areas 2 and 3 after July 25.

Drilling

Ogden, D.L. Maher (the drilling subcontractor), and Valeri Construction (Maher’s road building subcontractor) continued drilling and road building work on the site. TRC (EPA’s oversight contractor) was present for oversight of drilling activities. MW-29 was completed and screened at 99-109 feet below ground surface (bgs), and MW-12 was completed and screened at 97-107 feet bgs. As of August 7 MW-10 was being drilled at 335 feet bgs using the Sonic rig, a Barber rig was setting up to drill MW-11, and MW-7 was being drilled at 119 feet bgs using a Barber rig. The Auger drill rig remobilized to the site on August 7 to continue drilling 10-foot borings with UXO clearance at locations in the Impact Area.

Sampling and Analysis

Soil and groundwater samples have been analyzed or submitted for borings at MW-7, MW-10, MW-12, MW-14, MW-23, MW-28, and MW-29. The types of samples being analyzed, dates of submittal, and preliminary results are summarized in Table 3. All results in Table 3 are unvalidated. Concentrations of specific compounds will be presented in tabular form after the results for all samples in a sample data group are available and have been validated.

Explosive compounds have been detected in soil samples collected from 0-6 inches at MW-7, MW-12, MW-28, and MW-29, using the screening methods. These samples will be analyzed by Method 8330. No explosive compounds have been detected in deeper soil samples or in any groundwater samples analyzed to date by screening methods.

Trihalomethanes (“THM”, including chloroform and dibromochloromethane) have been reported at estimated concentrations below the detection limit in groundwater profiling samples from 240

to 260 feet bgs in the MW-23 boring. THM are also present in the potable water source that is used for drilling, according to an analysis completed in May 1997 by Jacobs Engineering Group. Ogden is conducting additional analyses for a range of groundwater extraction volumes to evaluate whether drilling water is being effectively removed from the formation prior to collecting the profile samples. Toluene was detected at an estimated concentration below the detection limit in a groundwater profile sample from 230 feet bgs in the MW-23 boring. This compound was not detected in profile samples from above or below this interval.

Water Level Measurements

Continuous water level recording devices that were installed in LRWS-2, CS-19 (MW-7E), and CS-10 (AEHA-11) during the preceding week were checked and were found to be operating properly. Water level fluctuations in these wells were less than an inch during the week.

Plans and Reports

NGB is preparing Field Sampling Plans for the remaining areas identified in the Action Plan. These areas and the status of plans are summarized in Table 2.

2. SUMMARY OF DATA RECEIVED

Daily reports of UXO survey results were received by Ogden during the week and are summarized in section 1 above. Table 1 provides a summary of potential UXO discovered to date.

Laboratory results for soil and groundwater samples were received during the week and are summarized in Section 1 above. Concentrations for specific compounds will be presented in tabular form after the results for all samples in a sample data group are available and have been validated. The types of samples being analyzed, dates of submittal, and preliminary results are summarized in Table 3. All results in Table 3 are unvalidated.

3. DELIVERABLES SUBMITTED

Deliverables submitted during the reporting period included the following:

Weekly Progress Update (July 25-31)	August 1, 1997
Final Field Sampling Plan for Area 2	August 6, 1997
Final Field Sampling Plan for Area 3	August 6, 1997

4. SCHEDULED ACTIONS

UXO Surveys will continue next week with downhole clearance at drilling locations, and surface

clearance at Areas 2 and 3 and the Demo Areas. One Barber drill rig will continue drilling the deep boring at MW-7. After completion of the shallow and deep monitoring wells at MW-10, the Sonic drill rig will move to the MW-17 location. One Barber drill rig will start drilling MW-11 after completing MW-12. Existing monitoring wells will be developed next week.

Location	Object Found	Depth (inches)	Disposition
Succonsette Pond, Area 8	2.36" rocket HEAT	surface	destroyed
	81mm mortar HE	4	destroyed
	60mm mortar HE	6	destroyed
	60mm mortar HE	5	destroyed
Turpentine Road	81mm mortar HE	18	destroyed
MW-1 (Area 3)	105mm projectile HE	12	destroyed
	105mm projectile HE	14	destroyed
Spruce Swamp Road	2" HE mortar	0.5	destroyed
	2" HE mortar	1.5	destroyed
	2" HE mortar	2	destroyed
Sandwich Road	2" HE mortar	8	destroyed
Sandwich Road	105mm projectile WP	6	destroyed
MW-26 (Area 2, east side)	105mm projectile HE		destroyed
	155mm projectile HE		destroyed
Demo Area 1 (surface only; no intrusive clearance to date)	30mm projectile HE	surface	left in place
	30mm projectile HE	surface	left in place
	30mm projectile HE	surface	left in place
	3.5" rocket HEAT	surface	left in place
MW-27	105mm projectile HEAT	20	destroyed
	105mm projectile HEAT	3	destroyed
	105mm projectile HEAT	surface	destroyed
MW-6	105mm projectile HEAT	6	destroyed
	105mm projectile HEAT	3	destroyed
	105mm projectile HE	4	destroyed
	81mm mortar HE	8	destroyed
	105mm projectile HEAT	3	destroyed
	105mm projectile HEAT	surface	destroyed

Table 1
Potential Explosive Ordnance Discovery
Through August 7, 1997

Location	Object Found	Depth (inches)	Disposition
	60mm mortar HE	24	destroyed
	60mm mortar HE	24	destroyed
MW-29	60mm mortar HE		destroyed
MW-3	155mm ejection	surface	left in place
MW-2	155mm ejection	surface	relocated

Table 2
Summary of Sampling Areas and Field Sampling Plan Status
As of August 7, 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
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
3	1(S/I/D)	Site 1 Target Area	barber rig (soil) hand auger (soil) groundwater	final 7/18 final 8/1
4	27 (S)	Site 4 Mounds	barber rig (soil) hand auger (soil) groundwater	final 7/18
5		Site 5	hand auger (soil)	
6	7 (S/I/D)	Burn Area (southeast of Turpentine)	barber rig (soil) hand auger (soil) groundwater	final 7/18
7	8(S)	Burn Areas (southwest of Turpentine)	barber rig (soil) hand auger (soil) groundwater	final 7/18
8		Succonsette Pond	sediment/surface water hand auger (soil)	

Table 2				
Summary of Sampling Areas and Field Sampling Plan Status				
As of August 7, 1997				
Area^a	Well No. (depth)	Location name/Description in Action Plan	Sample methods/media	FSP status
9	4 (S)	(well on Pocasset Road north of Five Corners)	barber rig (soil) hand auger (soil: control area) groundwater	final 7/18
10	5 (S/I/D)	(well north of Wood Road)	barber rig (soil) hand auger (soil: control area) groundwater	final 7/18
11	25 (S)	(well southeast of CS-19)	barber rig (soil) hand auger (soil: control area) groundwater	final 7/18
	6 (S)	(well north of Area 5)	barber rig (soil) groundwater	final 7/18
12	19 (S/D)	Demo Area 1	barber rig (soil) hand auger (soil) groundwater	final 7/18
13	16 (S/D)	Demo Area 2	barber rig (soil) hand auger (soil) groundwater	final 7/18
14		(access road to MW-7)	hand auger (soil: control area)	
	9 (S/I/D)	none (well southwest of CS-19)	barber rig (soil) groundwater	final 7/18
	10 (S)	none (well on west Jefferson Road)	rotosonic rig (soil) groundwater	final 7/18
	11 (S)	none (well midway along Jefferson)	barber rig (soil) groundwater	final 7/18
	12 (S)	none (well on Barlow south of Wood)	barber rig (soil) groundwater	final 7/18
	13 (S/D)	none (well near J-3 range south of Chadwick)	barber rig (soil) groundwater	final 7/18
	14 (S)	none (well at the corner of Wheelock and Turpentine)	barber rig (soil) groundwater	final 7/18
	15 (S/D)	none (well at the corner of Spruce Swamp and Sandwich)	barber rig (soil) groundwater	final 7/18

Table 2				
Summary of Sampling Areas and Field Sampling Plan Status				
As of August 7, 1997				
Area^a	Well No. (depth)	Location name/Description in Action Plan	Sample methods/media	FSP status
15		Site 6	hand auger (soil)	
	28 (S)	none (well at corner of Wheelock and Chadwick)	barber rig (soil) groundwater	final 7/18
	29 (S)	none (well at the corner of Barlow and Chadwick)	barber rig (soil) groundwater	final 7/18
	17 (S/D)	none (well southeast of Demo-2)	rotosonic rig (soil) groundwater	final 7/18
	18 (S/I/D)	none (well on east end of Gibbs)	rotosonic rig (soil) groundwater	final 7/18
	20 (S)	none (well on west end of Pocasset Forestdale)	rotosonic rig (soil) groundwater	final 7/18
	21 (S/D)	none (well on south end of Burgoyne)	rotosonic rig (soil) groundwater	final 7/18
	22 (S)	none (well midway on Burgoyne)	rotosonic rig (soil) groundwater	final 7/18
	23 (S/I/D)	none (well north end of Burgoyne)	rotosonic rig (soil) groundwater	final 7/18
	24 (S)	none (well near Rod & Gun Club)	rotosonic rig (soil) groundwater	final 7/18
16		GP-9 (High-use gun position)	hand auger (soil)	
17		Mixed-use gun position	hand auger (soil)	
18		Low-use gun position	hand auger (soil)	
19		High-use mortar position	hand auger (soil)	
20		Mixed-use mortar position	hand auger (soil)	
21		Low-use mortar position	hand auger (soil)	
22		Control area near mortar positions	hand auger (soil: control)	
23		Drainage swale (N of Snake Pd.)	hand auger (soil)	
24		Drainage swale (NW of Snake Pd.)	hand auger (soil)	
25		Rod & Gun Club pond	sediment/surface water	

Table 2 Summary of Sampling Areas and Field Sampling Plan Status As of August 7, 1997				
Area ^a	Well No. (depth)	Location name/Description in Action Plan	Sample methods/media	FSP status
26		Deep Bottom Pond	sediment/surface water	
27		Round Swamp	sediment/surface water	
28		Grassy Pond	sediment/surface water	
29		Ox Pond	sediment/surface water	
30		Donnelly Pond	sediment/surface water	
31		Little Halfway Pond	sediment/surface water	
32		Raccoon Swamp/Pond	sediment/surface water (control)	
33		Snake Pond	sediment/surface water	
34		Bailey's Pond	sediment/surface water	
35		Gibbs Pond	sediment/surface water	
36		Opening Pond	sediment/surface water	
37		Bypass Bog	sediment/surface water	
38		Control area near gun positions	hand auger (soil: control)	

Notes: (a) Boring sampling locations do not have unique area numbers

Table 3 Summary of Preliminary Analytical Results (not validated) As of August 7, 1997				
Boring	Sample Type	Explosives	Inorganics	Other Analytes
MW-14	Soil: 0.5 feet	ND ^s	7/30	7/30
	Soil: 10 feet	ND ^s	7/22	7/22
	Soil: 20 feet	ND ^s	7/23	
	Soil: 30, 40, 50, 60, 70, 80, 90 feet	ND ^s	7/23-24	
MW-23	Soil: 40 feet			7/22
	Soil: 70 feet			7/23

Table 3 Summary of Preliminary Analytical Results (not validated) As of August 7, 1997				
Boring	Sample Type	Explosives	Inorganics	Other Analytes
	Groundwater: 140, 150, 160, 170, 180, 190, 200, 210	ND ^s		7/24 (V)
	Groundwater: 220	ND ^s		ND (V*)
	Groundwater: 230	ND ^s		Tol (V*)
	Groundwater: 240, 250, 260	ND ^s		THM (V*)
	Groundwater: 270, 280	ND ^s		7/29 (V)
MW-28	Soil: 0.5 feet	TNT/DNT ^s	7/30	7/30
	Soil: 2 feet	ND ^s		
	Soil: 10 feet	ND ^s	7/29	7/29
	Soil: 20 feet	ND ^s	7/29	
	Soil: 30, 40, 50, 60, 70, 80, 90 feet		7/29-30	
	Soil: 100 feet		7/30	7/30
MW-7	Soil: 0.5 feet	TNT/DNT ^s	7/30	7/30
	Soil: 10 feet	ND ^s	7/30	7/30
	Soil: 20 feet	ND ^s	7/30	
	Soil: 30, 40, 50, 60, 70, 80, 90, 100 feet		7/30-31	
MW-29	Soil: 0.5 feet	TNT/DNT ^s	7/31	7/31
	Soil: 10 feet	ND ^s	7/31	7/31
	Soil: 20 feet	ND ^s	7/31	
	Soil: 30 feet		7/31	
	Soil: 40 feet		7/31	7/31
	Soil: 50, 60, 70, 80, 90, 100 feet		7/31	
MW-10	Soil: 140 feet			8/2
	Groundwater: 180	8/7		8/6 (V)
	Groundwater: 190, 200	ND ^s		8/6 (V)
	Groundwater: 210	8/7		8/7 (V)

Table 3
Summary of Preliminary Analytical Results (not validated)
As of August 7, 1997

Boring	Sample Type	Explosives	Inorganics	Other Analytes
	Groundwater: 220, 230, 240, 250	8/8		8/8 (V)
MW-12	Soil: 0.5 feet	TNT/DNT ^s	8/6	8/6
	Soil: 10 feet	8/7	8/7	8/7
	Soil: 20	8/7	8/7	
	Soil: 30, 40, 50 feet		8/7	
	Soil: 60, 70, 80, 90, 100 feet		8/8	
Notes: 7/22 = date sample received for analysis ND = not detected ^s = result from screening method (colorimetric for soil or high-level 8330 for groundwater) (V) = analyzed for volatile organic compounds; * = expedited (5-day TAT) THM = trihalomethanes Tol = toluene				