WEEKLY PROGRESS UPDATE
FOR SEPTEMBER 12-SEPTEMBER 18, 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 September 12 to September 18, 1997.

1. SUMMARY OF ACTIONS TAKEN

UXO Survey

No UXO surveys were performed this week.

Drilling

Ogden and D.L. Maher (the drilling subcontractor) continued drilling work on the site. TRC (EPA's oversight contractor) was present for oversight of drilling activities. As of September 18 the sonic rig was drilling at MW-21 at a depth of 345 feet, one of the Barber rigs was finishing the installation of the wells at MW-1, and the other Barber rig was setting up on MW-25. Table 2 presents a summary of wells completed to date.

Sampling and Analysis

Soil and groundwater samples have been analyzed or submitted for borings that have been drilled to date. Also, hand auger samples have been collected from 0-6 inches at future drilling locations in the Impact Area, and at the areas of potential concern identified in the Field Sampling Plans. The types of samples being analyzed, dates of submittal, and preliminary results are summarized in Table 1. All results in Table 1 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 --

Explosive compounds have been detected in soil samples collected from 0-6 inches at MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW- 7, MW-8, MW-9, MW-12, MW-15, MW-19, MW-25, MW-26, MW-27, MW-28, and MW-29, using the screening methods. Explosives were also detected in the 10-12 foot interval from MW-1 using the screening method. No explosives have been detected from the confirmatory Method 8330 analysis of 0-6 inch samples from MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-9, MW-12, MW-15, MW-26, MW-27, MW-28, and MW-29, and of the 10-12 foot interval from MW-1. The results from the 8330 analysis of 0-6 inch samples from MW-8, MW-19, and MW-25 confirm that explosive compounds are present in surface soil at these locations. No explosive compounds have been

detected in deeper soil samples analyzed to date by screening or confirmatory 8330 methods.

Explosive compounds have been detected in composite surface soil samples from 0-6 inches in 10 grids from Area 3, 12 grids from Area 2, and 5 grids from Area 14 using the screening method. Method 8330 analysis has been initiated on the screening hits.

RDX was reported at an estimated concentration below the detection limit by the screening method in a groundwater sample collected from 160 feet bgs in MW-17. When this sample was analyzed using Method 8330 no explosive compounds were detected. Explosive compounds were detected using Method 8330 in a groundwater sample collected from 44 feet bgs in MW-18. RDX was reported at an estimated concentration below the detection limit by the screening method in a groundwater sample collected from 176 feet bgs in MW-18. The analysis of this sample by method 8330 is currently underway. RDX was detected in groundwater from 120, 130, 162, 202, 222, 232, and 252 feet bgs in MW-1 by screening methods. Explosive compounds were detected using Method 8330 in groundwater samples collected at 120, 130, 140, 150, 162, 182, 202, 222, and 232 feet bgs in MW-1. In MW-15, explosive compounds were detected in groundwater samples from 110, 120, 130, 140, and 150 feet bgs using Method 8330.

Inorganic Compounds --

Inorganic compounds have been detected in soil samples from MW-4, MW-7, MW-11, MW-12, MW-14, MW-28, and MW-29. There are a large number of detected compounds and many of these are expected to be naturally occurring. The identification of compounds exceeding background concentrations will be reported after determination of background levels.

Other Analytes --

Acetone has been detected in soil samples from MW-12 (0.5 feet), MW-14 (10 feet), MW-23 (40 and 70 feet), and MW-29 (0.5, 10, and 40 feet); some acetone concentrations were estimated below the detection limit, and acetone was detected in the laboratory blanks associated with all of these soil samples except MW-14 and the shallow MW-23 sample (40 feet). 1,2,4-trichlorobenzene has been detected in soil samples from MW-14 (10 feet) and MW-23 (40 and 70 feet); this compound was also detected in the laboratory blank associated with these samples. Bis (2-ethylhexyl) phthalate has been reported at an estimated concentration below the detection limit in a soil sample from MW-23 (40 feet). Beta- and delta-BHC have been reported at estimated concentrations below the detection limit in a soil sample from MW-12 (0.5 feet).

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, and from 185 feet bgs in the MW-10 boring. THM are also present in the potable water source that is used for drilling. Ogden's evaluation of drilling water removal volumes suggests that 150% removal provides the best balance between removing

drilling water and overpumping the 10-foot profile interval, and this removal volume will be used for the remainder of the program.

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. Acetone was detected in a soil sample from 140 feet bgs in the MW-10 boring. Based on preliminary validation information it appears that this compound was a lab contaminant and the result will be flagged as an estimated non-detect.

Water Level Measurements

Water level recording devices that were installed in LRWS-2, CS-19 (MW-7E), and CS-10 (AEHA- 11) continue to record water levels. The time interval was changed from every four hours to every 15 minutes on all three data loggers.

Plans and Reports

NGB is preparing Field Sampling Plans for the remaining areas identified in the Action Plan.

2. SUMMARY OF DATA RECEIVED

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 1. All results in Table 1 are unvalidated.

3. DELIVERABLES SUBMITTED

Deliverables submitted during the reporting period included the following:

Weekly Progress Update (September 5 - September 11)	September 12, 1997
Draft Background Field Sampling Plan	September 12, 1997
Draft Groundwater Field Sampling Plan	September 18, 1997

4. SCHEDULED ACTIONS

One Barber drill rig is expected to continue drilling the boring at location MW-25. The other Barber drill rig is expected to finish drilling at MW-1 and then start drilling at MW-6. The Sonic rig is expected to continue drilling the deep boring at location MW-21. Surface soil sampling is expected to continue next week at Areas 6, 7, and 8.

Table 1
Summary of Preliminary Analytical Results (not validated)
As of September 18, 1997

Boring	Sample Type	Explosives	Inorganics	Other Analytes
MW-14	Soil: 0.5 feet	ND[S]	Inorganics	ND
	Soil: 2 feet			
	Soil: 10 feet	ND[S]	Inorganics	Ace Tcb
	Soil: 20 feet	ND[S]	Inorganics	
	Soil: 30, 40, 50, 60, 70, 80, 90 feet	ND[S]	Inorganics	
MW-23	Soil: 40 feet			Ace Tcb BEHP
	Soil: 70 feet			Ace Tcb
	Groundwater: 140, 150, 160, 170, 180, 190, 200, 210	ND[S]		ND (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] **ND**	Inorganics	ND
	Soil: 2 feet	ND[S] **ND**		
	Soil: 10 feet	ND[S]	Inorganics	ND
	Soil: 20 feet	ND[S]	Inorganics	
	Soil: 30, 40, 50, 60, 70, 80, 90 feet		Inorganics	
	Soil: 100 feet		Inorganics	ND
MW-7	Soil: 0.5 feet	TNT/DNT[S] **ND**	Inorganics	7/30

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As of September 18, 1997

Boring	Sample Type	Explosives	Inorganics	Other Analytes
	Soil: 2 feet			
	Soil: 10 feet	ND[S]	Inorganics	ND
	Soil: 20 feet	ND[S]	Inorganics	
	Soil: 30, 40, 50, 60, 70, 80, 90, 100 feet		Inorganics	
	Groundwater: 130	ND[S]		ND (V)
	Groundwater: 140, 150, 160, 165	ND[S]		ND (V)
	Groundwater: 175, 185, 195, 205, 215, 225	ND[S]		ND (V)
	Groundwater: 235, 245, 255, 265, 275, 285, 295	ND[S]		ND (V)
	Groundwater: 310, 320, 330	ND[S]		ND (V)
	Groundwater: 340	ND[S]		ND (V)
	Groundwater: 347	ND[S]		8/23(V)
MW-29	Soil: 0.5 feet	TNT/DNT[S] **ND**	Inorganics	Ace
	Soil: 2 feet			
	Soil: 10 feet	ND[S] **ND**	Inorganics	Ace
	Soil: 20 feet	ND[S]	Inorganics	
	Soil: 30 feet		Inorganics	
	Soil: 40 feet		Inorganics	Ace
	Soil: 50, 60, 70, 80, 90, 100 feet		Inorganics	
MW-10	Soil: 140 feet			Ace (V*)
	Groundwater: 185 feet	ND[S]		THM (V*)
	Groundwater: 195, 205 feet	ND[S]		8/6 (V)
	Groundwater: 285 feet	ND[S]		ND (V)
	Groundwater: 295, 305, 315, 330 feet	ND[S]		ND (V)

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Summary of Preliminary Analytical Results (not validated)
As of September 18, 1997

Boring	Sample Type	Explosives	Inorganics	Other Analytes
	Groundwater: 355 feet	ND[S]		ND (V)
MW-12	Soil: 0.5 feet	TNT/DNT[S] **ND**	Inorganics	Ace Phe bBHC dBHC
	Soil: 2 feet			
	Soil: 10 feet	ND[S]	Inorganics	ND
	Soil: 20 feet	ND[S]	Inorganics	
	Soil: 30, 40, 50 feet		Inorganics	
	Soil: 60, 70, 80, 90, 100 feet		Inorganics	
MW-11	Soil: 0.5 feet	ND[S]	Inorganics	ND
	Soil: 2 feet			
	Soil: 10 feet	ND[S]	Inorganics	ND
	Soil: 20 feet	ND[S]	Inorganics	
	Soil: 30, 40, 50, 60, 70 feet		Inorganics	ND
	Soil: 80 feet		Inorganics	
	Soil: 90, 100, 110, 120, 130 feet		Inorganics	8/12
MW-17	Soil: 3.5 feet			8/13
	Soil: 17.5 feet			8/13
	Soil: 53 feet			8/14
	Groundwater: 120, 130, 140, 150 feet	ND[S]		8/15 (V)
	Groundwater: 160 feet	RDX[S] **ND**		8/15 (V)
	Groundwater: 170, 180, 190 feet	ND[S]		8/15-16 (V)
	Groundwater: 200, 210 feet	ND[S]		8/16 (V)

Table 1
Summary of Preliminary Analytical Results (not validated)
As of September 18, 1997

Boring	Sample Type	Explosives	Inorganics	Other Analytes
	Groundwater: 220, 230 feet	ND[S] **EXP**		8/16 (V)
	Groundwater: 240, 250, 260, 270, 280, 290, 320, 330 feet	ND[S]		8/16 (V)
MW-4	Soil: 0.5 feet	TNT/DNT[S] **ND**	Inorganics	8/14
	Soil: 2 feet			
	Soil: 10 feet	ND[S]	8/15	8/15
	Soil: 20 feet	ND[S]	8/15	
	Soil: 30, 40, 50, 60 feet		8/15-16	8/15-16
	Soil: 70, 80, 90, 100 feet		8/16	
	Soil: 110, 120, 130 feet		8/16	8/16
	Soil: 140 feet		8/16	
MW-1	Soil: 0.5 feet	TNT/DNT[S] **ND**	8/21	8/21
	Soil: 2 feet			
	Soil: 10 feet	RDX/HMX[S] **ND**	8/21	8/21
	Soil: 20 feet	ND[S]	8/22	
	Soil: 30, 40 feet	**ND**	8/22	
	Soil: 50 feet	**9/5**		
	Soil: 60, 70, 80, 90, 100, 110, 120 feet	**ND**	8/22-23	
	Groundwater: 120, 130 feet	RDX[S] **EXP**		8/23(V)
	Groundwater: 140, 150 feet	ND[S] **EXP**		8/27(V)
	Groundwater: 162 feet	RDX[S] **EXP**		8/27(V)

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Summary of Preliminary Analytical Results (not validated)
As of September 18, 1997

Boring	Sample Type	Explosives	Inorganics	Other Analytes
	Groundwater: 182 feet	**EXP**		8/28(V)
	Groundwater: 192 feet	**ND**		8/28(V)
	Groundwater: 202 feet	RDX[S] **EXP**		8/29(V)
	Groundwater: 212 feet	ND[S]		8/29 (V)
	Groundwater: 222, 232 feet	RDX[S] **EXP**		9/2 (V)
	Groundwater: 252, 262, 272, 282, 292 feet	**9/9-10**		9/10 (V)
MW-3	Soil: 0.5 feet	TNT/DNT[S] **ND**	8/21	8/21
MW-5	Soil: 0.5 feet	TNT/DNT[S] RDX/HMX[S] **ND**	8/21	8/21
MW-6	Soil: 0.5 feet	TNT/DNT[S] **ND**	8/21	8/21
MW-16	Soil: 0.5 feet	ND[S]	8/21	8/21
MW-26	Soil: 0.5 feet	TNT/DNT[S] RDX/HMX[S] **ND**	8/21	8/21
MW-27	Soil: 0.5 feet	TNT/DNT[S] **ND**	8/21	8/21
MW-2	Soil: 0.5 feet	TNT/DNT[S] **ND**	8/22	8/22
MW-8	Soil: 0.5 feet	TNT/DNT[S] **EXP**	8/22	8/22
MW-9	Soil: 0.5 feet	TNT/DNT[S] **ND**	8/22	8/22
MW-15	Soil: 0.5 feet	TNT/DNT[S] **ND**	8/22	8/22
	Soil: 2 feet			

Table 1
Summary of Preliminary Analytical Results (not validated)
As of September 18, 1997

Boring	Sample Type	Explosives	Inorganics	Other Analytes
	Soil: 10, 20 feet	ND[S]	8/29	8/29
	Soil: 30 feet		8/29	8/29
	Soil: 50, 60, 70 feet	ND[S]	8/29	
	Soil: 80, 90, 100 feet	**9/5**	9/2	
	Groundwater: 110, 120, 130, 140, 150 feet	ND[S] **EXP**		9/4 (V)
	Groundwater: 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270 feet	ND[S]		9/5 (V)
	Groundwater: 280, 290, 300, 310 feet	**9/11-12**		9/11-12 (V)
	Groundwater: 320, 330, 340 feet			
MW-19	Soil: 0.5 feet	RDX/HMX[S] **EXP**	8/22	8/22
MW-25	Soil: 0.5 feet	TNT/DNT[S] RDX/HMX[S] **EXP**	8/22	8/22
MW-18	Groundwater: 44 feet	ND[S] **EXP**		8/29 (V)
	Groundwater: 60 feet	ND[S]		9/4 (V)
	Groundwater: 76, 86, 96, 106, 116, 126, 136, 146, 156 feet	ND[S] **ND**		9/4 (V)
	Groundwater: 166 feet	ND[S]		9/4 (V)
	Groundwater: 176 feet	RDX[S]		9/5(V)
	Groundwater: 186, 196, 206, 216, 226 feet	ND[S]		9/5(V)
	Groundwater: 236, 246, 256, 268 feet	9/6[S]		9/6(V)
	Groundwater: 276 feet	**9/9**		9/9(V)
MW-21	Groundwater: 176, 186, 196, 206, 216, 225, 246, 255, 270, 277, 286, 296, 306 feet	**9/13-19**		9/13-19(V)

Table 1
Summary of Preliminary Analytical Results (not validated)
As of September 18, 1997

Boring	Sample Type	Explosives	Inorganics	Other Analytes
Area 3 Grid A	Soil: 0-6 inch	TNT/DNT[S]	9/10	9/10
	Soil: 18-24 inch			
Area 3 Grid B	Soil: 0-6 inch	TNT/DNT[S] RDX/HMX[S]	9/10	9/10
	Soil: 18-24 inch			
Area 3 Grid C	Soil: 0-6 inch	TNT/DNT[S]	9/10	9/10
	Soil: 18-24 inch			
Area 3 Grid D	Soil: 0-6 inch	9/15	9/15	9/15
	Soil: 18-24 inch			
Area 3 Grid E	Soil: 0-6 inch	TNT/DNT[S]	9/10	9/10
	Soil: 18-24 inch			
Area 3 Grid F	Soil: 0-6 inch	TNT/DNT[S]	9/10	9/10
	Soil: 18-24 inch			
Area 3 Grid G	Soil: 0-6 inch	TNT/DNT[S]	9/10	9/10
	Soil: 18-24 inch			
Area 3 Grid J	Soil: 0-6 inch	ND[S]	9/11	9/11
	Soil: 18-24 inch			
Area 3 Grid K	Soil: 0-6 inch	TNT/DNT[S]	9/11	9/11
	Soil: 18-24 inch			
Area 3 Grid L	Soil: 0-6 inch	TNT/DNT[S]	9/11	9/11
	Soil: 18-24 inch			
Area 3 Grid M	Soil: 0-6 inch	TNT/DNT[S] RDX/HMX[S]	9/11	9/11
	Soil: 18-24 inch			

Table 1
Summary of Preliminary Analytical Results (not validated)
As of September 18, 1997

Boring	Sample Type	Explosives	Inorganics	Other Analytes
Area 3 Grid N	Soil: 0-6 inch	TNT/DNT[S]	9/11	9/11
	Soil: 18-24 inch			
Area 2 Grid A	Soil: 0-6 inch	TNT/DNT[S]	9/11	9/11
	Soil: 18-24 inch			
Area 2 Grid B	Soil: 0-6 inch	ND[S]	9/10	9/10
	Soil: 18-24 inch			
Area 2 Grid C	Soil: 0-6 inch	ND[S]	9/10	9/10
	Soil: 18-24 inch			
Area 2 Grid D	Soil: 0-6 inch	TNT/DNT[S]	9/11	9/11
	Soil: 18-24 inch			
Area 2 Grid E	Soil: 0-6 inch	TNT/DNT[S]	9/11	9/11
	Soil: 18-24 inch			
Area 2 Grid F	Soil: 0-6 inch	TNT/DNT[S]	9/11	9/11
	Soil: 18-24 inch			
Area 2 Grid G	Soil: 0-6 inch	TNT/DNT[S]	9/11	9/11
	Soil: 18-24 inch			
Area 2 Grid H	Soil: 0-6 inch	TNT/DNT[S] RDX/HMX[S]	9/15	9/15
	Soil: 18-24 inch			
Area 2 Grid I	Soil: 0-6 inch	TNT/DNT[S]	9/11	9/11
	Soil: 18-24 inch			
Area 2 Grid J	Soil: 0-6 inch	TNT/DNT[S]	9/11	9/11
	Soil: 18-24 inch			
Area 2 Grid K	Soil: 0-6 inch	TNT/DNT[S]	9/12	9/12
	Soil: 18-24 inch			

Table 1
Summary of Preliminary Analytical Results (not validated)
As of September 18, 1997

Boring	Sample Type	Explosives	Inorganics	Other Analytes
Area 2 Grid L	Soil: 0-6 inch	TNT/DNT[S] RDX/HMX[S]	9/15	9/15
	Soil: 18-24 inch			
Area 2 Grid M	Soil: 0-6 inch	ND[S]	9/15	9/15
	Soil: 18-24 inch			
Area 2 Grid N	Soil: 0-6 inch	TNT/DNT[S] RDX/HMX[S]	9/15	9/15
	Soil: 18-24 inch			
Area 2 Grid O	Soil: 0-6 inch	TNT/DNT[S] RDX/HMX[S]	9/15	9/15
	Soil: 18-24 inch			
Area 9 Grid A	Soil: 0-6 inch	9/16[S]	9/16	9/16
	Soil: 18-24 inch			
Area 9 Grid B	Soil: 0-6 inch	9/16[S]	9/16	9/16
	Soil: 18-24 inch			
Area 9 Grid C	Soil: 0-6 inch	9/16[S]	9/16	9/16
	Soil: 18-24 inch			
Area 10 Grid A	Soil: 0-6 inch	9/17[S]	9/17	9/17
	Soil: 18-24 inch			
Area 10 Grid B	Soil: 0-6 inch	9/17[S]	9/17	9/17
	Soil: 18-24 inch			
Area 10 Grid C	Soil: 0-6 inch	9/17[S]	9/17	9/17
	Soil: 18-24 inch			
Area 10 Grid D	Soil: 0-6 inch	9/17[S]	9/17	9/17
	Soil: 18-24 inch			

Table 1
Summary of Preliminary Analytical Results (not validated)
As of September 18, 1997

Boring	Sample Type	Explosives	Inorganics	Other Analytes
Area 10 Grid E	Soil: 0-6 inch	9/17[S]	9/17	9/17
	Soil: 18-24 inch			
Area 14 Grid A	Soil: 0-6 inch	TNT/DNT[S]	9/16	9/16
	Soil: 18-24 inch			
Area 14 Grid B	Soil: 0-6 inch	TNT/DNT[S]	9/16	9/16
	Soil: 18-24 inch			
Area 14 Grid C	Soil: 0-6 inch	TNT/DNT[S] RDX/HMX[S]	9/16	9/16
	Soil: 18-24 inch			
Area 14 Grid D	Soil: 0-6 inch	TNT/DNT[S]	9/16	9/16
	Soil: 18-24 inch			
Area 14 Grid E	Soil: 0-6 inch	TNT/DNT[S]	9/16	9/16
	Soil: 18-24 inch			

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)
BOLD	= result from 8330 method
(V)	= analyzed for volatile organic compounds; * = expedited (5-day TAT)
THM	= trihalomethanes
Tol	= toluene
Ace	= acetone
Exp	= explosives
Tcb	= 1,2,4 -Trichlorobenzene
BEHP	= Bis (2-ethylhexyl) phthalate
Phe	= Phenol
bBHC	= beta-BHC
dBHC	= delta-BHC
Inorganics	= inorganic compounds detected; compounds exceeding background will be reported after determination of background levels.

Table 2
Summary of Monitoring Wells Completed
As of September 18, 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
MW-7S	103.0-104.0	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	265-275	Bottom of Aquifer[1]	9/9
MW-15S	105-115	Water Table	9/18
MW-15D	324-334	Bottom of Aquifer[1]	9/18

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