WEEKLY PROGRESS UPDATE
FOR JULY 30 – AUGUST 3, 2001

EPA REGION I ADMINISTRATIVE ORDERS SDWA 1-97-1019 & 1-2000-0014
MASSACHUSETTS MILITARY RESERVATION
TRAINING RANGE AND IMPACT AREA

The following summary of progress is for the period from July 30 to August 3, 2001.

1. SUMMARY OF ACTIONS TAKEN

There was no drilling progress between July 30 and August 3. Commenced well development of MW-175.

Samples collected during the reporting period are summarized in Table 2. Groundwater samples were collected as part of the August Long Term Groundwater Monitoring round. Groundwater samples were collected from Weeks Pond Sentry wells SP3-91 and SP4-91 as part of the J Range Response Plan. Drive point split samples were collected at Snake Pond. Water samples were collected from the GAC system. Soil samples were collected as part of the bottom survey at the Demo 1 Area and in the Slit Trench as part of the Munitions Survey Project. As part of the HUTA investigation, pre- and post detonation soil samples were collected in Test Pit 5. Soil samples were also collected in the Test Pit 5 area.

The Guard, EPA, and MADEP had a meeting on August 2 to discuss technical issues, including the following:

Attendees

Ben Gregson (IAGWSPO)	Dave Hill (IAGWSPO)	CPT Bill Meyer (IAGWSPO)
Bill Gallagher (IAGWSPO)	Karen Wilson (IAGWSPO)	Tina Dolen (IAGWSPO)
COL Albert Bleakley (JPO)	Todd Borci (EPA)	Mike Jasinski (EPA)
Jane Dolan (EPA)	Len Pinaud (MADEP)	Mark Panni (MADEP)
Darrell Deleppo (ACE)	Heather Sullivan (ACE)	John MacPherson (ACE)
Ed Wise (ACE)	Ellen Iorio (ACE)	Carol Ann Charette (ACE)
Gina Tyo (ACE)	Rob Clemens (AMEC)	Katy Weeks (AMEC-phone)
Marc Grant (AMEC)	John Rice (AMEC)	Mark Applebee (AMEC)
Kim Harriz (AMEC)	Jay Clausen (AMEC)	Raye Lahti (Tetra Tech – phone)
Larry Hudgins (Tetra Tech)	Doug Lam (Tetra Tech)	Leo Montroy (Tetra Tech – phone)
Mike Teate (Tetra Tech)	Joe Dauchy (Tt – phone)	Denis LeBlanc (USGS-phone)
Dave Williams (MDPH)	Ken Gaynor (Jacobs)	Mark Hutson (Foothill Engineering)
LTC Bill Fitzpatrick (MAARNG)		

AirMag Ground Truthing Presentation

- Ellen Iorio (ACE) gave an introduction to the AirMag presentation. A handout was provided that summarized the investigation and findings. Table was provided of ground truthing information for investigated anomalies. Figures depicted location of anomalies, information on findings, and geology for each of the five areas. Ground truthing of primary targets was completed. Twenty of 50 secondary targets have also been verified. Five anomalies that were specified in 7/19 Tech meeting were intrusively investigated. 186 primary targets were investigated among the 5 areas. Of the 186 verified anomalies, 147 were identified as surface materials, 11 were identified as magnetic rock, 6 had no features or Schoenstadt magnetic locator response, 22 were subsurface anomalies.

- Todd Borci (EPA) expressed his disapproval that the Guard/ACE had proceeded with the intrusive investigation of the proposed 5 anomalies without EPA's concurrence, as had been agreed at the 7/26 Tech meeting. Ms. Iorio apologized, expressing that it was only their intent to provide more information for today's presentation. Futhermore, the Guard/ACE had no hesitation in investigating 5 anomalies selected by the EPA. Mr. Borci stated that EPA did not agree with all 5 locations intrusively investigated by the Corps and would provide all anomalies needing further investigation next week. Ms. Iorio added that there was limited funding for the project for this fiscal year. COL Bleakley (JPO) added that Corps should not do unapproved work and then make statements regarding funding. Mr. Borci restated that since EPA did not agree with the Corps selections, an appropriate number of anomalies would be selected by the EPA for intrusive investigation based upon the fact that the Guard originally had sufficient funding to investigate 10 anomalies.
- Jane Dolan (EPA) inquired about the difference between the EM-61 anomalies and the AirMag anomalies. Doug Lam (Tetra Tech) indicated that the EM will not see the geology like the AirMag. The magnetometer will pick up all the ferrous items at a greater depth including rocks with magnetite. The EM is not as sensitive.
- Area 1 – U Range. Most anomalies were metallic objects. Anomaly 1-250 was found to be a result of the geology. This location falls at the edge of the moraine, whereas other anomalies in this area are in the outwash. In general, anomalies in the moraine in all areas seemed to be indicative of a concentration of iron in an area or in boulders or a collection of boulders. Around Anomaly 1-203, multiple berms with 3.5-inch rockets were found. Anomalies I-3 and I-4 were target berms with multiple UXO.
- Todd Borci (EPA) pointed out that this is an example of how the AirMag had been useful. In 1999, sampling had been completed at the firing points and targets at U Range. A Tech memo following sampling indicated that no further work was needed in this area. The AirMag data resulted in the identification of this additional target, which Mike Jasinski (EPA) indicated was unlikely to have been found otherwise.
- Doug Lam (Tetra Tech) pointed out that the anomaly could have been produced by the ordnance in the berm or a difference in the geology of the berm. Mr. Borci inquired how Anomaly 1-250 compared to Anomalies 1-3 and 1-4. Mr. Lam indicated that the latter two were seen on all three passes.
- Ellen Iorio (ACE) pointed out that the items found at the U Range did not represent a buried cache. Finding buried caches was the primary object of the Air Mag survey. It is too early to tell if the technology is successful in performing its primary objective at this time.
- Area 2 – Deep Bottom Pond. There were a greater number of picks in Area 2, possibly because of the power lines on the west side of the area and the railroad tracks associated with Former A Range to the south. The picks were also greater in open spaces. Mr. Lam offered that this was likely an area of hot rocks or geologic noise. There were a lot of single pick anomalies that were different than typical anomalies of larger objects. These anomalies were picked up by the nose sensor but not by the port or starboard sensors. Anomalies 2-2142 and 2-2175 were found deep in a valley with a lot of cultural debris and exhibited a strong signal.
- Area 3 – J Ranges. Area is in outwash. Cultural influences dominate the anomalies here. Outside of the ranges, the picks decrease because the area is not in moraine. L Range fence and J Range buildings account for the majority of anomalies. Anomalies 3-1444 and 3-2760 were verified intrusively. Anomaly 3-1444 was associated with a 3.5-inch rocket; with stokes mortar, flare canisters, and rockets on surface. This area was a hillside west of J-3 Range. Mr. Lam was uncertain if the mass of miscellaneous metal contributed to the signal or if the signal may have been more of an influence from a nearby building. Anomaly 3-2760 had decayed organic material, old leaves, rotten trees along with a steel bar and

steel pipe. There were no readings on the schoenstadt after the bar and pipe were removed.

- Area 4 – Demo 1. In this area, the ridgeline of the moraine matches the cluster of anomalies. Ms. Iorio indicated that Anomaly 4-2700 in moraine deposits appears to be geologic. Mr. Borci indicated that there were also lots of cultural features. Intrusive investigation of Anomaly 4-3137 went to 6 feet, and was still ringing off at this depth on schoenstadt, indicating something larger. The Guard would like to excavate this anomaly further. Anomaly 4-1276 located in a borrow pit had steel cable and metal pipe. Anomaly 4-1934 had 6 metal stakes. These anomalies can be used to determine what signal strength may mean. Ms. Iorio indicated that a table will be compiled showing signal strength (in nanoTeslas) and the height of the helicopter to help calibrate what various signal strengths may be indicative of.
- Area 5 – Central Impact Area. – Predominately area of outwash. Massive anomalies are located in a triangular area in the center because of presence of tanks/targets. Mr. Borci pointed out that all picks in Area 5 were not presented in table. Ms. Iorio indicated that the table was the same as provided on 7/23, updated table would be provided after completion of the secondary list ground truthing effort. Ms. Dolan required further information on Anomaly 5-1269. Mr. Hudgins to provide.
- Mr. Borci commented that EPA would like input from EOD personnel as to which anomalies that were ground truthed may be a demo area. He further inquired about the anomalies along Wood Road and north of 5 corners. Mr. Lam indicated that there was no further info on Wood Rd anomalies other than what had been provided. North of 5 corners - it appeared as if this was the bottom of a kettle hole, nothing was present on the surface.
- Mike Jasinski (EPA) inquired about the next step. John McPherson indicated that the plan was to excavate Anomaly 4-3137, excavate anomalies suggested by EPA and complete verification of the secondary pick list (provided Monday 8/6). Mr. Jasinski requested that all signal strength readings be provided for ground truthed anomalies to assist with selection of picks to excavate. EPA will develop a list of anomalies to excavate and would like to see an additional 5 picks from the Guard. Ms. Iorio requested that EPA also comment on the logic process of the follow-on investigation.

Mobil Lab on MMR

- Marc Grant (AMEC) indicated that based on discussion with Severn Trent's mobile laboratory that had been utilized by Jacobs, the laboratory's capability is as follows:
    - Soils only are being analyzed.
    - Method uses single column, no PDA verification.
    - 12/13 explosive compounds can be identified. Current fixed lab capability is 19 compounds.
    - Reporting limit is 2.5 times fixed lab reporting limit.
- Mr. Grant indicated that Jacobs uses the lab for screening to determine samples to submit for full analysis. Turn around time is 1.5 days and analysis is cheaper. The Guard was hoping to hear something from the agencies regarding how and where to use this technology. Mr. Grant saw applications for the RRA since it was effective for RDX detection. AMEC could propose other possible applications. Plus a water screening method may be developed in the future.
- Jane Dolan (EPA) did not see any applications for the upcoming J Range investigation. Todd Borci (EPA) indicated that the EPA thought that the soil screening could be utilized for more efficient remediation, such as in Demo 1 area or the Central Impact Area. 10% of field screened material could be sent fixed lab. Mr. Borci requested an update on the potential uses in one month.

Central Impact Area: Additional 5 Well Locations

CIAP-1 - In this area, a buoy is in the way of the drill pad. Bill Gallagher (IAGWSPO) requested that they be allowed to move the buoy without disturbing the soil, build the well pad which includes placing geotextile fabric on the ground prior to bringing in soil to level the area, drill well, remove well pad, and then sample the soil at this target location. Sampling around the target area can not be done prior to installing the well because it has not been funded yet. Marc Grant (AMEC) also pointed out that AMEC is considering modifying the target sampling procedure. Todd Borci (EPA) agreed.

CIAP-4 – Bill Gallagher (IAGWSPO) requested that this location be moved 100 ft south just to the south side of the particle track. Original location and north of that location can not be drilled because of the hillslope. Mr. Borci (EPA) approved the relocation.

CIAP-3 – Karen Wilson (IAGWSPO) explained that this location is currently in a wetland buffer zone. Location could be moved closer to MW-50 or on the north side of the pond. Jay Clausen (AMEC) preferred the location on the north side of pond, as this well is being proposed to delineate the edge of the plume. Heather Sullivan (ACE) pointed out that Bourne ConsCom could be solicited for an approval for the proposed location, but this would not likely make the ConsCom agenda until September, which would make it difficult to install the well prior to the September 30 deadline. After consideration, Mr. Borci indicated that he preferred to go through the ConsCom process rather than relocate well.

CIAP-8 – Ms. Wilson indicated that this well is in a scrub oak habitat. Approximately 500 feet of road needs to be cut into this area to access the location and Ms. Wilson indicated that she wanted to get feedback from Hanni Dinkeloo (NHESP). There were no alternatives close to this location. Mike Jasinski (EPA) inquired if wood chip roads could be used as Jacobs used in the CS-19 work. John Rice (AMEC) pointed out that Jacobs used auger rigs that weigh about half as much as the Barber rigs. AMEC does not recommend using auger rigs because drilling refusal is common and raises the price of well installation, plus the boreholes are crooked making it difficult to install the dedicated pumps. Mr. Borci reaffirmed that this location needs to be completed by September 30.

- Mr. Rice indicated that CIAP-2 would be drilled in the road to avoid disturbing habitat. A pilot hole would be made with a Barber rig and the well would be completed with the Sonic rig which didn't require such a large drill pad. Other wells within the Impact Area had been drilled using this method.
- Heather Sullivan (ACE) indicated that a map for the next set of proposed well locations for the Central Impact Area was being prepared. Mr. Borci requested that as many cultural features as possible be added to the map.

RRA Mortar Target 9 Update

- Katy Weeks (AMEC) indicated that the extension for the soil removal had been received from EPA. Excavators were arriving Friday 8/3, originally intended to arrive Wednesday 8/1, however safety issues with the excavator needed to be addressed prior to mobilization. Activity will proceed until noon on 8/3, at which time they would need to be shut down for the Air Show. Excavation will commence on 8/6.
- EPA indicated that Comment Resolution Meeting on the Completion of Work Report was OK for 8/9.
- Jane Dolan (EPA) indicated that the letter regarding modifications to the Work Plan Addendum looks OK. Would like AMEC to add explanation of why soil washing is not being completed. Heather Sullivan (IAGWSPO) asked if this change could wait for another addendum that will address site restoration issues. Ms. Dolan agreed to wait.

J-1 Range Work Plan

- Heather Sullivan (ACE) distributed a figure showing proposed soil sampling locations at the J-1 1000m Berm, pursuant to finalizing the scope of the J13L Additional Delineation Workplan. The Draft MOR for the plan was also distributed.
- Seven locations are proposed for sampling in this area.
    - Composite samples at the 2 geophysical anomalies that will be excavated. 1 pre-excavation and 2 post-excavation sample at each anomaly.
    - One sample in anomalous area at the face of the 150m Berm
    - One sample at the presumed location of the former cook-off tests and one boring at this location
    - One sample around the partially buried APV
    - One sample at an anomaly near the range road downrange of the 150m Berm
    - One sample from the face of the 1000m Berm beneath the steel plates
    - One discrete sample from dark soil uprange of the 150m Berm
    - Composite samples to be collected from standard grids except for the discrete sample at the 150m Berm.
- Jane Dolan (EPA) had an immediate comment indicating that no sampling had been proposed in grid K41 as had been originally requested.
- Ms. Sullivan requested that EPA provide immediate comment on at least the portion of the program in the anomaly areas that were planned to be excavated next week by Tetra Tech, to avoid delays in the schedule. Comment and a resulting expansion of the scope at the J-1 Berm was provided by EPA subsequent to the Tech meeting.

Water Supply Project

- COL Bleakley (JPO) related that the Sentry monitoring wells have been completed for WS-2 and WS-3. The first of three Sentry wells for WS-1 was currently being drilled. The wells would be sampled when they were completed.

Schedule and Documents

- Marc Grant (AMEC) reviewed the Documents Having/Needing Comments schedule.
    - Response to EPA Comments were being prepared for Demo 1 Soil FSSR – a redline strikeout version.
    - Resolution of J13L Ranges scope of work was continuing. Possible final MOR next week. This will effect 8/13 enforceable deadline to begin work on additional investigation. Todd Borci (EPA) suggested that new start date for this investigation be submitted with integrated MSP and general investigation schedule.
    - Guard received extension approval for Draft ASR to 10/31.
    - Revised MSP Phase 1 Report, HUTA Report, and HUTA FS were added to the Documents to be Submitted list.
- Mr. Borci inquired about the status of the BIP reports. Mr. Grant indicated that the July report is in Guard's hand to review. Additional reports have not been undertaken because of the difficulty of integrating AMEC and Tetra Tech BIPs. Mr. Borci requested another copy of the June report and also indicated that he would be open to an alternative, multi-month reporting format provided it was of reasonable volume.
- Jane Dolan (EPA) noted that the J13L Ranges Additional Delineation Work Plan 2 was not on the Document Status Table. Marc Grant (AMEC) indicated that a schedule for this workplan was addressed in his email regarding scheduling, sent earlier in the week.
- Mike Jasinski (EPA) commented that the public comment period needs to be added to the schedule for the Remedy Selection.

Other Items

- John Rice (AMEC) relayed that in pulling apart the triple tube system utilized by the drill rig, odors similar to the odors exhibited by the PLM in well MW-164 were discovered. The system was thoroughly cleaned and hopefully this will eliminate the interference problems with the profile samples.
- Todd Borci (EPA) inquired about the status of the ASR interviews. CPT Meyer (IAGWSPO) explained that a conference call to discuss proceedings had been set for Friday, 8/3. Mr. Borci requested that Jane Dolan (EPA) be updated regarding the interviews on Monday 8/6. It was his understanding that the private investigator would have no restrictions on the questions he could ask which CPT Meyer affirmed.
- Mr. Borci requested site visits be scheduled for Wednesday 8/8 to the J-3 Range were the rockets were found and to AirMag anomaly locations that he would specify by Monday 8/6.
- Heather Sullivan (ACE) indicated that a fly-over was being scheduled for 9/25 and 9/26.
- Ms. Dolan requested gross alpha results for the J-3 Septic Tank "leachate" samples.
- Dave Hill (IAGWSPO) requested that Ms. Dolan, he, and Tim Dwyer (AMEC) drive-by Greenway Road to locate samples that she requested along the road near Area 46.
- Ms Dolan requested a due date for Response to Comments on the DU Report. CPT Meyer (IAGWSPO) to check.

Next Tech Meeting Topics

Mortar Target 9 Status
AirMag discussion of locations for intrusive activities
Phase 2 MSP integration with general investigation.

Breakout Sessions

HUTA-2 scope (cancelled)
RRA COWR

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:

- Groundwater samples collected from MW-153M1 (Greenway Rd, south of L Range) and MW-16S (Demo 2) had detections of RDX that were confirmed by PDA. RDX was detected in these wells in similar concentrations in previous sampling rounds.

- Groundwater samples collected from MW-18M1 (northeast corner of the base, near BA-1) had a detection of RDX that was confirmed by PDA. This is the first detection of explosives in any well screen at the MW-18 location.

3. DELIVERABLES SUBMITTED

Gun and Mortar Firing Positions Draft Report (Technical Memorandum 01-14)	7/31/01
Weekly Progress Update, July 23 – July 27, 2001	8/02/01

4. SCHEDULED ACTIONS

Scheduled actions for the week of August 6 include commence drilling CIAP-5; continue August Long Term groundwater monitoring, continue soil sampling at J-2 Range, collect soil samples in the inter berm area at J-1 Range, and commence soil sampling at Demo 1.

5. SUMMARY OF ACTIVITIES FOR DEMO 1

An additional well location (D1P-8) will be drilled in the coming weeks. Analysis of first, second, and third round groundwater samples from newly installed wells is ongoing. Three soil borings will be drilled and sampled next week for additional characterization of the Demo 1 area.

TABLE 2
SAMPLING PROGRESS
7/28/2001-8/3/2001

OGDEN_ID	LOCID OR WELL ID	DATE SAMPLED	SAMPLE TYPE	SBD	SED	BWTS	BWTE
5.A.1.01022.1.0	A.1.01022.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01022.10	A.1.01022.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01022.2.0	A.1.01022.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01022.3.0	A.1.01022.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01022.4.0	A.1.01022.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01022.5.0	A.1.01022.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01022.6.0	A.1.01022.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01022.7.0	A.1.01022.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01022.8.0	A.1.01022.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01022.9.0	A.1.01022.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01026.1.0	A.1.01026.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01026.10	A.1.01026.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01026.2.0	A.1.01026.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01026.3.0	A.1.01026.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01026.4.0	A.1.01026.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01026.5.0	A.1.01026.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01026.6.0	A.1.01026.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01026.7.0	A.1.01026.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01026.8.0	A.1.01026.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01026.9.0	A.1.01026.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01030.1.0	A.1.01030.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01030.10	A.1.01030.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01030.2.0	A.1.01030.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01030.3.0	A.1.01030.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01030.4.0	A.1.01030.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01030.5.0	A.1.01030.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01030.6.0	A.1.01030.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01030.7.0	A.1.01030.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01030.8.0	A.1.01030.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01030.9.0	A.1.01030.R	08/01/2001	CRATER GRID	1.00	1.25		
5.A.1.01035.1.0	A.1.01035.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01035.10.0	A.1.01035.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01035.2.0	A.1.01035.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01035.3.0	A.1.01035.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01035.4.0	A.1.01035.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01035.5.0	A.1.01035.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01035.6.0	A.1.01035.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01035.7.0	A.1.01035.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01035.8.0	A.1.01035.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01035.9.0	A.1.01035.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01036.1.0	A.1.01036.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01036.10	A.1.01036.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01036.2.0	A.1.01036.R	08/03/2001	CRATER GRID	1.00	1.25		

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
7/28/2001-8/3/2001

OGDEN_ID	LOCID OR WELL ID	DATE SAMPLED	SAMPLE TYPE	SBD	SED	BWTS	BWTE
5.A.1.01036.4.0	A.1.01036.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01036.5.0	A.1.01036.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01036.6.0	A.1.01036.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01036.7.0	A.1.01036.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01036.8.0	A.1.01036.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01036.9.0	A.1.01036.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01037.1.0	A.1.01037.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01037.10.0	A.1.01037.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01037.2.0	A.1.01037.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01037.3.0	A.1.01037.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01037.4.0	A.1.01037.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01037.5.0	A.1.01037.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01037.6.0	A.1.01037.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01037.7.0	A.1.01037.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01037.8.0	A.1.01037.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01037.9.0	A.1.01037.R	08/03/2001	CRATER GRID	1.00	1.25		
5.A.1.01038.1.0	A.1.01038.R	08/03/2001	CRATER GRID	1.25	1.50		
5.A.1.01038.10.0	A.1.01038.R	08/03/2001	CRATER GRID	1.25	1.50		
5.A.1.01038.2.0	A.1.01038.R	08/03/2001	CRATER GRID	1.25	1.50		
5.A.1.01038.3.0	A.1.01038.R	08/03/2001	CRATER GRID	1.25	1.50		
5.A.1.01038.4.0	A.1.01038.R	08/03/2001	CRATER GRID	1.25	1.50		
5.A.1.01038.5.0	A.1.01038.R	08/03/2001	CRATER GRID	1.25	1.50		
5.A.1.01038.6.0	A.1.01038.R	08/03/2001	CRATER GRID	1.25	1.50		
5.A.1.01038.7.0	A.1.01038.R	08/03/2001	CRATER GRID	1.25	1.50		
5.A.1.01038.8.0	A.1.01038.R	08/03/2001	CRATER GRID	1.25	1.50		
5.A.1.01038.9.0	A.1.01038.R	08/03/2001	CRATER GRID	1.25	1.50		
0.G.0.00110.0.T	TRIP BLANK 110	07/30/2001	FIELDQC	0.00	0.00		
0.G.0.00111.0.T	TRIP BLANK 111	07/31/2001	FIELDQC	0.00	0.00		
0.G.0.00112.0.T	TRIP BLANK 112	08/01/2001	FIELDQC	0.00	0.00		
0.G.0.00113.0.T	TRIP BLANK 113	08/03/2001	FIELDQC	0.00	0.00		
SP4-91DE	FIELDQC	08/01/2001	FIELDQC	0.00	0.00		
W153M1T	FIELDQC	08/01/2001	FIELDQC	0.00	0.00		
W51M1T	FIELDQC	08/02/2001	FIELDQC	0.00	0.00		
W53M3T	FIELDQC	08/01/2001	FIELDQC	0.00	0.00		
W54M2T	FIELDQC	07/31/2001	FIELDQC	0.00	0.00		
W56SST	FIELDQC	08/02/2001	FIELDQC	0.00	0.00		
W7M1T	FIELDQC	07/30/2001	FIELDQC	0.00	0.00		
90PZ0001	90PZ0001	07/31/2001	GROUNDWATER				
90PZ0002	90PZ0002	07/31/2001	GROUNDWATER				
SP3-91DA	SP3-91	08/01/2001	GROUNDWATER	70.00	90.00	64.30	84.30
SP4-91DA	SP4-91	08/01/2001	GROUNDWATER	70.00	90.00	50.00	70.00
W153M1A	MW-153	08/01/2001	GROUNDWATER	199.00	209.00	105.75	115.75
W19DDA	MW-19	07/30/2001	GROUNDWATER	293.00	298.00	247.78	257.78
W21DDA	MW-21	07/30/2001	GROUNDWATER	302.00	312.00	127.85	137.85

Profiling methods include: Volatiles and Explosives
Groundwater methods include: Volatiles, Semivolatiles, Explosives, Pesticides, Herbicides, Metals, and Wet Chemistry
Other Sample Types methods are variable
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SED = Sample End Depth, measured in feet bgs
BWTS = Depth below water table, start depth, measured in feet
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TABLE 2
SAMPLING PROGRESS
7/28/2001-8/3/2001

OGDEN_ID	LOCID OR WELL ID	DATE SAMPLED	SAMPLE TYPE	SBD	SED	BWTS	BWTE
W23M1A	MW-23	07/30/2001	GROUNDWATER	225.00	235.00	95.60	105.60
W23M2A	MW-23	07/30/2001	GROUNDWATER	189.00	194.00	59.40	69.40
W23M3A	MW-23	07/30/2001	GROUNDWATER	156.00	161.00	26.40	36.40
W28SSA	MW-28	07/30/2001	GROUNDWATER	95.00	105.00	0.00	10.00
W31DDA	MW-31	08/02/2001	GROUNDWATER	133.00	138.00	43.40	53.40
W31MMA	MW-31	08/02/2001	GROUNDWATER	113.00	123.00	23.20	33.20
W33DDA	MW-33	07/30/2001	GROUNDWATER	181.50	186.50	78.90	83.90
W33MMA	MW-33	07/30/2001	GROUNDWATER	161.50	171.50	59.00	69.00
W33SSA	MW-33	07/30/2001	GROUNDWATER	146.50	151.50	43.90	48.90
W34M1A	MW-34	07/31/2001	GROUNDWATER	151.00	161.00	70.80	80.80
W34M1D	MW-34	07/31/2001	GROUNDWATER	151.00	161.00	70.80	80.80
W34M2A	MW-34	07/30/2001	GROUNDWATER	131.00	141.00	50.55	60.55
W34M3A	MW-34	07/31/2001	GROUNDWATER	111.00	121.00	30.50	40.50
W35M1A	MW-35	08/03/2001	GROUNDWATER	155.00	165.00	65.15	75.15
W35M2A	MW-35	08/03/2001	GROUNDWATER	100.00	110.00	10.14	20.14
W35SSA	MW-35	08/03/2001	GROUNDWATER	84.00	94.00	0.00	10.00
W36M1A	MW-36	08/02/2001	GROUNDWATER	151.00	161.00	72.43	82.43
W36M2A	MW-36	08/02/2001	GROUNDWATER	131.00	141.00	52.42	62.42
W36SSA	MW-36	08/02/2001	GROUNDWATER	73.00	83.00	0.00	10.00
W41M2A	MW-41	08/02/2001	GROUNDWATER	194.00	204.00	63.70	73.70
W49M1A	MW-49	08/03/2001	GROUNDWATER	160.00	170.00	86.60	96.60
W50M1A	MW-50	08/03/2001	GROUNDWATER	207.00	217.00	86.10	96.10
W50M2A	MW-50	08/03/2001	GROUNDWATER	177.00	187.00	56.20	66.20
W51DDA	MW-51	08/03/2001	GROUNDWATER	264.00	274.00	115.50	125.50
W51M1A	MW-51	08/02/2001	GROUNDWATER	203.00	213.00	54.80	64.80
W51M3A	MW-51	08/02/2001	GROUNDWATER	173.00	183.00	24.70	34.70
W52DDA	MW-52	08/01/2001	GROUNDWATER	369.00	379.00	213.86	223.86
W52M1A	MW-52	08/01/2001	GROUNDWATER	290.00	300.00	134.64	144.64
W52M2A	MW-52	08/01/2001	GROUNDWATER	225.00	235.00	69.86	79.86
W52M3A	MW-52	08/01/2001	GROUNDWATER	210.00	215.00	55.59	65.59
W52SSA	MW-52	08/02/2001	GROUNDWATER	150.00	160.00	0.00	10.00
W53DDA	MW-53	07/31/2001	GROUNDWATER	283.00	293.00	150.40	160.40
W53M1A	MW-53	08/02/2001	GROUNDWATER	224.00	234.00	95.80	105.80
W53M2A	MW-53	08/02/2001	GROUNDWATER	194.00	204.00	65.80	5.80
W53M3A	MW-53	07/31/2001	GROUNDWATER	164.00	174.00	0.00	10.00
W53SSA	MW-53	07/31/2001	GROUNDWATER	121.00	131.00	0.00	10.00
W54DDA	MW-54	07/31/2001	GROUNDWATER	278.00	288.00	124.22	134.22
W54M1A	MW-54	07/31/2001	GROUNDWATER	230.00	240.00	76.19	86.19
W54M2A	MW-54	07/31/2001	GROUNDWATER	210.00	220.00	56.09	66.09
W55DDA	MW-55	07/31/2001	GROUNDWATER	255.00	265.00	116.10	126.10
W55M1A	MW-55	07/31/2001	GROUNDWATER	225.00	235.00	84.40	94.40
W55M2A	MW-55	07/31/2001	GROUNDWATER	195.00	205.00	56.20	66.20
W55M3A	MW-55	07/31/2001	GROUNDWATER	164.00	174.00	25.20	35.20
W56DDA	MW-56	08/01/2001	GROUNDWATER	176.00	186.00	96.80	106.80

Profiling methods include: Volatiles and Explosives
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TABLE 2
SAMPLING PROGRESS
7/28/2001-8/3/2001

OGDEN_ID	LOCID OR WELL ID	DATE SAMPLED	SAMPLE TYPE	SBD	SED	BWTS	BWTE
W56M1A	MW-56	08/01/2001	GROUNDWATER	156.00	166.00	79.80	89.80
W56M1A	MW-56	08/01/2001	GROUNDWATER	156.00	166.00	79.80	89.80
W56M2A	MW-56	08/01/2001	GROUNDWATER	131.00	141.00	51.80	61.80
W56M3A	MW-56	08/02/2001	GROUNDWATER	106.00	116.00	27.00	37.00
W56M3D	MW-56	08/02/2001	GROUNDWATER	106.00	116.00	27.00	37.00
W56SSA	MW-56	08/01/2001	GROUNDWATER	76.00	86.00	0.00	10.00
W6SSA	MW-6	07/30/2001	GROUNDWATER	106.00	116.00	0.00	10.00
W6SSD	MW-6	07/30/2001	GROUNDWATER	106.00	116.00	0.00	10.00
W7M1A	MW-7	07/30/2001	GROUNDWATER	240.00	245.00	131.30	136.30
DW073101	GAC WATER	07/31/2001	IDW	0.00	0.00		
DW080201	GAC WATER	08/02/2001	IDW	0.00	0.00		
DW080301	GAC WATER	08/03/2001	IDW	0.00	0.00		
5.F.0.00001.2.0	Test Plot 5 Lift 2 Grid	07/31/2001	SOIL GRID	3.00	6.00		
5.F.0.00002.2.0	Test Plot 5 Lift 2 Grid	07/31/2001	SOIL GRID	3.00	6.00		
5.F.0.00003.2.0	Test Plot 5 Lift 2 Grid	07/31/2001	SOIL GRID	3.00	6.00		
5.F.0.00004.2.0	Test Plot 5 Lift 2 Grid	07/31/2001	SOIL GRID	3.00	6.00		
5.F.0.00005.2.0	Test Plot 5 Lift 2 Grid	07/31/2001	SOIL GRID	3.00	6.00		
5.F.0.00006.2.0	Test Plot 5 Lift 2 Grid	07/31/2001	SOIL GRID	3.00	6.00		
5.F.0.00007.2.0	Test Plot 5 Lift 2 Grid	07/31/2001	SOIL GRID	3.00	6.00		
5.F.0.00008.2.0	Test Plot 5 Lift 2 Grid	07/31/2001	SOIL GRID	3.00	6.00		
5.F.0.00009.2.0	Test Plot 5 Lift 2 Grid	07/31/2001	SOIL GRID	3.00	6.00		
5.F.0.00010.2.0	Test Plot 5 Lift 2 Grid	07/31/2001	SOIL GRID	3.00	6.00		
5.F.0.00011.2.0	Test Plot 5 Lift 2 Grid	07/31/2001	SOIL GRID	3.00	6.00		
5.F.0.00012.2.0	Test Plot 5 Lift 2 Grid	07/31/2001	SOIL GRID	3.00	6.00		
5.F.0.00013.2.0	Test Plot 5 Lift 2 Grid	07/31/2001	SOIL GRID	3.00	6.00		
5.F.0.00014.2.0	Test Plot 5 Lift 2 Grid	07/31/2001	SOIL GRID	3.00	6.00		
ST.F.3.00001.1.0		07/31/2001	SOIL GRID	0.50	1.00		
ST.F.3.00002.1.0		07/31/2001	SOIL GRID	0.00	0.50		
ST.F.3.00003.1.0		07/31/2001	SOIL GRID	2.30	2.90		
ST.F.3.00004.1.0		08/01/2001	SOIL GRID	2.00	2.50		

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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
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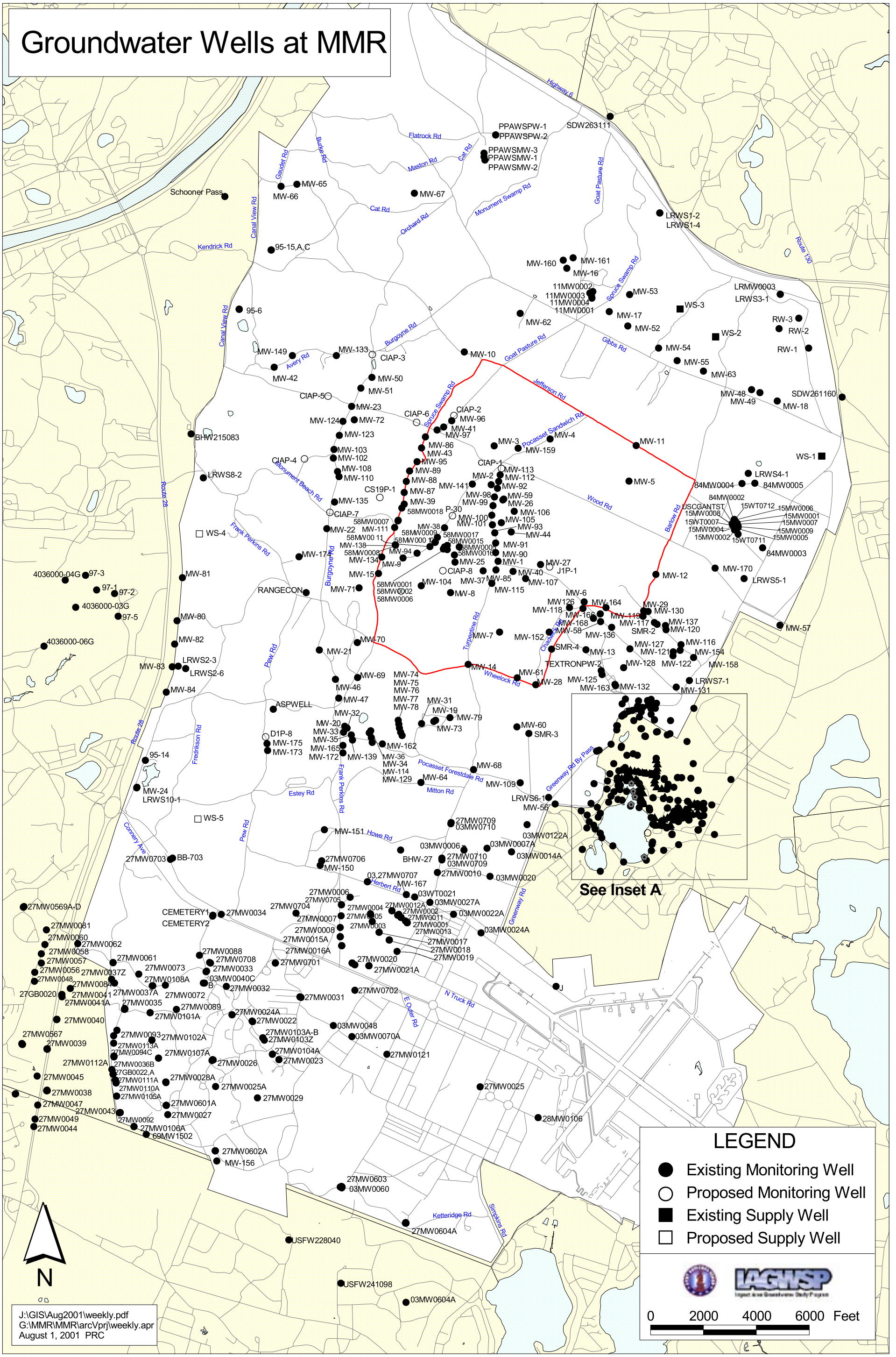
TABLE 3
DETECTED COMPOUNDS-UNVALIDATED
SAMPLES COLLECTED 7/14/01-8/3/01

OGDEN_ID	LOCID OR WELL ID	SAMPLED	SAMP_TYPE	SBD	SED	BWTS	BWTE	METHOD	OGDEN_ANALYTE	PDA
W153M1A	MW-153	07/24/2001	GROUNDWATER	199.00	209.00	105.90	115.90	8330N	HEXAHYDRO-1,3,5-TRINITRO-1,:	YES
W16SSA	MW-16	07/23/2001	GROUNDWATER	125.00	135.00	0.00	10.00	8330N	HEXAHYDRO-1,3,5-TRINITRO-1,:	YES
W18M1A	MW-18	07/26/2001	GROUNDWATER	171.00	176.00	125.60	130.60	8330N	HEXAHYDRO-1,3,5-TRINITRO-1,:	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

Groundwater Wells at MMR



Inset A

0 600 1200 Feet

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August 1, 2001 PRC