WEEKLY PROGRESS UPDATE
FOR MARCH 13 – MARCH 17, 2000

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 13 to March 17, 2000.

1. SUMMARY OF ACTIONS TAKEN

Drilling progress as of March 17 is summarized in Table 1.

Table 1. Drilling progress as of March 17, 2000

Boring Number	Purpose of Boring/Well	Total Depth (ft bgs)	Saturated Depth (ft bwt)	Completed Well Screens (ft bgs)
MW-88	Impact Area Response Well (P-15)	245	102	173-183 213-223 233-243
MW-89	Impact Area Response Well (P-14)	245	101	174-184 214-224 234-244
MW-90	Impact Area Response Well (P-8)	130	10	
MW-91	Impact Area Response Well (P-7)	117		
MW-92	Impact Area Response Well (P-1)	60		

bgs = below ground surface
bwt = below water table

Well installation was completed at MW-88 (Impact Area response well P-15) and on MW-89 (Impact Area response well P-14). Drilling commenced on MW-90 (Impact Area response well P-8), MW-91 (Impact Area response well P-7), and MW-92 (Impact Area response well P-1). UXO that were identified on the access road to the new well location at Mortar Target 9 and at Demo Area 1 were detonated.

Samples collected during the reporting period are summarized in Table 2. Post detonation soil samples were collected from the craters of the UXO detonated on 3/13/00 in Demo 1 and the access road to Mortar Target 9. Groundwater profile samples were collected from MW-90 (Impact Area response well P-8). Deep soil samples were collected during drilling at the borings for MW-90, -91, and –92. Soil samples were collected from the soil under the three pieces of C-4 located in Demo 1.

The Guard, EPA, and MADEP had a meeting on March 16 to discuss technical issues, including the following:

- Jacobs presented the status of the CS-19 investigation. A handout was distributed which included an updated schedule, site map, status of samples, and results. Jacobs indicated that they have negotiated a 5-week turn around time on results and a 3-week turn around time on validation for the groundwater dioxin samples. Ogden asked when the results of the soil dioxin are due. Jacobs indicated that they have received approximately 25 percent of the data already and remaining results are expected by the end of next week. Ogden asked to be put on the distribution for these data. The RI outline will be ready next week for review. 58MW0015 has been completed and sampled; 58MW0016 had screen depths selected this week and is scheduled to be sampled next week; and 58MW0017 and

58MW0018 are scheduled for sampling next week. The comprehensive groundwater sampling should be completed by next Monday. Soil for location 19 is going to be resampled today. The sample will be split between two laboratories and analyzed in triplicate to try to determine the source of VOC in previous soil samples. Jacobs indicated that at well location 18 the augers are stuck and cannot be removed. The bottom of the augers is approximately 40 feet above the top of the screen. A bentonite seal has been installed above the gravel pack as well as a bentonite slurry seal between annulus between the riser and auger. The two shallower screens installed in separate borings at this location have been installed at elevations that are the same as the stuck auger in the third boring. Jacobs indicated that they do not believe the augers will effect the groundwater sample quality.

- An update of the munition survey was presented by Tetra Tech. They continue to clear the brush in Demo 1 and expect to start the geophysics survey there next week; the vegetation clearance commenced at the slit trench; continue to post process the Gun and Mortar geophysical data. EPA asked when would they be able to look at the Gun and Mortar maps. Tetra Tech indicated that they should be ready for next Thursday. Two additional pieces of C-4 were located in Demo 1. Ogden will collect soil samples from these locations today. DEP asked what was the reasoning behind collecting soil samples from under every piece of C-4 located. EPA indicated that the information is needed to characterize the area and that after the results from these samples are obtained then the need for continued sampling can be evaluated. Tetra Tech expressed concern over the vegetation clearance required at the wetlands especially in the J-3 wetland. EPA suggested that another site walk is require with the Guard, Tetra Tech, the geophysical contractor, and agencies next week after the tech meeting. EPA requested that a Camp Good News representative be contacted and be present at the site walk.

- Jeff Sondrup and Dave Atkinson of INEL were added to the conference call to comment on the Statement of Work (SOW) for measurement of the modeling parameters. The comments to the SOW were as follows:

  Contaminants of concern (p. 2)
  - Should address how the explosive degradation products are dealt with

  Sorption Experiments (p. 3)
  - Why is contaminated/spiked soil needed for the sorption experiment? Also, pH needs to be monitored.
  - What is the rational for the temperature range on the sorption experiment. Ogden indicated that the range of temperature is the range of the temperature on the Cape from summer to winter.
  - It was suggested that the soil below 1 foot be considered in the experiment to eliminate the leaching and biodegradation.
  - It was suggested that the scope of radionuclide labeling be narrowed down due to the associated costs.
  - It was suggested that plastic bottles should not be considered and that deactivated glass bottles be used.
  - It was suggested that the samples should not be tumbled.
  - It was also suggested that GC analysis be used to look at degradation products

  Desorption Experiment (p. 4)
  - What was the rational for the 120-day equilibrium time. Ogden indicated that past experience showed that the ASTM time is too short.
  - It was suggested that spiked soil should not be used and that existing soil used in the experiment, due to weathering issues. Ogden agreed but when this plan was written there were few sources of contaminated soil.
  - It was suggested that a second extraction method be evaluated.

  Biological Evaluation (p. 4)
  - It was suggested that cell counting be used instead of the proposed C14 method.

- Ogden presented an update of the Rapid Response Action. UXO avoidance, containment design, and the treatability study are behind schedule by 2 to 3 weeks. These activities will be compressed to try to keep the soil removal on schedule. Another problem with the schedule is that there is a 2-week turkey-hunting period at the end of April that was not accounted for, when field operations may have to be curtailed. Ogden will discuss allowable field activities during hunting with Range Control. The poster board presentation will be on Wednesday next week. DEP requested that they review the posters prior to the presentation. The earliest possible review time will be 1300 on Wednesday. DEP asked about the role of ETC on this project. Ogden indicated that the ARDEC funding fell through and at this time it is unknown what their role will be. Ogden asked if EPA wanted to extend the deadline for the PIP comments until after the next IART meeting. EPA indicated that they would have their comments by the 31st so that the IART members are aware of EPA's comments. EPA indicated that they have supplied a wide range of comments to the work plan and wanted to know how they were going to be addressed. Ogden indicated that they would like to go over them with the EPA before they respond. Ogden responded to one of the comments from last weeks Tech Meeting and indicated that they have calculated the cleanup number for dieldrin using Method 2 and the only location with an exceedance is proposed to be cleaned up due to explosives. Another comment from last week's tech meeting questioned the timing of the treatability study. Ogden indicated that because of time constraints the treatability study samples would be collected after the results of the delineation samples have been reviewed. EPA indicated that they believe that some overlap of these tasks will be necessary. EPA commented that their innovative technologies group indicated that the 1,400 cubic yards could be considered the treatability study. The DEP and EPA requested an expanded schedule for the RRA. A three page handout of the sampling locations and rational was distributed for review. Sampling locations for each of the areas were discussed. A 1-page handout of the Method 2 calculations and detections limits for each compound was distributed for review.

- Ogden presented an update of the Groundwater Investigation. The Guard indicated that the UXO in Demo 1 was detonated on Monday and that the inventory of the ASP is due to the EPA. EPA indicated that they need to have a meeting with the Guard to determine a format for the public notices. Ogden indicated that they are currently drilling on the Impact Area Response well locations P-1, P-7, and P-8. Location P-3 was scheduled by is currently under water so location P-7 was substituted. A 1-page handout of the draft cross section for the outer transect was distributed for review. Soil samples were going to be collected from the Demo 1 UXO detonation crater and the C-4 locations today.

- Ogden asked if there were any comments on the proposed acetone investigation. EPA requested that both proposed labs analyze the time period samples. EPA suggested that the soil sample be homogenized prior to splitting between labs to get a better split, since the actual concentration in the soil is not the issue. EPA suggested a thorough review to ensure appropriate QA/QC samples were collected. The DEP distributed a 1-page handout of comments on the proposed investigation.

- Ogden asked for suggestions on where to collect background soil samples for dioxin in regards to the Demo 1 detections. EPA suggested that the wooded area around Demo 1 be considered. EPA also suggested using the MADEP cleanup goal for dioxin, versus the EPA guidance for residential locations. The agencies are open to a written proposal from the Guard on these sample locations.

- EPA indicated that IRP has developed a procedure for plume delineation and a method for the groundwater study needs to be developed. EPA suggested that shading be used and not lines and that concentrations above the detection limit to the health advisory be one shade, concentrations from the health advisory to 10 ppb be another shade, and concentrations above 10 ppb be a third shade. DEP indicated that remediation should be considered when determining this plume delineation method. EPA suggested that the plume delineation issue be discussed with the IART.

- EPA indicated that they have talked with the Guard on the status of the scrap drums on the J-2 Range. The Guard indicated that the environmental office is looking into it.

- MADEP comments on the proposed fate/transport measurements were discussed. Regarding MADEP's suggestion for a "technical review forum", several ideas were batted around, including possible TRET review, and review by the TOSC team. EPA will send a letter to IART/TOSC inviting their participation, but noting that we're on a fairly short fuse to start the F&T work.

- Ogden indicated that several additional areas of interest were located in the J-2 Range after the initial site walk and wanted to know if the agencies wanted to have another site walk before the work plan is prepared. EPA indicated that they would like to look at them before they comment on the plan but do not need to look at it before Ogden submits the draft plan. EPA asked the Guard if anyone has looked at the rocket that was discovered during the site walk. The Guard indicated that it has not been looked at yet.

- Ogden indicated that the draft Phase II CWR is due in July and wanted suggestions on the content and timing of the report. EPA indicated that they would like to think about it.

- Ogden indicated that an Action Item from the IART meeting requested more information on the EDB detection in the Snake Pond drive point. EPA indicated that the team is looking for information on when detected, what screens were sampled, future sampling, etc.

- A handout of the validation report requested by EPA on the PCB detections that were validated as non-detects was distributed. Also a 1-page handout of a map of the public water supply wells in the area was distributed as requested by EPA.

- EPA requested the status of the perchlorate sampling. Ogden indicated that it is ready to go for the next round of sampling. EPA indicated that MW-19S needs to be added to the perchlorate list. Ogden indicated that it should have been on the list in the draft LTGM Plan and that they would look into it. EPA requested a copy of the base natural resources map and the DEP requested it as an Arcview layer.

- EPA indicated that the Training Areas MOR is OK except that on the IBC Range the wording should be changed from 10 grids in the IBC range and 10 other grids, to 10 grids in the IBC Range and additional grids at other locations.

- EPA asked the status of the Textron information. The Phase I report is expected next week and the 104e information is currently under review.

2. SUMMARY OF DATA RECEIVED

Rush data are summarized in Table 3. These data are for analyses that are performed on a fast turnaround time, typically 1-5 days. Explosive analyses for monitoring wells, and explosive and VOC analyses for groundwater profile samples, are conducted in this timeframe. The rush data are not validated, but are provided as an indication of the most recent preliminary results. Table 3 summarizes only detects, and does not show samples with non-detects.

The status of the detections with respect to confirmation using Photo Diode Array (PDA) spectra is indicated in Table 3. PDA is a procedure that has been implemented for the explosive analysis, to reduce the likelihood of false positive identifications. Where the PDA status is “YES” in Table 3, the detected

compound is verified as properly identified. Where the status is "NO", the identification of an explosive has been determined to be a false positive. Where the status is blank, PDA has not yet been used to evaluate the detection, or PDA is not applicable because the analyte is a VOC. Most explosive detections verified by PDA are confirmed to be present upon completion of validation. Table 3 includes the following detections:

- The composite post UXO detonation soil sample from the 37 mm round in Demo 1 had detections of TNT, 2-amino-4,6-dinitrotoluene, and 4-amino-2,6-dinitrotoluene, which were verified by PDA spectra.

- The discrete post UXO detonation soil sample from the 37 mm round in Demo 1 had a detection of TNT and RDX, which were confirmed by PDA spectra.

- The composite mortar target overhang soil sample from Target 8 and the quality assurance duplicate of this sample had detections of RDX, were verified by PDA spectra.

3. DELIVERABLES SUBMITTED

The following deliverables were submitted during this reporting period:

Weekly Update for February 14 – March 3	3/14/00
Weekly Update for March 6 – 10	3/16/00

4. SCHEDULED ACTIONS

Scheduled actions for the week of March 20 include the continued drilling of Impact Area response wells at locations P-1, P-3, and P-8; the groundwater sampling of the third round of far field Group 2 wells; and the continued development of newly installed wells.

5. SUMMARY OF ACTIVITIES FOR DEMO 1

The UXO located in Demo 1 were detonated and soil samples were collected from the two craters. Additional pieces of C-4 were located in Demo 1 and samples were collected from the soil under the C-4. Crews will continue the Munitions Survey work in Demo 1, which includes brush clearing and UXO survey. The geophysical survey is scheduled to start next week.

TABLE 2
SAMPLING PROGRESS
3/13/00-3/17/00

OGDEN_ID	LOCID OR WELL ID	DATE SAMPLED	SAMPLE TYPE	SBD	SED	BWTS	BWTE
HCDEMO13.5IN-1	HCDEMO13.5IN-1	03/16/2000	CRATER GRAB	0.00	0.25		
HCDEMO13.5IN-2	HCDEMO13.5IN-2	03/16/2000	CRATER GRAB	0.00	0.25		
HCT94.2IN	HCT94.2IN	03/16/2000	CRATER GRAB	0.00	0.25		
HDDEMO13.5IN-1	HDDEMO13.5IN-1	03/16/2000	CRATER GRAB	0.00	0.25		
HDDEMO13.5IN-2	HDDEMO13.5IN-2	03/16/2000	CRATER GRAB	0.00	0.25		
HDT94.2IN	HDT94.2IN	03/16/2000	CRATER GRAB	0.00	0.25		
G90DBE	FIELDQC	03/17/2000	FIELDQC	0.00	0.00		
HDDEMO13.5IN-2	FIELDQC	03/16/2000	FIELDQC	0.00	0.00		
S91DCE	FIELDQC	03/16/2000	FIELDQC	0.00	0.00		
S91DCT	FIELDQC	03/15/2000	FIELDQC	0.00	0.00		
S92DCE	FIELDQC	03/16/2000	FIELDQC	0.00	0.00		
S92DCT	FIELDQC	03/16/2000	FIELDQC	0.00	0.00		
G90DAA	MW-90	03/16/2000	PROFILE	124.00	124.00	4.00	4.00
G90DBA	MW-90	03/16/2000	PROFILE	130.00	130.00	10.00	10.00
S90DCA	MW-90	03/15/2000	SOIL BORING	10.00	12.00		
S90DDA	MW-90	03/16/2000	SOIL BORING	20.00	22.00		
S90DEA	MW-90	03/16/2000	SOIL BORING	30.00	32.00		
S90DFA	MW-90	03/16/2000	SOIL BORING	40.00	42.00		
S90DGA	MW-90	03/16/2000	SOIL BORING	50.00	52.00		
S90DHA	MW-90	03/16/2000	SOIL BORING	60.00	62.00		
S90DIA	MW-90	03/16/2000	SOIL BORING	70.00	72.00		
S90DJA	MW-90	03/16/2000	SOIL BORING	80.00	82.00		
S90DKA	MW-90	03/16/2000	SOIL BORING	90.00	92.00		
S90DLA	MW-90	03/16/2000	SOIL BORING	100.00	102.00		
S90DMA	MW-90	03/16/2000	SOIL BORING	110.00	112.00		
S90DNA	MW-90	03/16/2000	SOIL BORING	120.00	122.00		
S91DCA	MW-91	03/15/2000	SOIL BORING	15.00	17.00		
S91DDA	MW-91	03/15/2000	SOIL BORING	25.00	27.00		
S91DEA	MW-91	03/15/2000	SOIL BORING	35.00	37.00		
S91DFA	MW-91	03/16/2000	SOIL BORING	45.00	47.00		
S91DGA	MW-91	03/16/2000	SOIL BORING	55.00	57.00		
S91DGD	MW-91	03/16/2000	SOIL BORING	55.00	57.00		
S91DHA	MW-91	03/16/2000	SOIL BORING	65.00	67.00		
S91DIA	MW-91	03/16/2000	SOIL BORING	75.00	77.00		
S91DJA	MW-91	03/16/2000	SOIL BORING	85.00	87.00		
S91DKA	MW-91	03/16/2000	SOIL BORING	95.00	97.00		
S91DLA	MW-91	03/16/2000	SOIL BORING	105.00	107.00		
S91DMA	MW-91	03/16/2000	SOIL BORING	115.00	117.00		
S91DMD	MW-91	03/16/2000	SOIL BORING	115.00	117.00		
S92DCA	MW-92	03/16/2000	SOIL BORING	10.00	12.00		
S92DDA	MW-92	03/16/2000	SOIL BORING	22.00	24.00		
S92DEA	MW-92	03/16/2000	SOIL BORING	30.00	32.00		
S92DFA	MW-92	03/16/2000	SOIL BORING	40.00	42.00		
S92DGA	MW-92	03/16/2000	SOIL BORING	50.00	52.00		

Profiling methods include: Volatiles and Explosives
Groundwater methods include: Volatiles, Semivolatiles, Explosives, Pesticides, Herbicides, Metals, and Wet Chemistry
Other Sample Types methods are variable
SBD = Sample Begin Depth, measured in feet bgs
SED = Sample End Depth, measured in feet bgs
BWTS = Depth below water table, start depth, measured in feet
BWTE = Depth below water table, end depth, measured in feet

TABLE 2
SAMPLING PROGRESS
3/13/00-3/17/00

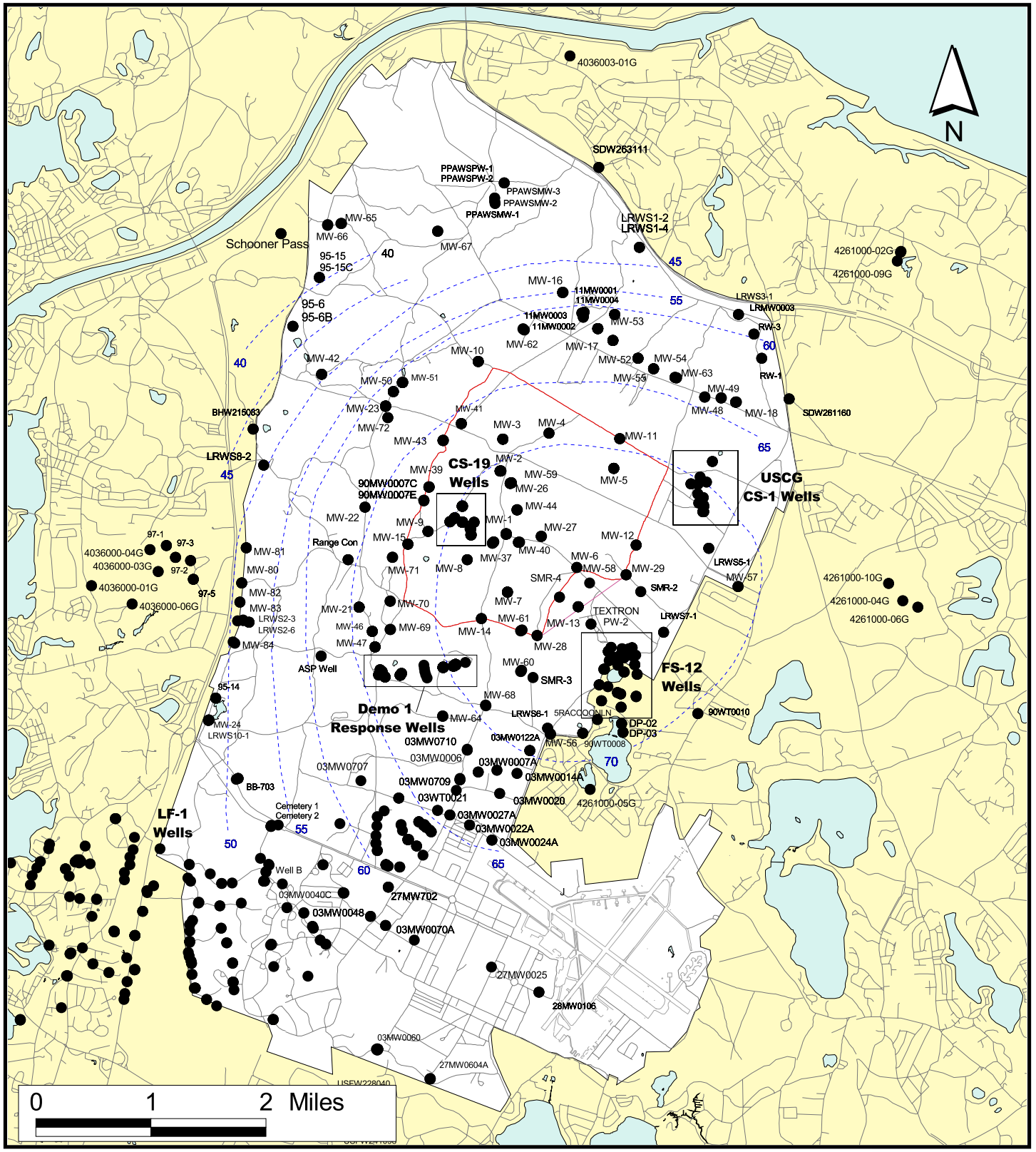
OGDEN_ID	LOCID OR WELL ID	DATE SAMPLED	SAMPLE TYPE	SBD	SED	BWTS	BWTE
HDD111AAA	D111	03/16/2000	SOIL GRID	0.00	0.25		
HDD111BAA	D111	03/16/2000	SOIL GRID	0.25	0.50		
HDD111CAA	D111	03/16/2000	SOIL GRID	0.50	1.00		
HDD112AAA	D112	03/16/2000	SOIL GRID	0.00	0.25		
HDD112BAA	D112	03/16/2000	SOIL GRID	0.25	0.50		
HDD112CAA	D112	03/16/2000	SOIL GRID	0.50	1.00		
HDD113AAA	D113	03/16/2000	SOIL GRID	0.00	0.25		
HDD113BAA	D113	03/16/2000	SOIL GRID	0.25	0.50		
HDD113CAA	D113	03/16/2000	SOIL GRID	0.50	1.00		

Profiling methods include: Volatiles and Explosives
Groundwater methods include: Volatiles, Semivolatiles, Explosives, Pesticides, Herbicides, Metals, and Wet Chemistry
Other Sample Types methods are variable
SBD = Sample Begin Depth, measured in feet bgs
SED = Sample End Depth, measured in feet bgs
BWTS = Depth below water table, start depth, measured in feet
BWTE = Depth below water table, end depth, measured in feet

TABLE 3
DETECTED COMPOUNDS-UNVALIDATED
SAMPLES COLLECTED 3/13/00-3/17/00

OGDEN_ID	LOCID OR WELL ID	SAMPLED	SAMP_TYPE	SBD	SED	BWTS	BWTE	METHOD	OGDEN_ANALYTE	PDA
HCDEMO137MM	HCDEMO137MM	03/06/2000	CRATER GRAB	0.00	0.25			8330N	2,4,6-TRINITROTOLUENE	YES
HCDEMO137MM	HCDEMO137MM	03/06/2000	CRATER GRAB	0.00	0.25			8330N	2-AMINO-4,6-DINITROTOLUENE	YES
HCDEMO137MM	HCDEMO137MM	03/06/2000	CRATER GRAB	0.00	0.25			8330N	4-AMINO-2,6-DINITROTOLUENE	YES
HDDEMO137MM	HDDEMO137MM	03/06/2000	CRATER GRAB	0.00	0.25			8330N	2,4,6-TRINITROTOLUENE	YES
HDDEMO137MM	HDDEMO137MM	03/06/2000	CRATER GRAB	0.00	0.25			8330N	HEXAHYDRO-1,3,5-TRINITRO-1,3	YES
HCOHT8AAD	86Z	03/08/0200	SOIL GRID	0.00	0.25			8330N	HEXAHYDRO-1,3,5-TRINITRO-1,3	YES
HCOHT8AAA	86Z	03/08/2000	SOIL GRID	0.00	0.25			8330N	HEXAHYDRO-1,3,5-TRINITRO-1,3	YES

DATA REPORTED REFLECT CURRENT DATABASE FOR SAMPLES COLLECTED IN SPECIFIED TIMEFRAME. NOT ALL RESULTS ARE COMPLETE.
SBD = SAMPLE COLLECTION BEGIN DEPTH IN FEET BGS
SED = SAMPLE COLLECTION END DEPTH IN FEET BGS
BWTS = DEPTH BELOW WATER TABLE, START DEPTH, MEASURED IN FEET
BWTE = DEPTH BELOW WATER TABLE, END DEPTH, MEASURED IN FEET
PDA/YES = Photo Diode Array, Detect Confirmed
PDA/NO = Photo Diode Array, Detect Not Confirmed



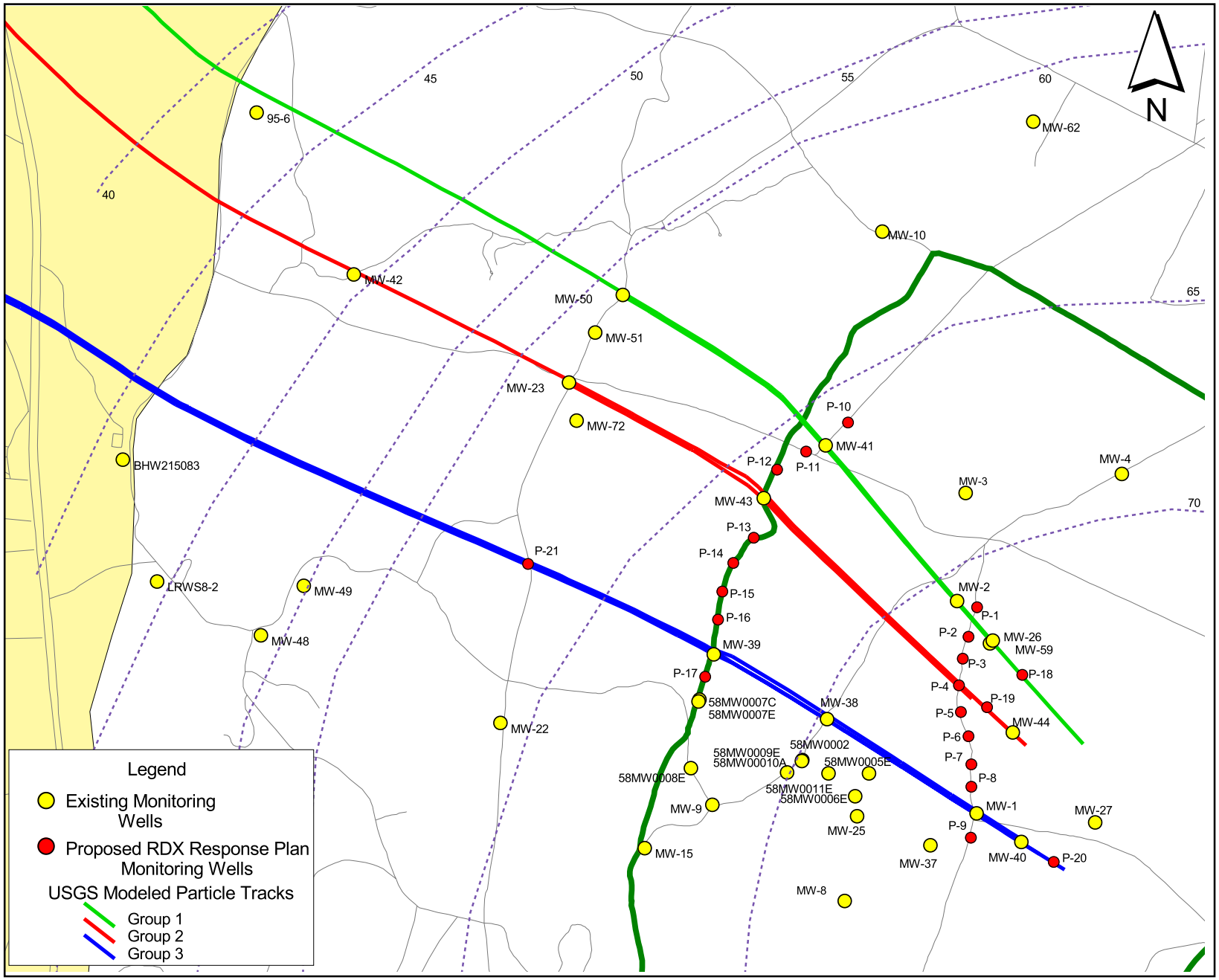
Sources & Notes

Map Coordinates: Stateplane,
NAD83, Zone 4151, Meters
Source: MASSGIS

Location of Existing and Proposed Groundwater Monitoring Wells As Of 12/16/99

L:\MMR\GIS\december99\weekly_figs\dec1699_wells
G:\MMR\well_updates.apr December 20, 1999

December 16, 1999 DRAFT



Proposed RDX Response Plan Wells In The Impact Area

Figure 6