WEEKLY PROGRESS UPDATE
FOR MAY 22 – MAY 26, 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 May 22 to May 26, 2000.

1. SUMMARY OF ACTIONS TAKEN

Drilling progress as of May 26 is summarized in Table 1.

Table 1. Drilling progress as of May 26, 2000

Boring Number	Purpose of Boring/Well	Total Depth (ft bgs)	Saturated Depth (ft bwt)	Completed Well Screens (ft bgs)
MW-102	Impact Area Response Well (P-21)	325	178	145-155 237-247 267-277
MW-103	Impact Area Response Well (P-17)	310	166	
MW-104	Target 9 Well	220	100	118-128 135-145 155-165
MW-105	Impact Area Response Well (P-19)	132		
MW-106	Impact Area Response Well (P-18)	12		

bgs = below ground surface
bwt = below water table

Drilling was completed on MW-103 (P-17) and MW-104 (Target 9 well). Wells were constructed on MW-102 (P-21) and MW-104 (Target 9 well). Drilling commenced on MW-105 (P-19) and MW-106 (P-18). The development of newly installed wells continued. UXO avoidance was completed for the additional grids at KD Range, the APC, GP-7, and Area 2 as part of the Rapid Response Action.

Samples collected during the reporting period are summarized in Table 2. Groundwater split samples were collected from the residential wells at Raccoon Lane, Old Snake Pond Road, and Arnold Road. Groundwater sampling continued for Long-Term Monitoring wells and Impact Area Response wells. Groundwater profile samples were collected from MW-103 (P-17) and MW-104 (Target 9). Deep soil samples were collected during drilling at the borings for MW-105 (P-19) and MW-106 (P-18). Shallow soil samples (0'-0.5' and 1.5'-2') were collected from MW-94, MW-102, MW-104, and MW-105. Soil samples were collected from Rapid Response Action grids in the KD Range, the APC, the J-3 Wetland, GP-7, and Area 2.

The Guard, EPA, and MADEP had a meeting on May 25 to discuss technical issues, including the following:

- The meeting was preceded by a reconnaissance of J-2 Range with Robert Frederick. Attending were Marc Grant, Jane Dolan, Ben Gregson, Jim Bossy, Nick Iaiennaro, Jan Drake, Len Pinaud, and Alabama EOD. The recon included (as named in the draft workplan) the melt/pour building, drop tower, FFP1, FFP 3/4, berms 1-3, disposal area 1, Sherman Tank, and brick-lined pits. Some of these areas were discussed during the tech meeting as indicated below.

- Jacobs presented an update of the CS-19 investigation. They continue with the preparation of the RI Report. EPA is still looking to comment on the draft materials provided earlier. Jacobs requested a conference call with the agencies on Tuesday at 2:30 to discuss the risk assessment, modeling, and interpretation of the data. Jacobs asked Ogden if they had been analyzing the surface soil samples for PAHs and if so, what were the results. Ogden indicated that they have been analyzing the surface soil for PAHs and have had detections but none were elevated. Jacobs indicated that they were surprised that the PAHs detected in the surface soil at CS-19 were not elevated, since the area was used for burning.

- Tetra Tech presented an update of the Munitions Survey Investigation. Geophysics continues on the water bodies, and they are working on a noise issue. The water bodies survey should be completed by June 2 and then the survey of the slit trench will begin. The area of investigation of the J Range survey has changed to add approximately 12 acres. Surface clearance of the HUTA is scheduled to start on June 5th. They could put it off a week if it would help with Ogden's drilling schedule. EPA asked when the vegetation clearance would start in J-2. Tetra Tech indicated that it would start in the next couple of weeks. EPA asked when they going to see maps of the J-1 and J-3 Range proposed surveys. Tetra Tech stated that next week when the surveyors are on site they will set up a site walk with the agencies to show what features they want surveyed.

- JPO presented an update of the Water Supply Investigation. Handouts of the analytical results from well sites 2 and 4 were distributed. Copies of the CD with the modeled ZOCs for the sites were distributed. The pump test of well site 3 was completed with a rate of 620 gallons per minute. Well site 1 pump test is scheduled for next week. Ogden asked if time series sampling occurs during the pump test. JPO indicated that time series samples are collected. JPO indicated that they would be asking Ogden for electronic copies of the IAGS monitoring well locations. DEP asked what the drawdown was during the pump test. JPO indicated that at a well 300 feet away it was 6 inches.

- Ogden presented an update of the Rapid Response Action. A red line version of the work plan will be ready for the agency review on June 13. The final FSP is ready pending DEP comments. Sampling of soil continues and the additional areas at GP-7 and KD have had UXO avoidance performed. The meeting with Sandwich Conservation Commission on the J-3 Wetland determined the Guard would have to go through the full Notice of Intent process. The schedule is as follows: the NOI needs to be submitted by June 13 to be included for the July 5th agenda. An informal review will occur before the board on June 21st. Hearings will be on July 5th and 19th. The Sandwich Cons/Com will send the Guard their Standard Order of Conditions prior to the 6/21 meeting.

- The Peer report on the Berm Maintenance Rock Pile has been sent to the agencies. DEP has approved the reuse of the rocks and are still waiting for EPA’s approval. Once the approval is received, then the design of the containment pad will begin. Tetra Tech asked when the rocks would have to be removed. Ogden indicated that the rocks would have to be removed by July to not interfere with the containment pad.

- Ogden presented an update of the Groundwater Investigation. Currently drilling on P-18 (MW-106) and P-19 (MW-105). Need to select screens for MW-103 (P-17 well) later today when data is received. Continue to collect groundwater from the RDX response wells and LTM wells. Sampling of the response wells is estimated at 33% complete. Continue with well development of newly installed wells.

- It was agreed that the schedule for the Phase IIb RCL resolution (6/1) and initial site recons (6/1) is OK. EPA asked if the schedule in the RCL included all areas. Ogden indicated that all areas are included.

- A letter was received from the DEP on the proposed work at the Popper Kettle. The Guard expects to remove the material from inside the kettle within the next two weeks.

- The Guard indicated that the flight for the Training Areas recon is now scheduled for 6/20-21 (rain date 6/22-23).

- Ogden asked the status of the DEP's comments to the J-2 Range workplan. The DEP indicated that they are almost done and their major concern was that more wells were needed. The Guard agreed to install water table wells at the potential source areas identified in EPA's comments. Once the water table is defined and characterized, then additional deeper downgradient wells would be installed. DEP asked whether the J-2 Range wells would overlap with the wells at the other J Ranges. The Guard indicated that Textron would be installing wells at J-1 and J-3 Ranges prior to the IAGS and they will ask for Textron's schedule of field work. EPA agreed with the request for extension until June 2 for the response to comments.

  The following issues were resolved based on the site walk. The scope of soil sampling for the melt pour facility and several berms were agreed to. Ogden indicated that the burn pits described by Mr. Varney appear to be the brick pits previously investigated. The EPA agreed but indicated that the burn pits would have to be addressed if different pits are located during the geophysical investigation; if not the wells need to be installed at the brick pits. It was agreed that the heat signature testing appears to have included rounds fired from J-1 Range, but only lasers were used at the J-2 Range during this testing. EPA asked that the Guard survey the laser lines shown in the 1986 photo. Tetra Tech indicated that there is no evidence in the field of these lines. It was agreed that the 2nd Sherman Tank area could not be reasonably located or investigated at this time, if in fact it is different from the 1st Sherman Tank area. Ogden indicated that there was no further info on the burning on the Range Road. EPA indicated that Mr. Varney stated that it was 200 feet from the administrative building and concentrated around the cement pedestal.

- Ogden provided copies of the revised Document Status Schedule. The revised ILTGM Plan and the Central Impact Area Response Plan were added to the table. It was agreed that future tech meetings would discuss proposed well locations before the response plan was produced.

- The draft IART Action Items from the email of 5/22 were discussed and are as follows:
  - The EPA has forwarded a hard copy of Mr. Zanis' 4/8/00 e-mail to the Guard asking to move the active ranges along Greenway Road, which will be forwarded to the MA Guard for their consideration.
  - It was agreed to discuss the Demo 1 plume shape at an upcoming Technical Meeting and come to a consensus on what the data indicates the shape should be. A downgradient southern well is proposed in the FS workplan.
  - Ogden will provide an update of validated Blow in Place data at the next IART meeting.
  - Ogden indicated that the air emission sampling results were previously distributed in the weekly meetings and the BIP reports. All results were ND.
  - EPA will ask the citizen members to forward comments or questions on the Textron Systems Corp 104e information request to Margery Adams.
  - The EPA distributed a copy of the license agreement between Textron and the Army Corps of Engineers to the IART.
  - The Guard will ask Textron if perchlorate was used as propellant.

- The Army Corps of Engineers is working on providing copies of all contracts issued for J Ranges at MMR. The Guard will forward Action Items to the Corps and let them know that they agreed to look into this.
- The Guard agreed to consider air monitoring on the back side of the CDC to determine if carbon filters were needed.
- The Guard will include an IART facilitator proposal in the weekly notes for review and comments.
- The Guard agreed to schedule soil sampling at the SAR that coincides with a heavy use training event.
- The Guard will discuss the assistance to IART facilitator and the discussion on the west end of the Demo 1 plume at the June 28th IART meeting.

- Ogden indicated that three profile samples (already selected) and four monitoring well samples (MW-1S, MW-16S, MW-19S, and MW-41M1) would be analyzed by Method 8321 and CHPPM, per prior correspondence. EPA asked for a status update on these samples and the analyses.

- Screens were selected for MW-103 (P-17) at the water table to monitor potential contamination from the adjacent small arms ranges, at 138' to 148' bwt to capture the particle track from MW-87, and at 156' to 166' bwt to cover the detection of 2,4-diamino-6-nitrotoluene in the Q interval.

- Ogden distributed the Central Impact Area supplemental response wells plan, the proposed supplemental text for the J-3 tech memo, and the October Blow in Place report for agency 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 discrete soil sample from the second 81mm mortar detonation crater from the 5/18/00 BIPs at J-2 Range had a detection of RDX which was verified by PDA.

- The groundwater sample from MW-1M2 had a detection of RDX, which was verified by PDA spectra. Previous rounds of sampling of this well had RDX detections.

- The groundwater sample from MW-2M2 had detections of RDX and HMX, which were verified by PDA spectra. Previous sampling of this well had explosive detections.

- The groundwater sample from MW-34M1 had a detection of RDX, which was verified by PDA spectra. Previous sampling rounds have similar explosive detections.

- The groundwater sample from MW-34M2 had a detection of RDX, which was verified by PDA spectra. Previous rounds of sampling of this well had similar explosive detections.

- The groundwater sample from MW-38M3 had a detection of RDX, which was verified by PDA spectra. Previous rounds of sampling of this well had similar explosive detections.

- The groundwater sample from MW-38M4 had a detection of RDX, which was verified by PDA spectra. Previous rounds of sampling of this well had similar explosive detections.

- The groundwater sample from MW-58S had detections of RDX and HMX, which were verified by PDA spectra. Previous rounds of sampling of this well had similar explosive detections.

- The groundwater sample from MW-90M1 had detections of RDX and 4-amino-2,6-dinitrotoluene, which were verified by PDA spectra. This is the first round of sampling for this well.

- The groundwater sample from MW-90S had detections of RDX and HMX, which were verified by PDA spectra. This is the first round of sampling for this Impact Area response well. Results were consistent with profile results for the same depth.

- The groundwater sample from MW-91S had detections of RDX, HMX, and 4-amino-2,6-dinitrotoluene, which were verified by PDA spectra. This is the first round of sampling for this well. Results were consistent with profile results for the same depth.

- The groundwater sample from MW-92M1 had a detection of RDX, which were verified by PDA spectra. This is the first round of sampling for this well. Results were consistent with profile results for the same depth.

- The groundwater profile samples from MW-103 had detections of 2,6-DNT (2 intervals), 2-nitrotoluene (2 intervals), 3-nitrotoluene (3 intervals), 4-nitrotoluene (3 intervals), PETN (3 intervals), picric acid (3 intervals), nitroglycerin (2 intervals), and 2,4-diamino-6-nitrotoluene (1 interval). The 2,4-diamino-6-nitrotoluene was verified by PDA spectra.

- A groundwater profile sample from MW-104 had detections of acetone, MEK, PETN, 3-nitrotoluene, 4-nitrotoluene, and picric acid. None of the explosive detections were verified by PDA spectra.

3. DELIVERABLES SUBMITTED

Draft IAGS Tech Memo 00-1, Evaluation of Ground Scars, Pits, etc.	5/23/00
Weekly Progress Update for May 8-12, 2000	5/24/00
Draft Munitions Demolition Summary Report – October 1999	5/25/00
Interim Supplemental Response Well Locations for Central Impact Area	5/25/00

4. SCHEDULED ACTIONS

Scheduled actions for the week of May 30 include the construction of monitoring wells at MW-103 (P-17), MW-105 (P-19), and MW-106 (P-18); commencement of the drilling of the P-20 well; and the continued groundwater sampling of the Impact Area response wells and Long Term Monitoring wells.

5. SUMMARY OF ACTIVITIES FOR DEMO 1

The geophysical data for Demo 1 are being processed for evaluation of anomalies. Preparation of the draft technical memorandum for the Demo 1 response actions is underway. The draft FS Workplan for AO3 (including Demo 1) is under review by the regulatory agencies and other stakeholders.

TABLE 2
SAMPLING PROGRESS
5/22/00-5/26/00

OGDEN_ID	LOCID OR WELL ID	DATE SAMPLED	SAMPLE TYPE	SBD	SED	BWTS	BWTE
G103DNE	FIELDQC	05/23/2000	FIELDQC	0.00	0.00		
G104DKE	FIELDQC	05/22/2000	FIELDQC	0.00	0.00		
G104DKT	FIELDQC	05/22/2000	FIELDQC	0.00	0.00		
S104DAE	FIELDQC	05/26/2000	FIELDQC	0.00	0.00		
S105DCE	FIELDQC	05/24/2000	FIELDQC	0.00	0.00		
S105DCT	FIELDQC	05/24/2000	FIELDQC	0.00	0.00		
S105DDE	FIELDQC	05/25/2000	FIELDQC	0.00	0.00		
S106DCE	FIELDQC	05/26/2000	FIELDQC	0.00	0.00		
S106DCT	FIELDQC	05/26/2000	FIELDQC	0.00	0.00		
W52DDT	FIELDQC	05/22/2000	FIELDQC	0.00	0.00		
RS0003ARND	3 Arnold Rd.	05/23/2000	GROUNDWATER				
RS0003RACC	3 Raccoon Lane	05/23/2000	GROUNDWATER				
RS0004OSNK	4 Old Snake Pon	05/23/2000	GROUNDWATER				
RS0006OSNK	6 Old Snake Pon	05/23/2000	GROUNDWATER				
RS0010ARND	10 Arnold Rd.	05/23/2000	GROUNDWATER				
RS0011OSNK	11 Old Snake Po	05/23/2000	GROUNDWATER				
RS0012OSNK	12 Old Snake Po	05/23/2000	GROUNDWATER				
RS0014ARND	14 Arnold Rd.	05/23/2000	GROUNDWATER				
RS0015ARND	15 Arnold Rd.	05/23/2000	GROUNDWATER				
RS0018OSNK	18 Old Snake Po	05/23/2000	GROUNDWATER				
RS0024ARND	24 Arnold Rd.	05/23/2000	GROUNDWATER				
RS0034ARND	34 Arnold Rd.	05/23/2000	GROUNDWATER				
RS0036ARND	36 Arnold Rd.	05/23/2000	GROUNDWATER				
RS0039ARND	39 Arnold Rd.	05/23/2000	GROUNDWATER				
W07M1A	MW-07	05/23/2000	GROUNDWATER	240.00	245.00	131.23	136.23
W07M2A	MW-07	05/24/2000	GROUNDWATER	240.00	245.00	130.82	135.82
W19SSA	MW-19	05/23/2000	GROUNDWATER	38.00	48.00	-6.91	3.09
W21M2A	MW-21	05/23/2000	GROUNDWATER	240.00	245.00		
W21M3A	MW-21	05/24/2000	GROUNDWATER	196.00	206.00	20.80	30.80
W35M1A	MW-35	05/22/2000	GROUNDWATER	155.00	165.00	65.08	75.08
W35M2A	MW-35	05/22/2000	GROUNDWATER	100.00	110.00	10.13	20.13
W35SSA	MW-35	05/22/2000	GROUNDWATER	84.00	94.00	-5.87	4.13
W45M1A	MW-45	05/26/2000	GROUNDWATER	190.00	200.00	96.75	106.75
W45M2A	MW-45	05/26/2000	GROUNDWATER	110.00	120.00	15.82	25.82
W52DDA	MW-52	05/22/2000	GROUNDWATER	369.00	379.00	213.60	223.60
W52M1A	MW-52	05/22/2000	GROUNDWATER	290.00	300.00	135.10	145.10
W52M2A	MW-52	05/23/2000	GROUNDWATER	225.00	235.00	70.05	80.05
W52M3A	MW-52	05/23/2000	GROUNDWATER	210.00	215.00	55.88	60.88
W52SSA	MW-52	05/23/2000	GROUNDWATER	150.00	160.00	-3.82	6.18
W85M1A	MW-85	05/22/2000	GROUNDWATER	137.50	147.50	18.39	28.39
W88M1A	MW-88	05/24/2000	GROUNDWATER	233.00	243.00	89.58	99.58
W88M2A	MW-88	05/24/2000	GROUNDWATER	213.00	223.00	69.60	79.60
W88M3A	MW-88	05/24/2000	GROUNDWATER	173.00	183.00	29.56	39.56
W89M1A	MW-89	05/26/2000	GROUNDWATER	234.00	244.00	89.17	99.17

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
5/22/00-5/26/00

OGDEN_ID	LOCID OR WELL ID	DATE SAMPLED	SAMPLE TYPE	SBD	SED	BWTS	BWTE
W89M2A	MW-89	05/26/2000	GROUNDWATER	214.00	224.00	68.95	78.95
W89M3A	MW-83	05/23/2000	GROUNDWATER	174.00	184.00	28.82	38.82
W91M1A	MW-91	05/22/2000	GROUNDWATER	170.00	180.00	43.37	53.37
W93M1A	MW-93	05/26/2000	GROUNDWATER	185.00	195.00	54.90	64.90
W93M2A	MW-93	05/26/2000	GROUNDWATER	145.00	155.00	14.50	24.50
W94M1A	MW-94	05/26/2000	GROUNDWATER	160.00	170.00	34.03	44.03
W94SSA	MW-94	05/26/2000	GROUNDWATER	124.00	134.00	-1.82	8.18
W95M1A	MW-95	05/25/2000	GROUNDWATER	202.00	212.00	74.99	84.99
W95M2A	MW-95	05/26/2000	GROUNDWATER	167.00	177.00	39.95	49.95
W95SSA	MW-95	05/25/2000	GROUNDWATER	125.00	135.00	-1.90	8.10
W96M1A	MW-96	05/25/2000	GROUNDWATER	206.00	216.00	69.69	79.69
W96M2A	MW-96	05/26/2000	GROUNDWATER	160.00	170.00	23.52	33.52
W96SSA	MW-96	05/25/2000	GROUNDWATER	134.00	144.00	-2.31	7.69
W96SSD	MW-96	05/25/2000	GROUNDWATER	134.00	144.00	-2.31	7.69
W97M1A	MW-97	05/24/2000	GROUNDWATER	235.00	245.00	110.00	120.00
W97M2A	MW-97	05/25/2000	GROUNDWATER	185.00	195.00	59.97	69.97
W97M3A	MW-97	05/24/2000	GROUNDWATER	140.00	150.00	15.03	25.03
W98M1A	MW-98	05/25/2000	GROUNDWATER	164.00	174.00	25.06	35.06
W98SSA	MW-98	05/24/2000	GROUNDWATER	137.00	147.00	-2.05	7.95
W99M1A	MW-99	05/25/2000	GROUNDWATER	170.00	180.00	43.37	53.37
W99M1D	MW-99	05/25/2000	GROUNDWATER	195.00	205.00	59.22	69.22
W99SSA	MW-99	05/25/2000	GROUNDWATER	133.00	143.00	-2.92	7.08
W99SSD	MW-99	05/25/2000	GROUNDWATER	133.00	143.00	-2.92	7.08
SAND-04	BFSAND	05/25/2000	IDW				
SC10001	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC10002	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC10101	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC10102	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC10201	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC10202	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC10301	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC10302	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC10401	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC10402	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC9301	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC9302	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC9401	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC9402	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC9501	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC9502	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC9601	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC9602	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC9701	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC9702	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		

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TABLE 2
SAMPLING PROGRESS
5/22/00-5/26/00

OGDEN_ID	LOCID OR WELL ID	DATE SAMPLED	SAMPLE TYPE	SBD	SED	BWTS	BWTE
SC9801	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC9802	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC9901	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
SC9902	SOIL CUTTINGS	05/26/2000	IDW	0.00	0.25		
G103DJA	MW-103	05/22/2000	PROFILE	240.00	240.00	95.80	95.80
G103DKA	MW-103	05/22/2000	PROFILE	250.00	250.00	105.80	105.80
G103DLA	MW-103	05/22/2000	PROFILE	260.00	260.00	115.80	115.80
G103DMA	MW-103	05/22/2000	PROFILE	270.00	270.00	125.80	125.80
G103DNA	MW-103	05/23/2000	PROFILE	280.00	280.00	135.80	135.80
G103DOA	MW-103	05/23/2000	PROFILE	290.00	290.00	145.80	145.80
G103DPA	MW-103	05/23/2000	PROFILE	300.00	300.00	155.80	155.80
G103DQA	MW-103	05/23/2000	PROFILE	310.00	310.00	165.80	165.80
G104DKA	MW-104	05/22/2000	PROFILE	220.00	220.00	99.40	99.40
S94DAA	MW-94	05/26/2000	SOIL BORING	0.00	0.50		
S94DBA	MW-94	05/26/2000	SOIL BORING	1.50	2.00		
S106DCA	MW-106	05/26/2000	SOIL BORING	10.00	12.00		
S102DAA	MW-102	05/26/2000	SOIL BORING	0.00	0.50		
S102DBA	MW-102	05/26/2000	SOIL BORING	1.50	2.00		
S104DAA	MW-104	05/26/2000	SOIL BORING	0.00	0.50		
S104DBA	MW-104	05/26/2000	SOIL BORING	1.50	2.00		
S105DAA	MW-105	05/26/2000	SOIL BORING	0.00	0.50		
S105DBA	MW-105	05/26/2000	SOIL BORING	1.50	2.00		
S105DCA	MW-105	05/24/2000	SOIL BORING	10.00	12.00		
S105DDA	MW-105	05/25/2000	SOIL BORING	20.00	22.00		
S105DEA	MW-105	05/25/2000	SOIL BORING	30.00	32.00		
S105DFA	MW-105	05/25/2000	SOIL BORING	40.00	42.00		
S105DGA	MW-105	05/25/2000	SOIL BORING	50.00	52.00		
S105DGD	MW-105	05/25/2000	SOIL BORING	50.00	52.00		
S105DHA	MW-105	05/25/2000	SOIL BORING	60.00	62.00		
S105DIA	MW-105	05/25/2000	SOIL BORING	70.00	72.00		
S105DJA	MW-105	05/25/2000	SOIL BORING	80.00	82.00		
S105DKA	MW-105	05/25/2000	SOIL BORING	90.00	92.00		
S105DLA	MW-105	05/25/2000	SOIL BORING	100.00	102.00		
S105DMA	MW-105	05/25/2000	SOIL BORING	110.00	112.00		
S105DMD	MW-105	05/25/2000	SOIL BORING	110.00	112.00		
S105DNA	MW-105	05/25/2000	SOIL BORING	120.00	122.00		
S105DOA	MW-105	05/25/2000	SOIL BORING	130.00	132.00		
HC44LA1AAE	FIELDQC	05/23/2000	FIELDQC	0.00	0.00		
HCAPC1A1AAE	FIELDQC	05/22/2000	FIELDQC	0.00	0.00		
HCGMLB1AAE	FIELDQC	05/24/2000	FIELDQC	0.00	0.00		
HD23HA1AAE	FIELDQC	05/25/2000	FIELDQC	0.00	0.00		
HDO2J1AAT	FIELDQC	05/24/2000	FIELDQC	0.00	0.00		
HC44JA1AAA	44JA	05/23/2000	SOIL GRID	0.00	0.50		
HC44JB1AAA	44JB	05/23/2000	SOIL GRID	0.00	0.50		

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
5/22/00-5/26/00

OGDEN_ID	LOCID OR WELL ID	DATE SAMPLED	SAMPLE TYPE	SBD	SED	BWTS	BWTE
HC44JC1AAA	44JC	05/23/2000	SOIL GRID	0.00	0.50		
HC44KA1AAA	44KA	05/23/2000	SOIL GRID	0.00	0.50		
HC44KB1AAA	44KB	05/23/2000	SOIL GRID	0.00	0.50		
HC44KC1AAA	44KC	05/23/2000	SOIL GRID	0.00	0.50		
HC44KC1AAD	44KC	05/23/2000	SOIL GRID	0.00	0.50		
HC44L1DAA	44L	05/23/2000	SOIL GRID	1.50	2.00		
HC44LA1AAA	44LA	05/23/2000	SOIL GRID	0.00	0.50		
HCAPC1A1AAA	HCAPC1A1AAA	05/22/2000	SOIL GRID	0.00	0.50		
HCAPC1A1BAA	HCAPC1A1BAA	05/22/2000	SOIL GRID	0.50	1.00		
HCAPC2A1AAA	HCAPC2A1AAA	05/22/2000	SOIL GRID	0.00	0.50		
HCAPC2A1BAA	HCAPC2A1BAA	05/22/2000	SOIL GRID	0.50	1.00		
HCAPC2B1AAA	HCAPC2B1AAA	05/22/2000	SOIL GRID	0.00	0.50		
HCAPC2B1BAA	HCAPC2B1BAA	05/22/2000	SOIL GRID	0.50	1.00		
HCAPC2B1BAD	HCAPC2B1BAD	05/22/2000	SOIL GRID	0.50	1.00		
HCAPC2C1AAA	HCAPC2C1AAA	05/22/2000	SOIL GRID	0.00	0.50		
HCAPC2C1BAA	HCAPC2C1BAA	05/22/2000	SOIL GRID	0.50	1.00		
HCAPC3C1AAA	HCAPC3C1AAA	05/22/2000	SOIL GRID	0.00	0.50		
HCAPC3C1BAA	HCAPC3C1BAA	05/22/2000	SOIL GRID	0.50	1.00		
HCGMLA1AAA	HCGMLA1AAA	05/24/2000	SOIL GRID	0.00	0.50		
HCGMLB1AAA	HCGMLB1AAA	05/24/2000	SOIL GRID	0.00	0.50		
HCGMLC1AAA	HCGMLC1AAA	05/24/2000	SOIL GRID	0.00	0.50		
HCGMLC1AAD	HCGMLC1AAA	05/24/2000	SOIL GRID	0.00	0.50		
HD23B1CAA	23B	05/25/2000	SOIL GRID	1.00	1.50		
HD23B1DAA	23B	05/25/2000	SOIL GRID	1.50	2.00		
HD23B1EAA	23B	05/25/2000	SOIL GRID	2.00	2.50		
HD23B1FAA	23B	05/25/2000	SOIL GRID	2.50	3.00		
HD23HA1AAA	23HA	05/25/2000	SOIL GRID	0.00	0.50		
HD23I1CAA	23I	05/25/2000	SOIL GRID	1.50	2.00		
HD23IA1AAA	23IA	05/25/2000	SOIL GRID	0.00	0.50		
HD23IB1AAA	23IB	05/25/2000	SOIL GRID	0.00	0.50		
HDO2J1AAA	HDO2J1AAA	05/24/2000	SOIL GRID	0.00	0.50		

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 5/22/00-5/26/00

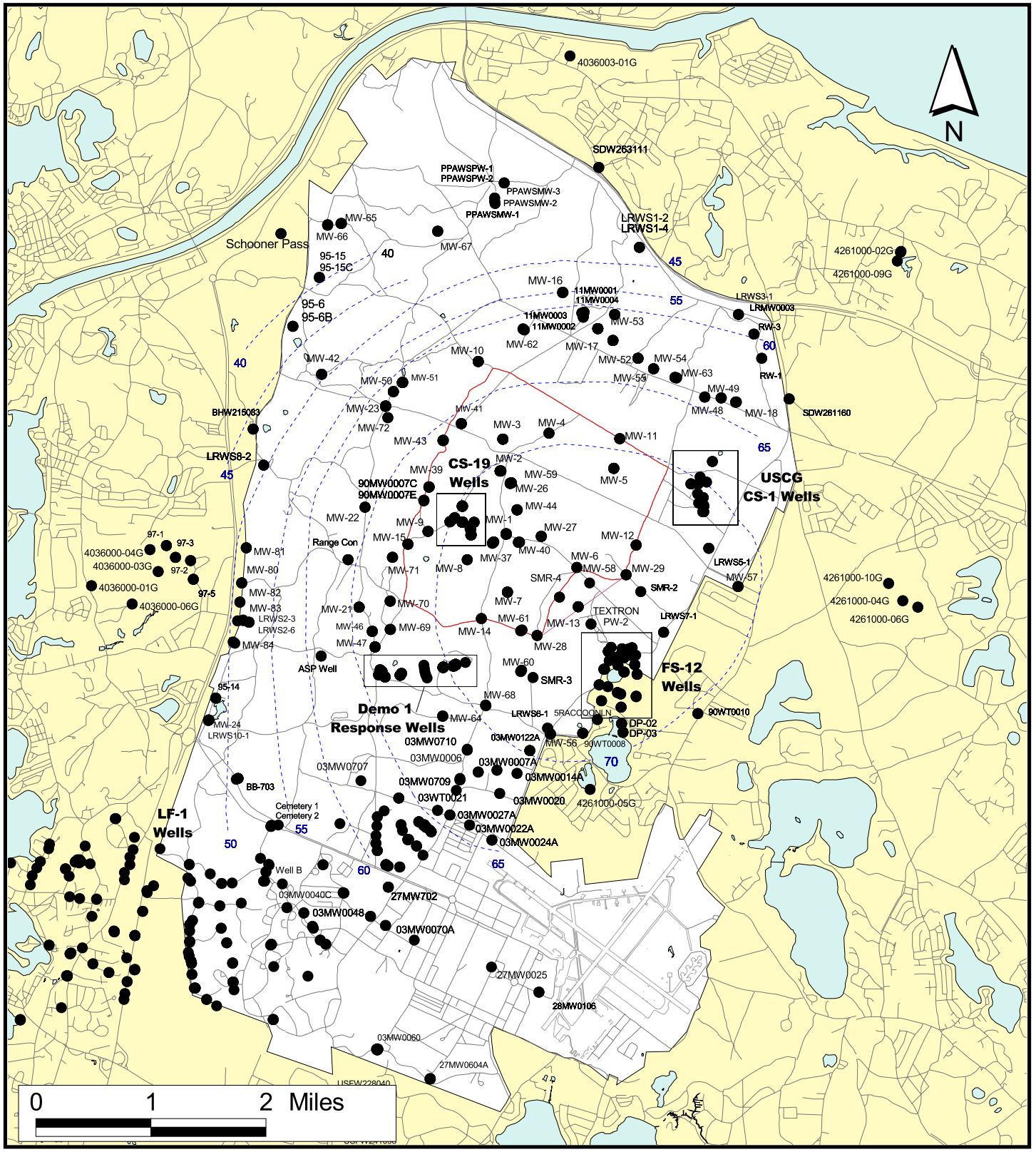
OGDEN_ID	LOCID OR WELL ID	SAMPLED	SAMP_TYPE	SBD	SED	BWTS	BWTE	METHOD	OGDEN_ANALYTE	PDA
HDJ281MM2	HDJ281MM2	05/19/2000	CRATER GRAB					8330N	HEXAHYDRO-1,3,5-TRINITRO-1,	YES
W01M2A	MW-01	05/10/2000	GROUNDWATER	160.00	165.00	40.60	45.60	8330N	HEXAHYDRO-1,3,5-TRINITRO-1,	YES
W02M2A	MW-02	05/11/2000	GROUNDWATER	170.00	175.00	28.36	33.36	8330N	HEXAHYDRO-1,3,5-TRINITRO-1,	YES
W02M2A	MW-02	05/11/2000	GROUNDWATER	170.00	175.00	28.36	33.36	8330N	OCTAHYDRO-1,3,5,7-TETRANITF	YES
W34M1A	MW-34	05/17/2000	GROUNDWATER	151.00	161.00	70.88	80.88	8330N	HEXAHYDRO-1,3,5-TRINITRO-1,	YES
W34M2A	MW-34	05/18/2000	GROUNDWATER	131.00	141.00	50.72	60.72	8330N	HEXAHYDRO-1,3,5-TRINITRO-1,	YES
W38M3A	MW-38	05/16/2000	GROUNDWATER	170.00	180.00	48.52	58.52	8330N	HEXAHYDRO-1,3,5-TRINITRO-1,	YES
W38M4A	MW-38	05/16/2000	GROUNDWATER	132.00	142.00	10.45	20.45	8330N	HEXAHYDRO-1,3,5-TRINITRO-1,	YES
W58SSA	MW-58	05/11/2000	GROUNDWATER	100.00	110.00	-4.35	5.65	8330N	HEXAHYDRO-1,3,5-TRINITRO-1,	YES
W58SSA	MW-58	05/11/2000	GROUNDWATER	100.00	110.00	-4.35	5.65	8330N	OCTAHYDRO-1,3,5,7-TETRANITF	YES
W90M1A	MW-90	05/19/2000	GROUNDWATER	145.00	155.00	24.87	34.87	8330N	4-AMINO-2,6-DINITROTOLUENE	YES
W90M1A	MW-90	05/19/2000	GROUNDWATER	145.00	155.00	24.87	34.87	8330N	HEXAHYDRO-1,3,5-TRINITRO-1,	YES
W90M1D	MW-90	05/19/2000	GROUNDWATER	145.00	155.00	24.87	34.87	8330N	4-AMINO-2,6-DINITROTOLUENE	YES
W90M1D	MW-90	05/19/2000	GROUNDWATER	145.00	155.00	24.87	34.87	8330N	HEXAHYDRO-1,3,5-TRINITRO-1,	YES
W90SSA	MW-90	05/19/2000	GROUNDWATER	118.00	128.00	-2.32	7.68	8330N	HEXAHYDRO-1,3,5-TRINITRO-1,	YES
W90SSA	MW-90	05/19/2000	GROUNDWATER	118.00	128.00	-2.32	7.68	8330N	OCTAHYDRO-1,3,5,7-TETRANITF	YES
W91SSA	MW-91	05/19/2000	GROUNDWATER	124.00	134.00	-2.60	7.40	8330N	4-AMINO-2,6-DINITROTOLUENE	YES
W91SSA	MW-91	05/19/2000	GROUNDWATER	124.00	134.00	-2.60	7.40	8330N	HEXAHYDRO-1,3,5-TRINITRO-1,	YES
W91SSA	MW-91	05/19/2000	GROUNDWATER	124.00	134.00	-2.60	7.40	8330N	OCTAHYDRO-1,3,5,7-TETRANITF	YES
W92M1A	MW-92	05/19/2000	GROUNDWATER	165.00	175.00	24.06	34.06	8330N	HEXAHYDRO-1,3,5-TRINITRO-1,	YES
G103DAA	MW-103	05/18/2000	PROFILE	150.00	150.00	5.80	5.80	8330N	2,6-DINITROTOLUENE	NO
G103DAD	MW-103	05/18/2000	PROFILE	150.00	150.00	5.80	5.80	8330N	2,6-DINITROTOLUENE	NO
G103DHA	MW-103	05/18/2000	PROFILE	220.00	220.00	75.80	75.80	8330N	2-NITROTOLUENE	NO
G103DHA	MW-103	05/18/2000	PROFILE	220.00	220.00	75.80	75.80	8330N	3-NITROTOLUENE	NO
G103DHA	MW-103	05/18/2000	PROFILE	220.00	220.00	75.80	75.80	8330N	4-NITROTOLUENE	NO
G103DHA	MW-103	05/18/2000	PROFILE	220.00	220.00	75.80	75.80	8330N	PENTAERYTHRITOL TETRANITF	NO
G103DHA	MW-103	05/18/2000	PROFILE	220.00	220.00	75.80	75.80	8330N	PICRIC ACID	NO
G103DIA	MW-103	05/18/2000	PROFILE	230.00	230.00	85.80	85.80	8330N	3-NITROTOLUENE	NO
G103DIA	MW-103	05/18/2000	PROFILE	230.00	230.00	85.80	85.80	8330N	4-NITROTOLUENE	NO
G103DIA	MW-103	05/18/2000	PROFILE	230.00	230.00	85.80	85.80	8330N	NITROGLYCERIN	NO
G103DLA	MW-103	05/22/2000	PROFILE	260.00	260.00	115.80	115.80	8330N	PENTAERYTHRITOL TETRANITF	NO
G103DMA	MW-103	05/22/2000	PROFILE	270.00	270.00	125.80	125.80	8330N	2,6-DINITROTOLUENE	NO
G103DMA	MW-103	05/22/2000	PROFILE	270.00	270.00	125.80	125.80	8330N	2-NITROTOLUENE	NO

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

TABLE 3
DETECTED COMPOUNDS-UNVALIDATED
SAMPLES COLLECTED 5/22/00-5/26/00

OGDEN_ID	LOCID OR WELL ID	SAMPLED	SAMP_TYPE	SBD	SED	BWTS	BWTE	METHOD	OGDEN_ANALYTE	PDA
G103DMA	MW-103	05/22/2000	PROFILE	270.00	270.00	125.80	125.80	8330N	3-NITROTOLUENE	NO
G103DMA	MW-103	05/22/2000	PROFILE	270.00	270.00	125.80	125.80	8330N	4-NITROTOLUENE	NO
G103DMA	MW-103	05/22/2000	PROFILE	270.00	270.00	125.80	125.80	8330N	PENTAERYTHRITOL TETRANITF	NO
G103DMA	MW-103	05/22/2000	PROFILE	270.00	270.00	125.80	125.80	8330N	PICRIC ACID	NO
G103DNA	MW-103	05/23/2000	PROFILE	280.00	280.00	135.80	135.80	8330N	NITROGLYCERIN	NO
G103DNA	MW-103	05/23/2000	PROFILE	280.00	280.00	135.80	135.80	8330N	PICRIC ACID	NO
G103DQA	MW-103	05/23/2000	PROFILE	310.00	310.00	165.80	165.80	8330N	2,4-DIAMINO-6-NITROTOLUENE	YES
G104DKA	MW-104	05/22/2000	PROFILE	220.00	220.00			8330N	3-NITROTOLUENE	NO
G104DKA	MW-104	05/22/2000	PROFILE	220.00	220.00			8330N	4-NITROTOLUENE	NO
G104DKA	MW-104	05/22/2000	PROFILE	220.00	220.00			8330N	PENTAERYTHRITOL TETRANITF	NO
G104DKA	MW-104	05/22/2000	PROFILE	220.00	220.00			8330N	PICRIC ACID	NO
G104DKA	MW-104	05/22/2000	PROFILE	220.00	220.00			OC21V	ACETONE	
G104DKA	MW-104	05/22/2000	PROFILE	220.00	220.00			OC21V	METHYL ETHYL KETONE (2-BUT	

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



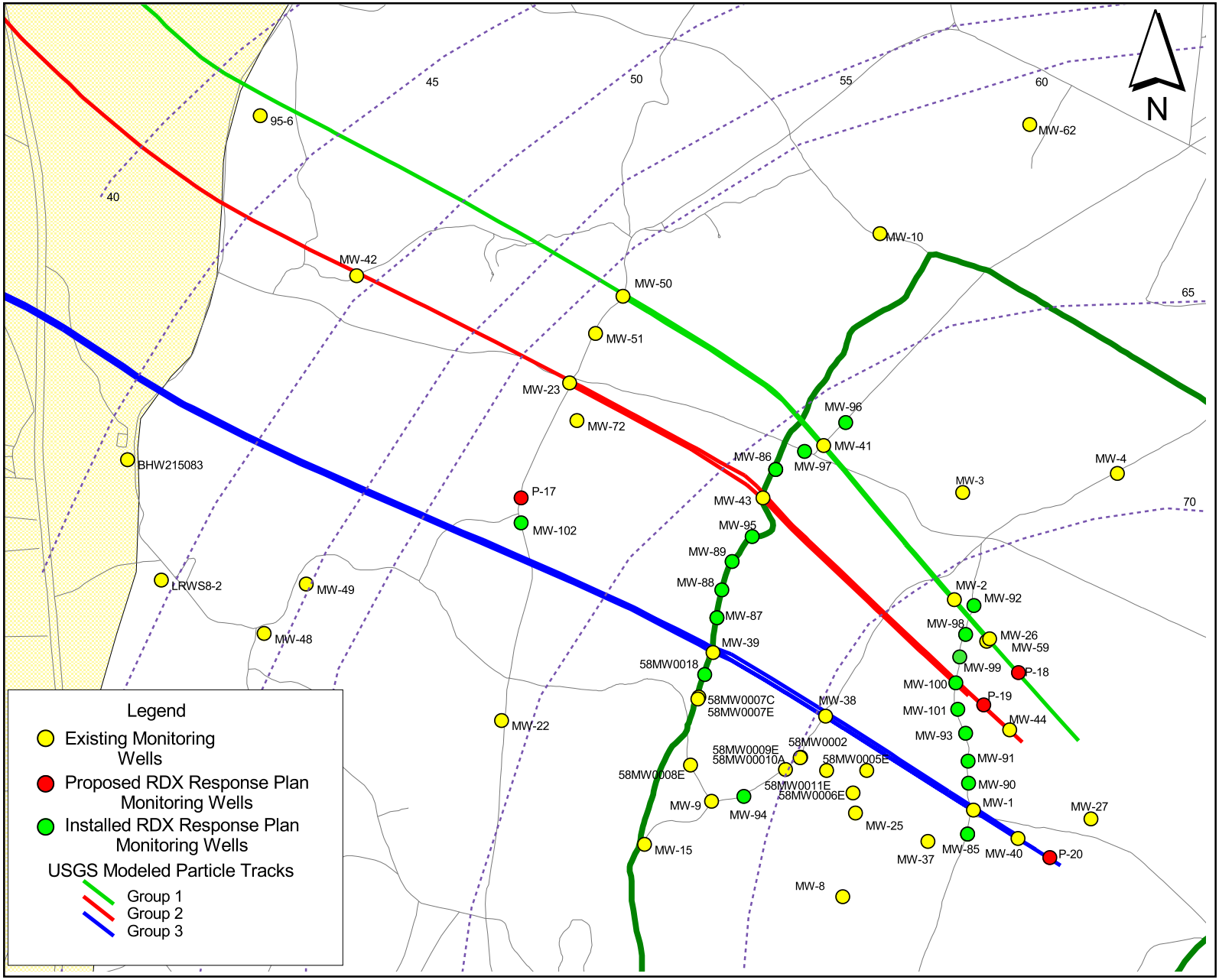
Sources & Notes

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 A