

US EPA ARCHIVE DOCUMENT



Impact Area Groundwater Study Program

FINAL

BA-4 Disposal Area Investigation Report

**Camp Edwards
Massachusetts Military Reservation
Cape Cod, Massachusetts**

February 10, 2009

Prepared for:

U.S. Army Environmental Command
Impact Area Groundwater Study Program
Camp Edwards, Massachusetts

Prepared by:

U.S. Army Corps of Engineers
New England District
Concord, Massachusetts

DISCLAIMER

This document has been prepared pursuant to government administrative orders (U.S. EPA Region I SDWA Docket No. I-97-1019 and 1-2000-0014) and is subject to approval by the U. S. Environmental Protection Agency. The opinions, findings, and conclusions expressed are those of the authors and not necessarily those of the Environmental Protection Agency.

TABLE OF CONTENTS

	Page
ACRONYMS AND ABBREVIATIONS	v
EXECUTIVE SUMMARY	ES-1
1.0 INTRODUCTION	1-1
1.1 PURPOSE OF REPORT.....	1-1
1.2 REPORT ORGANIZATION	1-1
2.0 SITE BACKGROUND	2-1
2.1 SITE DESCRIPTION & HISTORY	2-1
2.2 ENVIRONMENTAL SETTING	2-1
2.2.1 Geography	2-1
2.2.2 Cultural Setting.....	2-1
2.2.3 Ecological Setting	2-2
2.2.4 Climate	2-2
2.2.5 Geology	2-3
2.2.6 Hydrology/Hydrogeology	2-3
3.0 SUMMARY OF INVESTIGATION ACTIVITIES	3-1
3.1 MUNITIONS SURVEY PROJECT PHASE 1	3-1
3.2 MUNITIONS SURVEY PROJECT PHASE 2	3-2
3.2.1 MSP2 Anomaly Investigation	3-2
3.2.2 Analytical Results	3-4
3.3 MUNITIONS SURVEY PROJECT PHASE 3	3-8
3.3.1 MSP 3 Anomaly Investigation.....	3-10
3.3.2 Rapid Response Action.....	3-10
3.3.3 Soil Analytical Results	3-11
3.4 GROUNDWATER INVESTIGATION	3-13
3.4.1 Groundwater Analytical Results	3-14
4.0 CONCEPTUAL SITE MODEL	4-1
5.0 RISK SCREENING	5-1
5.1 SUMMARY OF HUMAN HEALTH RISK ASSESSMENT	5-1
5.1.1 Data Collection and Evaluation	5-1
5.1.2 Risk Screening	5-1
5.1.3 Uncertainty	5-2
6.0 CONCLUSIONS	6-1
7.0 REFERENCES	7-1

List of Figures

Figure 1-1	Massachusetts Military Reservation
Figure 2-1	Location of BA-4 Disposal Area
Figure 2-2	Surficial Geology of Western Cape Cod
Figure 2-3	Surface Water Bodies in Proximity to the BA-4 Disposal Area
Figure 3-1	MSP2 and MSP3 Geophysical Investigation Areas
Figure 3-2	MSP2 EM61 MK2 Geophysical Survey Anomaly Locations Areas A & E
Figure 3-3	MSP2 EM61 MK2 Geophysical Survey Anomaly Locations Areas B,C, & D
Figure 3-4	MSP3 Schonstedt Geophysical Survey Anomaly Locations
Figure 3-5	MSP3 EM61 MK2 Geophysical Survey Anomaly Locations
Figure 3-6	Particle Tracks from the BA-4 Disposal Area
Figure 3-7	Particle Back Tracks from Well MW-84
Figure 3-8	Well Construction Diagram MW-469M1
Figure 3-9	Well Construction Diagram MW-478S

List of Tables

Table 3-1	MSP2 Intrusive Anomaly Investigation
Table 3-2	MSP2 Soil Analytical Results
Table 3-3	MSP3 Intrusive Anomaly Investigation
Table 3-4	MSP3 Soil Analytical Results
Table 3-5	Groundwater Analytical Results

List of Appendices

Appendix A	Photographs of Excavations at the BA-4 Disposal Area
Appendix B	Agency Comments and Responses

ACRONYMS AND ABBREVIATIONS

AMEC	AMEC Earth and Environmental, Inc.
bgs	Below ground surface
COC	Contaminants of concern
COPC	Compounds of potential concern
EM61	Geonics EM61 Mk2 electromagnetic induction sensor
GIS	Geographic Information System
GPS	Global Positioning System
IAGWSP	Impact Area Groundwater Study Program
MAARNG	Massachusetts Army National Guard
MassDEP	Massachusetts Department of Environmental Protection
MCL	Maximum contaminant level
MCP	Massachusetts Contingency Plan
mg/Kg	Milligrams per kilogram
mg/Kg-day	Milligram per kilogram per day
µg/kg	Micrograms per kilogram
µg/L	Micrograms per liter
mm	Millimeter
MMR	Massachusetts Military Reservation
MW	Monitoring well
NGB	National Guard Bureau
PRG	Preliminary Remediation Goal
QA	Quality assurance
RCRA	Resource Conservation and Recovery Act
RRA	Rapid Response Action
SVOC	Semi-volatile organic compound
USACE	U.S. Army Corps of Engineers
USCG	United States Coast Guard
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
VOC	Volatile organic compound

(This page left intentionally blank)

EXECUTIVE SUMMARY

The BA-4 Disposal Area is an investigation area located in the vicinity of the intersection of Pew Road and Pocasset-Forestdale Road. The BA-4 Disposal Area spans portions of Training Areas A-3, A-4, A-5, and BA-4. Investigation of this area was initiated based on a witness report that excess rounds were buried in this vicinity.

Geophysical surveys and soil sampling were conducted as part of Phase 2 and Phase 3 of the Munitions Survey Program (MSP), beginning in 2001. One hundred twenty anomalies that were identified during the MSP2 and MSP3 investigations were intrusively investigated. Two disposal sites were discovered. The majority of the remainder of the anomalies was identified as miscellaneous scrap metal/debris.

The first disposal site was located in Area A where 312 expended jet engine starter cartridges and igniter tubes were found at depths ranging from 0.6 to 2.9 meters below ground surface. The second disposal site was located in Area E where a crushed 55-gallon drum, containing ash, burnt small-arms ammunition, and pyrotechnics, was found at a depth of less than 0.1 meter. Other items recovered from the same excavation included metal debris, and expended smoke grenades, and flares. All of these items were found at depths ranging from less than 0.1 to 1.2 meters.

The disposal of the jet engine starter cartridges and igniter tubes at Area A appears to have resulted in increased levels of several metals (lead, chromium, nickel, and zinc) in the soil, along with the introduction of one semi-volatile organic compound (SVOC), bis (2-ethylhexyl) phthalate. The disposal of the drum containing burnt ash residue at Area E appears to have resulted in the introduction of explosives (2,6-dinitrotoluene), volatile organic compounds (VOCs), (acetone, chloromethane, and 4-methyl-2-pentanone), SVOCs (bis (2-ethylhexyl) phthalate, hexachlorobenzene, and di-n-butyl phthalate), and increased levels of several metals to the soil. There are no indications that there is any groundwater contamination as a result of disposal activities at the BA-4 Disposal Area.

The discovered items and the contaminated soil from both disposal sites were removed and disposed of off-site as part of the MSP2 investigation conducted between August and October of 2001 and the BA-4 Rapid Response Action conducted between August 2006 and July 2007.

Results of post-excavation confirmatory soil sampling indicate that remnants of a few metals (arsenic, iron, lead, manganese, and molybdenum) and dioxin still exist in soil at levels that exceed Massachusetts Military Reservation (MMR) soil screening levels (SSLs). The metals detected are consistent with background levels and the residual dioxin detections are not expected to pose a threat to groundwater. The post excavation soil sample results are all below Massachusetts Contingency Plan Method 1 S1/GW1 cleanup standards indicating that no significant risk to human health or the environment exists from potential contact with soil at the BA-4 Disposal Area.

Based on groundwater modeling it was determined that screens MW-84M2 and MW-84M3 of MW-84, which was installed in 1999 are located at the proper elevation and particle track to detect any contamination migrating from the BA-4 Disposal Area. Groundwater monitoring for

explosives and perchlorate has been conducted periodically at these well screens since 1999 and there have been no detections in either MW-84M2 or MW-84M3.

An existing water supply well located in the immediate vicinity of the BA-4 Disposal Area, also was sampled intermittently beginning in 1999 and had detections of lead with concentrations up to 53 µg/L (July 1999). Following installation of a new polyvinyl chloride well in 2002, approximately 30 feet east, lead detection levels decreased, and there have been no detections above drinking water standards. Groundwater monitoring well MW-469M1 installed at the location of the former drinking water supply well, DP-463 and MW-478S were installed in 2006 to access possible contamination from Area A and Area E. There have been no detections of lead in the wells or drive point.

1.0 INTRODUCTION

The current BA-4 Disposal Area (Figure 1-1) was identified as a result of investigations that began as part of MSP2 in 2001. That investigation was designed to detect, process, and map various-sized disposal pits, individual and multiple unexploded ordnance items, ordnance and explosives, and other geophysical anomalies in the immediate vicinity of the BA-4 Disposal Area. Investigation results were reported in the MSP2 Ammunition Supply Point Geophysical Investigation Final Letter Report (Tetra Tech, 2003).

Additional geophysical surveys and soil sampling were conducted as part of the MSP3 Ammunition Supply Point Supplemental Work Plan (Tetra Tech, 2003b). The proposed work under this work plan was only partially completed by Tetra Tech in 2003.

The MSP3 work plan was completed by Tetra Tech EC, along with a Rapid Response Action (RRA) under the Final Ammunition Supply Point Rapid Response Action Work Plan (IAGWSP, 2006) from August, 2006 to July, 2007.

Potential groundwater contamination was investigated under the Ammunition Supply Point Groundwater Investigation Project Note (IAGWSP, 2006).

1.1 Purpose of Report

The purpose of this report is to provide a summary of the results of the various investigations and removal actions that have been conducted relating to the BA-4 Disposal Area to date. This report evaluates the nature and extent of soil and groundwater contamination resulting from past training activities. The report identifies any Compounds of Potential Concern (COPCs) and characterizes the potential risks to human health so that the need for remedial actions at the site can be determined.

1.2 Report Organization

Section 1.0 of this report provides the purpose and objectives of the report. Section 2.0 presents information on the site background, description (to include the physical characteristics of the site), and site history. Section 3.0 provides a summary and description of site investigation activities at the BA-4 Disposal Area. A conceptual site model is presented in Section 4.0. Presentation of the risk characterization is included in Section 5.0. Section 6.0 provides conclusions.

(This page left intentionally blank)

2.0 SITE BACKGROUND

2.1 Site Description & History

The BA-4 Disposal Area is an investigation area located on the MMR in the vicinity of the intersection of Pew Road and Pocasset-Forestdale Road (Figures 1-1 and 2-1). The BA-4 Disposal Area spans portions of Training Areas A-3, A-4, A-5, and BA-4. According to the Archives Search Report (USACE, 1998), the first mention of activities at this location was in a 1959 Standard Operating Procedures for Camp Edwards Facilities document. There were no other available historical documents that provided details regarding activities at the BA-4 site. One interview source provided information regarding the site saying that, as a former National Guardsman and Explosive Ordnance Disposal technician, he believed that excess rounds were buried in the proximity of the BA-4 Disposal Area every few years. This alleged burial took place so that the quantity of ammunition on hand would match the inventory. There were no other witnesses who provided any other information regarding the site.

2.2 Environmental Setting

The following subsections provide further site information regarding geography, cultural setting, ecological setting, climate, geology, and hydrology and hydrogeology.

2.2.1 Geography

The MMR includes Camp Edwards, Otis Air National Guard Base, United States Coast Guard (USCG) Air Station Cape Cod, Cape Cod Air Force Station and the Veterans' Affairs Cemetery. The MMR is located on the western side of Cape Cod, Massachusetts. The northern, non-cantonment area, is a wooded area on the Upper Cape that is largely undeveloped, but fringed with highways, homes, and other development (Cape Cod Commission, 1998). The predominant land use surrounding the MMR is residential or commercial development. The MMR is situated adjacent to the towns of Bourne, Sandwich, Falmouth, and Mashpee. Camp Edwards, which includes the BA-4 Disposal Area, lies within the boundary of Bourne and Sandwich.

2.2.2 Cultural Setting

Land use near the MMR is primarily residential and recreational, and secondarily agricultural and industrial. Shawme Crowell State Forest provides camping as well as other recreational activities. Portions of the MMR are opened for deer and turkey hunting by permit from the Massachusetts Division of Fisheries and Wildlife. The major agricultural land use near the MMR is the cultivation of cranberries. Commercial and industrial development in the area includes service industries, landscaping, sand and gravel pit operations, and municipal landfills (USACE, 2002).

An archaeological survey covering 72 percent of Camp Edwards was conducted in 1987 to assess its archaeological sensitivity. A total of one historic site and 26 prehistoric sites were

identified within Camp Edwards. Findings from these surveys indicate that humans inhabited the Camp Edwards area up to 10,000 years ago. No sites are located within the BA-4 Disposal Area.

2.2.3 Ecological Setting

The northern two-thirds of the MMR are characterized as undeveloped open area, while the southern third is characterized as developed land. The dominant vegetation types vary accordingly. The northern portion of the MMR consists of forested uplands dominated by stands of pitch pine (*Pinus rigida*) and mixed oak species (*Quercus* spp.) with a diverse shrubby understory. Remnant vegetation in the southern portion of the MMR consists of open grassland fields interspersed with scattered trees and shrubs. The present composition of these forests is a reflection of eighteenth-century logging practices, replanting strategies, and fire suppression activities. The other dominant cover type in this area consists of pitch pine and scrub oak barrens that are maintained by periodic fires (USACE, 2002.)

Vegetation in and around the BA-4 Disposal Area is variable and reflects a history of disturbance. Generally, the forest that immediately surrounds the site supports a canopy of mature pitch pine with an ericaceous understory typical of Camp Edwards. Within or adjacent to this forest are small patches of vegetation that have grown over the disturbed areas. Vegetation on the disturbed sites includes an area with a short canopy of immature pitch pine with an understory of forbs and grasses, an open area of grasses and a few scattered immature pitch pine, an area with a mature pitch pine overstory with an understory of ferns, and several areas of bare sand and immature pitch pine. This vegetation is also typical of what is found on sites that have experienced different intensities of disturbance.

There are at least 39 state-listed species observed on the MMR. About half of these are lepidoptera (i.e., moths), such as Gerhard's underwing moth (*Catocala herodias gerhardi*), the barrens daggermoth (*Acronicta albarufa*), and Melsheimer's sack bearer (*Cicinnus melsheimeri*). State-listed plant species documented on the MMR include broad tinker's weed (*Triosteum perfoliatum*), ovate spikerush (*Eleocharis obtusa* var. *ovata*), Torrey's beak-sedge (*Rhynchospora torreyana*), and adder's tongue fern (*Ophioglossum pusillum*). Rare bird species on MMR include the upland sandpiper (*Bartramia longicauda*), the grasshopper sparrow (*Ammodramus savannarum*), the vesper sparrow (*Poocetes gramineus*), and the northern harrier (*Circus cyaneus*). These species are primarily associated with the grassland fields in the southern cantonment area. No threatened or endangered amphibians, reptiles, fish, or mammals are known to inhabit the MMR; however, the MMR does support a number of animals that are listed by the state as species of special concern. These include the eastern box turtle (*Terrapene carolina*), the Cooper's hawk (*Accipiter cooperii*), and the sharp-shinned hawk (*Accipiter striatus*) (USACE, 2002)

2.2.4 Climate

The climate for Barnstable County, where the MMR is located, is defined as humid continental. The neighboring Atlantic Ocean has a moderating influence on the temperature extremes of winter and summer. Winds of 30 miles per hour may be expected on an average of at least one day per month. Gale force winds can be common and more severe in winter. Temperatures range from 29.6°F in February to 70.4°F in July, with a yearly average of 49.6°F (USDA, 1993).

Mean annual rainfall is 48 inches per year. The average net recharge to groundwater of this annual rainfall is 27 inches per year. Occasional tropical storms that affect Barnstable County may produce 24-hour rainfall events of 5 to 6 inches (NGB, 1990). Average snowfall is 24 inches (MAARNG, 2001).

2.2.5 Geology

The geology of Upper Cape Cod is comprised of glacial sediments deposited during the retreat of the Wisconsin stage of Holocene glaciation, approximately 15,000 years ago. Four sedimentary units characterize the regional geology: the Buzzards Bay Moraine, the Sandwich Moraine, the Buzzards Bay Outwash and the Mashpee Pitted Plain. The Buzzards Bay and Sandwich Moraines form the hummocky terrain along the northwest and north side of MMR. The BA-4 Disposal Area is located in the Buzzards Bay Moraine (Figure 2-2). Southeast of the moraines is the Mashpee Pitted Plain where 130 to 200 feet of medium- to coarse-grained brown sands overlie fine to very fine sands and silt. South of State Route 151, the sand and gravel outwash overlies fine to very fine sand, sandy silt, and dense sandy till. The till contains lenses of clay, silt, sand, and/or gravel. The glacial deposits overlie crystalline bedrock, which slopes from west to east (NGB, 1990).

The Buzzards Bay and Sandwich Moraines lie along the western and northern edges of Camp Edwards as shown in Figure 2-2. Masterson et al., 1997 indicates that the Buzzards Bay Moraine resulted from the melt water deposition of sorted sediments within a stagnant ice margin overlying a basal till. The surface of the moraine is characterized by an abundance of boulders. The upper part of the Sandwich Moraine resulted from glacial deformation of material; the lower part consists of sandy sediments. Masterson et al., 1997 describes the moraine deposits as generally consisting of gravel, sand, silt and clay with locally poorly to moderately sorted sand and gravel. Numerous discontinuous lenses of fine-grained sediments, including laminated silts and unsorted debris flow deposits are also present in the moraines. The till in the lower part of the Buzzards Bay Moraine is comprised of sand, silt and clay, and scattered gravel in a compacted, unsorted matrix. Both moraines form the hummocky ridges characteristic of the northwest and north side of MMR.

The Mashpee Pitted Plain consists of fine- to coarse-grained sands, forms a broad outwash plain, and lies to the east and south of the moraines, interior to MMR (Figure 2-2). Masterson et al., 1997 reports that the lower part of the Mashpee Pitted Plain consists of fine-grained, glacio-lacustrine sediments comprised of fine sand, silt and clay. This laterally persistent facies can be encountered underlying the moraines. The Buzzard's Bay Outwash can be found along the west of the MMR boundary to the canal and Buzzard's Bay. Like the Mashpee Pitted Plain, the Buzzard's Bay Outwash consists of coarse sand and gravel of deltaic origin with locally interbedded fine sand and silt. Bedrock slopes from west to east (NGB, 1990).

2.2.6 Hydrology/Hydrogeology

Surface water resources on Camp Edwards are scarce. Surface water is not retained due to the well drained sandy soils of Camp Edwards. As a result, approximately 60 percent of the annual rainfall on Camp Edwards infiltrates the soil and contributes to the groundwater aquifer (AMEC, 2005a). The 31 wetlands on the training sites of Camp Edwards comprise only 55

acres of land. No large lakes, rivers, or streams exist on the property, only small marshy wetlands and ponds. Most of the wetlands and surface waters in the Sandwich and Buzzards Bay Moraines on Camp Edwards are considered to be perched (MAARNG, 2001). In proximity to the BA-4 Disposal Area are Opening Pond, Succonessett Pond, Flax Pond, Upper Pond, Freeman Pond, Lily Pond, Rod & Gun Club North Pond, and Rod & Gun Club South Pond (Figure 2-3). Opening Pond is located just under three quarters of a mile to the east. Succonessett Pond is located approximately one and one quarter miles to the northeast. Flax Pond, Lily Pond, Rod & Gun Club North Pond, and Rod & Gun Club South Pond are all located within one and one quarter miles to the southwest. Upper Pond and Freeman Pond are located within approximately one and a half miles to the west-northwest.

The groundwater beneath Camp Edwards is known as the Sagamore Lens, a part of the larger Cape Cod Aquifer (MAARNG, 2001). The sole source of natural fresh water recharge to this groundwater system is rainfall and snowmelt water that averages approximately 48 inches per year (NGB, 1990). Approximately 27 inches of the average annual rainfall infiltrates the soil and recharges groundwater on an annual basis.

The top of the groundwater mound of the Sagamore Lens is located within the J-Range, southeast of the Impact Area within the central portion of the MMR (Figure 2-2). The Sagamore Lens is a single, unconfined aquifer underlain by low permeability crystalline bedrock, which is not a productive source of water. Groundwater flows radially outward: north to either the Cape Cod Canal or the Cape Cod Bay, east to the Bass River, south and southeast to Nantucket Sound, and west and southwest towards Buzzards Bay (MAARNG, 2001). The BA-4 disposal Area is located west of the top of the groundwater mound (Figure 2-2). At the BA-4 Disposal Area, groundwater flow is toward the west as indicated by the equipotential lines shown in Figure 2-3.

The height of the water table in and around the MMR can fluctuate up to seven feet annually due to seasonal variations in groundwater recharge. Groundwater levels are highest in the spring when recharge rates are high; levels are lowest in the late summer/early autumn when rainfall is minimal. In the vicinity of the BA-4 Disposal Area, depth to groundwater is approximately 100 feet.

3.0 SUMMARY OF INVESTIGATION ACTIVITIES

The following sub-sections address the geophysical investigation activities, intrusive anomaly investigations, sampling and analysis of soil and groundwater samples, and soil removal actions that have been conducted at the BA-4 Disposal Area to date.

Throughout the following text, the detected concentrations of the various analytes are compared to several preliminary screening tools including background concentrations, soil screening levels, USEPA Region IX preliminary remediation goals (PRGs), and Massachusetts Contingency Plan (MCP) Method 1 standards. These criteria are defined as follows:

- Background values are those that are present in soil or groundwater that are not the result of activities related to range use on MMR. Many of the metals and other analytes are naturally present in the soil and groundwater at detectable concentrations. The background level was not used to eliminate or screen out any possible COPC. However, remedial efforts are typically not conducted for naturally occurring COPCs with concentrations at or below background levels.
- Soil screening levels were developed as initial soil screening values by the U.S. Environmental Protection Agency (USEPA) using a dissolution partitioning equation for the migration to groundwater pathway. If the soil-screening level is exceeded, additional leaching analysis can be conducted to determine if the compound is likely to reach the groundwater.
- USEPA Region IX PRGs were derived using current approved or provisional toxicity values, conservative exposure factors, and risk limits (non-cancer hazard quotient of 1 or cancer-risk equivalent to one-in-one-million). Those constituents whose maximum detected values exceeded this criteria were retained as COPCs in the risk assessment.
- MCP Method 1 values provide default soil and groundwater concentrations that have been determined to be protective of human health and the environment under exposure scenarios including very conservative residential exposures. They can be superseded by a site-specific risk assessment that takes into account site-specific potential exposures.

Tables 3-2 and 3-4 include these screening values to facilitate comparison to the detected concentrations.

3.1 Munitions Survey Project Phase 1 (MSP1)

The Munitions Survey Project (MSP) was developed and implemented in response to the February 27, 1997 AO EPA Docket NO. SDWA I-97-1019, as amended on July 17, 1998. The primary objective of the MSP was to identify sites where munitions and materials other than munitions were disposed of through burial and other means on Camp Edwards. The MSP was intended to; clear unexploded ordnance from the surface of selected sites, conduct geophysical surveys for detection of subsurface metallic anomalies, and excavate selected anomalies in order to "validate" geophysical survey findings. In MSP1, work was initiated in mid-1999. Investigations continued for several years, culminating with documentation of findings in the

Munitions Survey Project Phase 1 Final Report (Tetra Tech 2003a). MSP1 only dealt with the sites initially selected by the USEPA and the MassDEP. Additional sites or studies were identified after initiation of MSP1, and were designated as MSP2 and are presented as amendments or revisions to the original MSP1 report. The BA-4 Disposal Area was not part of MSP1 but was identified as a Phase 2 site.

3.2 Munitions Survey Project Phase 2 (MSP2)

The investigation of the BA-4 Disposal Area, under the name ASP, is included in the MSP2 program. As part of MSP2, ground-based geophysical investigations using a cart-mounted Geonics EM61 Mk2 electromagnetic induction sensor (EM61) were conducted between August and October 2001 within five areas that possibly contained disposal sites (Figure 3-1). The size of these areas varied from 760 square meters to 2,000 square meters. Selection of the areas was based on analysis of historical aerial photographs, interviews conducted as part of the Archives Search Report, and discussions between the Impact Area Groundwater Study Program (IAGWSP) and the USEPA.

3.2.1 MSP2 Anomaly Investigation

Approximately nine months before fieldwork was conducted, the U.S. Army Corps of Engineers (USACE) unexploded ordnance safety officer discovered a wooden ammunition box containing two 105 millimeter (mm) projectile cartridge cases with live propellant igniter tubes in Area C. At that time, both cartridge cases were moved to a bunker within the BA-4 Disposal Area prior to disposal.

Originally, four areas—Areas A through D—were to be investigated. However, during initial clearance work conducted in Area A, large ferrous anomalies were identified outside of the initial investigation area. Therefore, Area E was added to the investigation.

Area A measures about 2,000 square meters and is mostly flat and relatively free of vegetation. Area B measures about 1,100 square meters and includes a sand-borrow pit surrounded by an earthen berm. Area C measures about 1,100 square meters, and at the time of investigation contained standing water up to 0.3 meters deep in some areas. Area D measures about 1,500 square meters and consists of a mixture of open, grassy areas as well as heavily wooded areas with a tall pine and hardwood canopy. Area E measures about 760 square meters, and site features are similar to those at the bordering Area A. In addition, about 180 square meters are shared by Areas A and E.

At the conclusion of the geophysical survey work in all five areas, 82 geophysical anomalies were investigated by excavating soil at the anomaly locations to uncover the source of the geophysical survey signal. Anomalies were selected for investigation based on signal, proximity to other anomalies, and regulatory guidance. Representatives of IAGWSP, USACE, USEPA, and Massachusetts Department of Environmental Protection (MassDEP) agreed on each of the anomaly locations that were investigated. The majority of the materials recovered during the anomaly investigations from Areas B, C, and D included miscellaneous metallic debris and scrap, such as nails, food and beverage cans, ammunition cans, railroad material, structural reinforcing bar, and packaging material. However, one practice grenade was recovered from

Area D. Two disposal sites were found, one in Area A and one in Area E. Table 3-1 provides the results of the intrusive anomaly investigation. Detailed results of the MSP2 investigation can be found in the MSP2 Ammunition Supply Point Geophysical Investigation Final Letter Report (Tetra Tech, 2003).

The following is a summary of the intrusive investigation conducted as part of the MSP Phase 2 investigation:

Areas A and E

Forty-six anomalies representing the majority of geophysical anomalies in Areas A and E were intrusively investigated (Figure 3-2). Two disposal sites were found.

The first disposal site was located in Area A where 312 expended jet engine starter cartridges and igniter tubes were found at depths ranging from 0.6 to 2.9 m below ground surface (Item location ASP.4.00014.0). Upon inspection, unexploded ordnance technicians determined that all of the cartridges had been expended or disposed of by burning. The starter cartridges and igniter tubes were removed from the site and staged in the Central Impact Area for disposal. A few photographs of the excavation can be found in Appendix A. Two discrete soil samples were collected from the excavation, including one discrete sample collected from the fill material surrounding the starter cartridges (ASP.4.00014.1.0) and another from the native soil at the bottom of the excavation (ASP.4.00014.2.0). Both samples were analyzed for explosives (Method 8330), semi-volatile organic compounds (SVOCs) (Method 8270C), nitrogen compounds (Method E350.2), and metals (Method CLP ILM04.1). After sampling, the bottom of the excavation was covered with a section of fencing and the pit was backfilled with the excavated soil. GPS coordinates were recorded to locate the footprint of the excavation.

The second disposal site was located in Area E where a crushed 55-gallon drum, containing ash, burnt small arms ammunition, and pyrotechnics, was found at a depth of less than 0.1 meter (Item location ASP.3.00001.0). Other items recovered from the same excavation included scrap metal, and expended smoke grenades, and flares. All of these items, found at depths ranging from less than 0.1 to 1.2 meters. The ash-containing drum and other debris recovered from this excavation were removed from the site and staged in the Central Impact Area for disposal. The ash containing drum was shipped under Resource Conservation and Recovery Act (RCRA) waste code MA01 on manifest number MA F 061116. A few photographs of the excavation can be found in Appendix A.

When screened with a Photo-ionization detector, elevated levels of volatile organic compound (VOC) vapors were detected inside of the drum (up to 50 units above background) and in the surrounding soils (up to 30 units above background). Therefore, three discrete soil samples were taken at this excavation: one sample of the soil surrounding the recovered items (ASP.3.00001.1.0), one sample of the ash material inside the drum (ASP.3.00001.2.0), and one sample of the natural bottom of the excavation (ASP.3.00003.0). The samples were analyzed for explosives (Method 8330), volatile organic compounds (VOCs) (Method CLP 390), semi-volatile organic compounds (SVOCs) (Method 8270C), dioxins and furans (Method 8290), and metals (Method CLP ILM04.1). After sampling, the bottom of the excavation was covered with a section of fencing and the pit was backfilled with the excavated soil. Global Positioning System (GPS) coordinates were recorded to locate the footprint of the excavation.

Area B

Ten anomalies were intrusively investigated, representing almost all of the geophysical anomalies detected at that site (Figure 3-3). Scrap material was recovered from all of the investigation sites, including nails, metal banding straps, and structural steel reinforcing bars (Table 3-1).

Area C

A surface sweep was conducted over all of Area C, an EM61 survey was conducted over 90 percent of the area, and a total of 10 anomalies were identified and excavated (Figure 3-3). The only items found in Area C included scrap metal, other debris, parts of smoke grenades, and a piece of 105 mm projectile fragmentation (Table 3-1).

Area D

Sixteen anomalies were intrusively investigated, which included every anomaly with signal strength greater than 4 millivolts (mV) on the EM61 sensor (Figure 3-3). Scrap material was recovered from all of the investigation locations, including aluminum plates, wire, and steel pipe. A single practice grenade was found in Area D (Table 3-1).

3.2.2 Analytical Results

From the MSP2 Investigation, a total of five discrete soil samples were collected at two locations; at the Area A jet-engine-starter-cartridge location and at the Area E crushed-drum location. Analytical data summarizing all detected compounds and analytes are provided in Table 3-2.

Area A Disposal Location

Fill Material

No explosive compounds were detected in the fill material soil sample (ASP.00014.1.0). Nitrogen (as ammonia) was detected in the fill material at a concentration of 6.73 mg/Kg which was below the background level of 13.3 mg/Kg. Bis (2-ethylhexyl) phthalate was the only SVOC detected in the fill material soil sample at a concentration of 31.3 J µg/Kg, which was well below all screening levels.

Ten metals were detected above background concentrations. Calcium was detected at a concentration of 178 J mg/Kg, which was above the background of 166 mg/Kg. Chromium was detected at a concentration of 67.8 J mg/Kg, which was above the background of 15.5 mg/Kg. Cobalt was detected at a concentration of 4.67 J mg/Kg, which was above the background of 4.5 mg/Kg. Copper was detected at a concentration of 11.9 mg/Kg, which was above the background of 7.4 mg/Kg. Iron was detected at a concentration of 15,000 J mg/Kg, which was above the background of 12,020 mg/Kg. Lead was detected at a concentration of 461 J mg/Kg, which was above the background of 10.2 mg/Kg. Molybdenum was detected at a concentration of 1.09 J mg/Kg, which was above the background of 0.89 mg/Kg. Nickel was detected at a

concentration of 85.3 mg/Kg, which was above the background of 9.4 mg/Kg. Selenium was detected at a concentration of 1.18 mg/Kg, which was above the background of 1.10 mg/Kg. Zinc was detected at a concentration of 244 mg/Kg, which was above the background of 24.4 mg/Kg. Of these, chromium, iron, lead, and molybdenum also exceeded site-specific soil screening levels of 7.02 mg/Kg, 2,422 mg/Kg, 4.05 mg/Kg, and 0.18 mg/Kg respectively. Lead and iron concentrations also exceeded their MMR Preliminary Remediation Goals (PRGs) of 40 mg/Kg and 2,346 mg/Kg respectively. In addition, lead exceeded its S-1/GW-1 standard of 300 mg/Kg.

Native Soil

No explosive compounds were detected in the native soil sample collected at the base of the jet engine starter cartridge disposal site (ASP.00014.2.0). Nitrogen (as ammonia) was detected in the native soil sample at a concentration of 6.95 mg/Kg which was below the background level of 13.3 mg/Kg. Nitrates and nitrites were also detected at a concentration of 1.64 mg/Kg which exceeded the background of 0.85 mg/Kg but was below the PRG of 780 mg/Kg. Bis (2-ethylhexyl) phthalate was the only SVOC detected in the native soil sample at a concentration of 30.2 J µg/Kg, which was well below all screening levels.

Seven metals were detected above background concentrations. Arsenic was detected at a concentration of 4.95 mg/Kg, which was above the background of 3.9 mg/Kg. Calcium was detected at a concentration of 264 J mg/Kg, which was above the background of 166 mg/Kg. Copper was detected at a concentration of 9.35 mg/Kg, which was above the background of 7.4 mg/Kg. Iron was detected at a concentration of 12,200 J mg/Kg, which was above the background of 12,020 mg/Kg. Magnesium was detected at a concentration of 2,030 mg/Kg, which was above the background of 1,980 mg/Kg. Potassium was detected at a concentration of 1,010 J mg/Kg, which was above the background of 733 mg/Kg. Zinc was detected at a concentration of 24.6 mg/Kg, which was above the background of 24.4 mg/Kg. Of these, only arsenic and iron exceeded the SSLs of 0.009 mg/Kg and 2,422 mg/Kg respectively. Both metals also exceeded their PRGs of 0.39 mg/Kg and 2,346 mg/Kg respectively. Arsenic was below its S-1/GW-1 standard of 30 mg/Kg.

Area E Disposal Location

Ash Material in Drum

The only explosives compound detected in the ash sample collected inside the crushed drum was 2,6-dinitrotoluene (2,6-DNT) at a concentration of 120 µg/Kg. This exceeded the soil-screening level of 8.76 µg/Kg, but was below the PRG of 6,110 µg/Kg. Two volatile organic compounds (VOCs), acetone and chloromethane were detected at concentrations of 8.47 J µg/Kg, and 7.73 J µg/Kg respectively. Acetone was well below all established screening values. Chloromethane exceeded the soil-screening level of 0.399 µg/Kg, but was below the PRG of 4,685 µg/Kg. Two semi-volatile organic compounds (SVOCs), bis (2-ethylhexyl) phthalate and Di-n-butyl phthalate were also detected at concentrations of 56.3 J µg/Kg and 60.8 J µg/Kg respectively. Both of these were well below all screening levels.

Twenty metals were detected above background concentrations (aluminum, antimony, arsenic, barium, boron, cadmium, calcium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, potassium, silver, sodium, vanadium, and zinc).

The following six metals only exceeded their established background values and did not exceed any other established screening value: Calcium was detected at a concentration of 1,830 J mg/Kg, which was above the background of 179 mg/Kg. Potassium was detected at a concentration of 613 J mg/Kg, which was above the background of 563 mg/Kg. Sodium was detected at a concentration of 1,120 J mg/Kg, which was above the background of 164 mg/Kg. There are no additional established screening levels for calcium, potassium, and sodium. Cobalt was detected at a concentration of 21.3 J mg/Kg, which was above the background of 2.9 mg/Kg. Nickel was detected at a concentration of 131 mg/Kg, which was above the background of 6.9 mg/Kg. Silver was detected at a concentration of 2.07 J mg/Kg, which was above the background of 0.52 mg/Kg. Detected concentrations of cobalt, nickel, and silver were all well below all other established screening levels.

The following three metals exceeded their established SSLs in addition to their established background values, but did not exceed any other screening value: Boron was detected at a concentration of 26.7 mg/Kg, which was above the background of 17.3 mg/Kg. It exceeded its soil-screening level of 9.52 mg/Kg but not its PRG of 1,600 mg/Kg. Chromium was detected at a concentration of 152 J mg/Kg, which was above the background of 14.7 mg/Kg. It exceeded its soil-screening level of 7.02 mg/Kg but not its PRG of 210.68 mg/Kg or its S-1/GW-1 standard of 1,000 mg/Kg. Molybdenum was detected at a concentration of 12.4 mg/Kg, which was above the background of 1.1 mg/Kg. It exceeded its soil-screening level of 0.18 mg/Kg but not its PRG of 39.11 mg/Kg.

The following two metals exceeded their established PRGs in addition to their established background values, but did not exceed any other screening value: Aluminum was detected at a concentration of 35,300 mg/Kg, which was above the background of 15,495 mg/Kg. It did not exceed its soil-screening level of 54,006 mg/Kg but did exceed its PRG of 7,614 mg/Kg. Vanadium was detected at a concentration of 51.7 J mg/Kg, which was above the background of 21.7 mg/Kg. It did not exceed its soil-screening level of 260.05 mg/Kg or its S-1/GW-1 standard of 400 mg/Kg but did exceed its PRG of 7.82 mg/Kg.

The following four metals exceeded their established SSLs and PRGs in addition to their established background values: Antimony was detected at a concentration of 4.97 J mg/Kg, which was above the background of 1.4 mg/Kg. It also exceeded both its soil-screening level of 0.27 mg/Kg and its PRG of 3.13 mg/Kg, but did not exceed its S-1/GW-1 standard of 10 mg/Kg. Copper was detected at a concentration of 1,890 mg/Kg, which was above the background of 11 mg/Kg. It also exceeded both its soil-screening level of 45.73 mg/Kg and its PRG of 312.86 mg/Kg. Iron was detected at a concentration of 106,000 mg/Kg, which was above the background of 12,051 mg/Kg. It also exceeded both its soil-screening level of 2,422 mg/Kg and its PRG of 2,346 mg/Kg. Manganese was detected at a concentration of 839 mg/Kg, which was above the background of 106 mg/Kg. It also exceeded both its soil-screening level of 44.15 mg/Kg and its PRG of 176.24 mg/Kg.

The following five metals exceeded their established background values, SSLs, PRGs, and S-1/GW-1 standards: Arsenic was detected at a concentration of 45.9 mg/Kg, which was above the background of 3.9 mg/Kg. It also exceeded its soil-screening level of 0.009 mg/Kg, its PRG of 0.39 mg/Kg, and its S-1/GW-1 standard of 30 mg/Kg. Barium was detected at a concentration of 2,120 mg/Kg, which was above the background of 15.6 mg/Kg. It also exceeded its soil-screening level of 120.35 mg/Kg, its PRG of 537.49 mg/Kg, and its S-1/GW-1

standard of 1,000 mg/Kg. Cadmium was detected at a concentration of 87.2 mg/Kg, which was above the background of 0.35 mg/Kg. It also exceeded its soil-screening level of 0.4 mg/Kg, its PRG of 3.7 mg/Kg, and its S-1/GW-1 standard of 30 mg/Kg. Lead was detected at a concentration of 950 mg/Kg, which was above the background of 19 mg/Kg. It also exceeded its soil-screening level of 4.05 mg/Kg, its PRG of 40 mg/Kg, and its S-1/GW-1 standard of 300 mg/Kg. Zinc was detected at a concentration of 4,290 mg/Kg, which was above the background of 25.6 mg/Kg. It also exceeded its soil-screening level of 2,202 mg/Kg, its PRG of 2,346 mg/Kg, and its S-1/GW-1 standard of 2,500 mg/Kg.

Dioxin was detected in the ash sample at levels above the dioxin S-1/GW-1 standard of 4 nanograms per kilogram (ng/Kg).

Fill Material

No explosive compounds were detected in the fill material soil sample (ASP.3.00001.1.0) at the Area E disposal site. Two VOCs were detected in the fill material sample. Acetone was detected at a concentration of 24.7 µg/Kg and 4-methyl-2-pentanone was detected at a concentration of 1.32 J µg/Kg. Both of these were well below all applicable screening values. Two SVOCs were also detected in the fill material sample. Bis (2-ethylhexyl) phthalate was detected at a concentration of 127 J µg/Kg, which was well below all applicable screening values. Hexachlorobenzene was detected at a concentration of 406 µg/Kg, which exceeded the soil-screening level of 6.98 µg/Kg and the PRG of 303.99 µg/Kg, but was below the S-1/GW-1 standard of 700 µg/Kg. Dioxin was detected below the S-1/GW-1 standard of 4 ng/Kg. Although chloromethane and 2,6-DNT were detected in the ash sample in the drum, they were not detected in the fill material.

Four metals were detected above background levels in the fill material. Barium was detected at a concentration of 55.6 mg/Kg, which was above the background of 15.6 mg/Kg. It did not exceed its soil-screening level of 120.35 mg/Kg, its PRG of 537.49 mg/Kg, or its S-1/GW-1 standard of 1,000 mg/Kg. Cadmium was detected at a concentration of 0.739 J mg/Kg, which was above the background of 0.35 mg/Kg. It also exceeded its soil-screening level of 0.4 mg/Kg, but did not exceed its PRG of 3.7 mg/Kg, or its S-1/GW-1 standard of 30 mg/Kg. Calcium was detected at a concentration of 223 J mg/Kg, which was above the background of 179 mg/Kg. There are no other established screening values for calcium. Zinc was detected at a concentration of 50.4 mg/Kg. It did not exceed its soil-screening level of 2,202 mg/Kg, its PRG of 2,346 mg/Kg, or its S-1/GW-1 standard of 2,500 mg/Kg.

Native Soil

No explosive compounds were detected in the sample collected from native soil at the base of the excavation. One VOC, acetone, was detected at a concentration of 7.59 J µg/Kg and one SVOC, bis (2-ethylhexyl) phthalate, was detected at a concentration of 29.1 J µg/Kg. Both of these were well below all applicable screening levels. Dioxin was detected in this soil sample at a concentration below the S-1/GW-1 standard of 4 ng/Kg.

Six metals were detected above background levels in the native soil sample. Barium was detected at a concentration of 89.7 mg/Kg, which was above the background of 20.2 mg/Kg. It did not exceed its soil-screening level of 120.35 mg/Kg, its PRG of 537.49 mg/Kg, or its S-1/GW-1 standard of 1,000 mg/Kg. Cadmium was detected at a concentration of 1.52 mg/Kg,

which was above the background of 0.32 mg/Kg and its soil-screening level of 0.4 mg/Kg. It did not exceed its PRG of 3.7 mg/Kg or its S-1/GW-1 standard of 30 mg/Kg. Calcium was detected at a concentration of 240 J mg/Kg, which was above the background of 166 mg/Kg. There are no other established screening values for calcium. Copper was detected at a concentration of 8.36 mg/Kg which was above the background of 7.4 mg/Kg. It did not exceed its soil-screening level of 45.73 mg/Kg or its PRG of 312.86 mg/Kg. Lead was detected at a concentration of 10.9 mg/Kg, which was above the background of 10.2 mg/Kg and its soil-screening level of 4.05 mg/Kg. It did not exceed its PRG of 40 mg/Kg or its S-1/GW-1 standard of 300 mg/Kg. Zinc was detected at a concentration of 67.9 mg/Kg. It did not exceed its soil-screening level of 2,202 mg/Kg, its PRG of 2,346 mg/Kg, or its S-1/GW-1 standard of 2,500 mg/Kg.

3.3 Munitions Survey Project Phase 3 (MSP3)

The MSP2 investigation results for this site recommended additional delineation to fill data gaps. This additional delineation was designated MSP3 and was defined in the *Final Munitions Survey Program Phase 3 Ammunition Supply Point Supplemental Investigation, Supplemental Investigation Work Plan* {Supplemental Investigation Work Plan} (Tetra Tech, 2003c). The goal of the Supplemental Investigation Work Plan was to supplement data collected during MSP2 (Tetra Tech, 2003b) by implementing the recommendations included in that report. This goal was met by conducting the following activities:

- A geophysical survey was performed within the area about 30 meters north of Area E to identify the lateral extent of the geophysical anomalies observed during the MSP2 field work. Surveys were conducted using a digital-response, electromagnetic induction sensor.
- A geophysical survey was performed in an area identified by Witness No. 9 as an area of concern. Surveys were conducted using a digital-response, electromagnetic induction sensor.
- A geophysical survey was conducted in cleared areas outside Areas B and C that are visible in aerial photographs taken between 1955 and 1977. Because dense vegetation significantly limits the use of an electromagnetic induction system, unexploded ordnance technicians conducted the survey using hand-held, analog-response magnetometers.
- Soil samples were collected beneath a wooden box in which 105-mm cartridge cases with live propellant igniter tubes were found in Area C.

Figure 3-1 includes the additional areas investigated under the MSP3.

The investigation described in the approved supplemental work plan was left unfinished as Tetra Tech's contractual obligations with the government on the MMR project ended concurrent with the submission of their preliminary report. The tasks that were completed were the surface clearance and reconnaissance of the study areas, the geophysical survey investigation of all three areas as well as the soil sampling and analysis taken beneath the 105 mm cartridge case location.

During ground surface clearance activities and reconnaissance activities conducted before the geophysical surveys, five items were identified on the ground surface and are summarized below:

Area North of Area E

- No surface items recovered

Area Identified by Witness No. 9

- One ammunition can

Cleared Areas Outside Areas B and C

- One ammunition box
- One piece of reinforced concrete
- One metal pipe
- One metal stake

None of the items recovered during surface clearance were determined to be munitions or explosives.

Figures 3-4 and 3-5 depict the results of the Schonstedt hand held magnetometer and EM61 geophysical investigation surveys.

Two discrete soil samples were collected by Tetra Tech from beneath the wooden box in which 105 mm cartridge cases with live propellant igniter tubes were found in Area C about 9 months before MSP2 fieldwork was conducted. One sample was collected at a depth of 0.3 meters below ground surface (bgs) and the other sample was collected at a depth of 0.5 meters bgs. Both samples were analyzed for explosives chemicals using USEPA SW-846 Method 8330, with photodiode array confirmation. No explosives chemicals were detected above laboratory detection limits in either soil sample (Table 3-4).

The intrusive investigation of up to 10 anomalies that was proposed in the work plan as part of MSP3 activities was not completed in 2003. None of the identified anomalies were excavated at that time.

The MSP3 work was resumed in 2006 by Tetra Tech EC in accordance with the Final Ammunition Supply Point Rapid Response Action Work Plan dated October 16, 2006 (USACE, 2006). The objective of this work plan was to evaluate selected anomalies that were identified during the previous MSP3 work performed by Tetra Tech in 2003. Thirty-eight anomalies were selected for intrusive investigation in coordination with the USEPA and the MassDEP. These anomalies were selected to provide better overall coverage of the investigation area and are presented in Table 3-3.

3.3.1 MSP 3 Anomaly Investigation

Sixty-one anomalies were identified within the expanded area north of Area E, the Witness No. 9 Area, and the cleared areas outside of Areas B and C using a Schonstedt hand-held magnetometer. These anomalies are depicted on Figure 3-4 and in Table 3-3. One-hundred-and-six anomalies were identified in the Witness No. 9 Area, including the 75 mm Salute cartridge emplaced as a control item, using an EM61 MK2 electromagnetic induction sensor (EM61). These anomalies are depicted on Figure 3-5 and in Table 3-3. Forty-six anomalies were identified in the area north of Area E, to include the 81 mm mortar with fins emplaced as a control item, using an EM61. These anomalies are also depicted on Figure 3-5 and in Table 3-3.

Thirty-eight anomalies were selected for intrusive investigation in coordination with the USEPA and the MassDEP. These anomalies are depicted using underlined, italicized text in Table 3-3. No unexploded ordnance was encountered during the intrusive operations. The majority of the items (approximately 100 pounds of material) were identified as range-related debris, transferred to a staging area and drummed for inspection and disposal. Items E025 and E032 were identified as empty cartridges and item E075 was a small arms cartridge. These three items were also transferred to the staging area and drummed for inspection and disposal. Two items (S013 and S014), determined to be construction related debris, were too large and deep to be removed so were left in place. Table 3-3 presents the intrusive anomaly investigation results.

3.3.2 Rapid Response Action

In addition to the intrusive anomaly investigation, the Final Ammunition Supply Point Rapid Response Action Work Plan dated October 16, 2006 (USACE, 2006) called for the removal of the lead-contaminated soil that was backfilled within the Area A disposal site where the 312 jet engine starter cartridges were recovered during the MSP2 investigation. Subsequently, the decision was made to also remove the dioxin contaminated soil that was backfilled in the Area E disposal area. These removal actions provide for reduction or elimination of potential sources of groundwater contamination from the BA-4 Disposal Area.

Area A

On August 29, 2006, the lead-impacted soil in Area A of the BA-4 Disposal Area was excavated. The limits of the backfilled soil were reacquired by locating the orange plastic snow fencing that lined the excavation during the original MSP2 work. The initial excavation consisted of removing soil from an approximate 16-foot by 18-foot area. During the initial excavation, jet engine starter cartridges and igniter tubes were observed in the eastern sidewall outside of the proposed excavation boundary. The excavation was expanded by approximately 8-feet by 8-feet in order to recover these cartridges. The excavation depth was approximately 10 feet. Several photographs of the excavation work are included in Appendix A.

Approximately 85 tons of soil were removed from the excavation and disposed of offsite to the Waste Management Facility in Taunton, Massachusetts. The recovered cartridges and igniter tubes were secured in a drum and transported to the staging area for appropriate disposal.

Six multi-increment composite samples were collected from the excavation as post-excavation confirmatory samples. One multi-increment composite sample was taken from each of the side walls and one was taken from the excavation bottom. One replicate sample was also taken from the excavation bottom. Each composite was comprised of 30 separate points collected from a depth of 0 to 3 inches. Samples were then analyzed for perchlorate (Method E331.0) and metals (Method SW6010B), including mercury (Method SW7471A). Confirmatory sampling results indicated that the impacted soil was successfully removed and the excavation was backfilled on October 19, 2006. Soil analytical results are discussed in Section 3.3.3 and presented in Table 3-4.

Area E

On May 3, 2007, the dioxin-impacted soil in Area E of the BA-4 Disposal Area was excavated in accordance with the Documentation of the Actions That Will be Conducted to Remove Dioxin-Impacted Soil from the Area E Disposal Site Project Note dated February 28, 2007 (IAGWSP, 2007). The limits of the backfilled soil were reacquired by locating the orange plastic snow fencing that lined the excavation during the original MSP2 work. The Area E excavation dimensions were approximately 6-foot by 6-foot and 5-feet deep. At approximately 4-feet below ground surface (bgs), two starter cartridges and nine rubber boots were observed on the east wall of the excavation. These items were recovered and secured in a drum and transported to the staging area for appropriate disposal. Approximately seven cubic yards (10.5 tons) of soil was excavated and placed in a roll-off container and transported off-site for disposal to Waste Management of New Hampshire – Turnkey Landfill. Photographs of the excavation work are included in Appendix A.

Seven multi-increment composite samples were collected from the excavation as post excavation confirmatory samples. One multi-increment composite sample was taken from each of the side walls and one was taken from the excavation bottom. Two replicate samples were taken from the west sidewall. Each composite was comprised of 30 separate points collected from a depth of 0 to 3 inches. Samples were analyzed for polychlorinated dibenzo-dioxins (PCDDs)/polychlorinated dibenzo-furans (PCDFs) (i.e., dioxin) by SW-846 Method 8290. Confirmatory sampling results indicated that the impacted soil had successfully been removed and the excavation was backfilled on July 13, 2007. Soil analytical results are discussed in Section 3.3.3 and presented in Table 3-4.

3.3.3 Soil Analytical Results

105mm Ammunition Box

No explosives chemicals were detected above laboratory detection limits in either soil sample (Table 3-4).

Area A Post Excavation

Perchlorate was detected at a maximum concentration of 0.57 J $\mu\text{g/Kg}$ which was below the soil-screening level of 3.14 $\mu\text{g/Kg}$ and the PRG of 7,821 $\mu\text{g/Kg}$.

Fifteen metals exceeded background levels (arsenic, barium, beryllium, calcium, copper, iron, lead, magnesium, manganese, molybdenum, nickel, potassium, sodium, vanadium, and zinc).

The following nine metals only exceeded their established background values and did not exceed any other established screening value: Calcium, magnesium, potassium, and sodium were detected at maximum concentrations of 484 mg/Kg, 2,340 mg/Kg, 1,740 mg/Kg, and 283 mg/Kg respectively. These exceeded their respective background values of 166 mg/Kg, 1,980 mg/Kg, 733 mg/Kg, and 198 mg/Kg. There are no other established screening values for calcium, magnesium, potassium, and sodium. Barium was detected at a maximum concentration of 35.3 mg/Kg, which exceeded its background of 20.2 mg/Kg. It did not exceed its soil-screening level of 120.35 mg/Kg, its PRG of 537.49 mg/Kg, or its S-1/GW-1 standard of 1,000 mg/Kg. Beryllium was detected at a maximum concentration of 0.46 mg/Kg, which exceeded its background of 0.41 mg/Kg. It did not exceed its soil-screening level of 2.6 mg/Kg, its PRG of 15.44 mg/Kg, or its S-1/GW-1 standard of 0.7 mg/Kg. Copper was detected at a maximum concentration of 11.6 mg/Kg, which exceeded its background of 7.4 mg/Kg. It did not exceed its soil-screening level of 45.73 mg/Kg or its PRG of 312.86 mg/Kg. Nickel was detected at a maximum concentration of 14.3 mg/Kg, which exceeded its background of 9.4 mg/Kg. It did not exceed its soil-screening level of 292.13 mg/Kg, its PRG of 156.43 mg/Kg, or its S-1/GW-1 standard of 300 mg/Kg. Zinc was detected at a maximum concentration of 32.4 mg/Kg, which exceeded its background of 24.4 mg/Kg. It did not exceed its soil-screening level of 2,202 mg/Kg, its PRG of 2,346 mg/Kg, or its S-1/GW-1 standard of 2,500 mg/Kg.

The following two metals exceeded their established SSLs in addition to their established background values, but did not exceed any other screening value: Lead was detected at a maximum concentration of 11 mg/Kg, which exceeded its background of 10.2 mg/Kg and its soil-screening level of 4.05 mg/Kg, but did not exceed its PRG of 40 mg/Kg or its S-1/GW-1 standard of 300 mg/Kg. Molybdenum was detected at a maximum concentration of 3.3 mg/Kg, which exceeded its background of 0.89 mg/Kg and its soil-screening level of 0.18 mg/Kg, but did not exceed its PRG of 39.11 mg/Kg.

The following metal exceeded its established PRG in addition to its established background value, but did not exceed any other screening value: Vanadium was detected at a maximum concentration of 22.5 mg/Kg, which exceeded its background of 20.1 mg/Kg and its PRG of 7.82 mg/Kg, but did not exceed its soil-screening level of 260.05 mg/Kg or its S-1/GW-1 standard of 400 mg/Kg.

The following three metals exceeded their established SSLs and PRGs in addition to their established background values: Arsenic was detected at a maximum concentration of 5.1 mg/Kg, which exceeded its background of 3.9 mg/Kg, its soil-screening level of 0.009 mg/Kg, and its PRG of 0.39 mg/Kg. It did not exceed its S-1/GW-1 standard of 30 mg/Kg. Iron was detected at a maximum concentration of 16,600 mg/Kg, which exceeded its background of 12,020 mg/Kg, its soil-screening level of 2,422 mg/Kg, and its PRG of 2,346 mg/Kg. Manganese was detected at a maximum concentration of 250 mg/Kg, which exceeded its background of 122 mg/Kg, its soil-screening level of 44.15 mg/Kg, and its PRG of 176.24 mg/Kg.

None of the metals detected exceeded an S-1/GW-1 standard.

The Cold Regions Research and Engineering Laboratory grinding method used for metals preparation as part of the MSP3 investigation has been shown to introduce significantly high levels of chromium and iron from the grinding equipment. This phenomenon had been noted during multiple Small Arms Range site investigations. It was confirmed at the BA-4 site since chromium levels in the samples collected from the native soil as part the previous MSP2 investigation (Section 3.2) were at least one order of magnitude lower than chromium levels measured after CRREL grinding of the soil samples collected during the MSP3 investigation. The concentrations in the native soil were below MCP S-1/GW-1 cleanup standards (30 ppm). Thus, the chromium results were qualified as rejected during data validation due to elevated levels of chromium contamination introduced from the grinder.

Area E Post Excavation

Dioxin is reported as a 2,3,7,8-tetrachlorodibenzo-p-dioxin equivalent. The maximum tetrachlorodibenzo-p-dioxin equivalent for the seven samples was 13.465 nanograms per kilogram (ng/Kg) which was below the S-1/GW standard of 20 ng/Kg (Table 3-4). (With the implementation of the Massachusetts Contingency Plan (MCP) Wave 2 Standards in April 2006, the Method 1 S-1/GW-1 cleanup standard for dioxin was increased from 4 to 20 ng/Kg).

3.4 Groundwater Investigation

Prior to 2006, there were no groundwater-monitoring wells installed specifically for the BA-4 Disposal Area. To determine if any previously constructed wells were in the proper location to monitor groundwater from the BA-4 Disposal Area, the regional groundwater model, MMR10 developed by AMEC Earth and Environmental Inc. (AMEC), was used to generate particle forward tracks. Figure 3-6 shows these particle tracks as they extend from the BA-4 Disposal Area downgradient off of MMR. Also included on this figure is the location of the closest wells to the BA-4 Disposal Area that may be of use in determining groundwater contamination emanating from the BA-4 Disposal Area.

Wells MW-83 and MW-84 were installed by AMEC for the IAGWSP as far-field wells. The far-field wells were installed in 1999 to assess if contamination was migrating off base. These wells are located approximately 4,000 feet downgradient from the BA-4 Disposal Area. MW-83 is located too far north from the forward particle track; however MW-84 is located directly in the center of the track (Figure 3-6). Several screens were also installed during the original construction of MW-84. Backward particle tracks were created and are shown on Figure 3-7. The particle tracks indicate that screens MW-84M2 and MW-84M3 are located at the proper elevation to detect contamination that could have emanated from the BA-4 Disposal Area. Groundwater monitoring for explosives and perchlorate has been ongoing intermittently since 1999 and there have been no detections in either MW-84M2 or MW-84M3. Time lines are also shown on Figure 3-6. These time lines show the length of time in years that it would take for a particle to move a certain distance. In the case of MW-84, contamination would have reached this location within 7 years.

There is a water supply well, ASPWell, located in the immediate vicinity of the BA-4 Disposal Area which supplied water to less than five people who work in the area a maximum of 250 days per year. This supply well has been sampled for an extensive list of analytes since 1999,

including metals. Concentrations of lead as high as 53 µg/L (July, 1999) had been detected in this well.

In May of 2002, a new polyvinyl chloride well was installed at the ASP approximately 30 feet east of the existing well. This well was installed by Camp Edwards' Facilities Engineering due to the lead detections and also because the water-table had dropped below the well screen of the old well. This new well was designated as ASPWell_2002. It now supplies less than five people who each work in the area a maximum of 250 days per year. Since the new well was installed, the maximum lead detection at this location has been 4.82 µg/L (September, 2002).

The IAGWSP believes the prior detections of lead in the old ASPWell were the result of lead in the well construction material and/or the presence of suspended particulates in the water samples. To prove this hypothesis, in October 2006, the IAGWSP installed a groundwater monitoring well (MW-469M1) at the location of the former ASPWell. The location of this well is shown in Figure 3-1. The well has been sampled three times since its installation. The samples were analyzed for lead using method SW6010B, with no lead being detected in any of those samples.

In September 2006, the IAGWSP installed two direct push borings (DP-463 and DP-464) at the locations of the two burial pits located in Area A and E (see Figure 3-1). The borings were advanced to the water-table and groundwater samples were collected and analyzed for metals.

The initial sample results for drive points DP-463 and DP-464 contained too high of a turbidity to be deemed valuable. Therefore, in October 2006, DP-464 was purged and re-sampled for total and dissolved metals while DP-463 was replaced with a monitoring well (MW-478S) and sampled for lead. Lead has not been detected in three rounds of sampling from MW-478S.

3.4.1 Groundwater Analytical Results

ASPWell (July 1999 – June 2002)

Fifteen different metals have been detected at various times during the sampling period for the ASPWell. Aluminum was detected one time at a concentration of 20.8 J µg/L, which is below the PRG of 3,600 µg/L. Barium was detected five times with a maximum concentration of 17 µg/L, which is below the PRG of 2,600 µg/L. Boron was detected three times with a maximum concentration of 12.9 J µg/L, which is below the PRG of 7,300 µg/L. Calcium was detected four times with a maximum concentration of 2,240 µg/L. There are no established screening values for calcium. Chromium was detected four times with a maximum concentration of 3.3 µg/L, which is below the PRG of 11 µg/L. Copper was detected four times with a maximum concentration of 353 µg/L. It exceeded its PRG of 150 µg/L in three of the four samples. Iron was detected four times with a maximum concentration of 4,260 µg/L. It exceeded its PRG of 1,100 µg/L in three of the four samples. Lead was detected nine times with a maximum concentration of 53 µg/L. It exceeded its MCL of 15 µg/L in three of the nine samples. Magnesium was detected four times with a maximum concentration of 1,600 µg/L. There are no established screening values for magnesium. Manganese was detected four times with a maximum concentration of 61.6 µg/L, which is below the PRG of 88 µg/L. Molybdenum was detected one time at a concentration of 1.4 J µg/L, which is below the PRG of 18 µg/L. Nickel was detected two times with a maximum concentration of 2.6 µg/L, which is below the PRG of

73 µg/L. Potassium was detected four times with a maximum concentration of 1,200 µg/L. There are no established screening values for potassium. Sodium was detected five times with a maximum concentration of 28,500 µg/L. There are no established screening values for sodium. Zinc was detected four times with a maximum concentration of 34.8 J µg/L, which is below the PRG of 1,100 µg/L.

Chloroform was detected three times with a maximum concentration of 0.8 J µg/L, which exceeded its PRG of 0.17 µg/L.

ASPWell_2002 (September 2002 – January 2006)

Fifteen different metals have been detected at various times during the sampling period for the ASPWell_2002. Barium was detected two times with a maximum concentration of 7.2 µg/L, which is below the PRG of 2,600 µg/L. Boron was detected four times with a maximum concentration of 0.43 J µg/L, which is below the PRG of 1.8 µg/L. Cadmium was detected one time at a concentration of 2.3 J µg/L, which is below the PRG of 18 µg/L. Calcium was detected seven times with a maximum concentration of 3,810 µg/L. There are no established screening values for calcium. Chromium was detected two times with a maximum concentration of 26 µg/L. It exceeded its PRG of 11 µg/L in one of the two samples. Copper was detected seven times with a maximum concentration of 632 µg/L. It exceeded its PRG of 150 µg/L in four of the seven samples. Iron was detected five times with a maximum concentration of 106 µg/L, which is below the PRG of 1,100 µg/L. Lead was detected four times with a maximum concentration of 4.82 µg/L, which is below its MCL of 15 µg/L. Magnesium was detected six times with a maximum concentration of 2,290 µg/L. There are no established screening values for magnesium. Manganese was detected six times with a maximum concentration of 13.2 µg/L, which is below the PRG of 88 µg/L. Molybdenum was detected one time at a concentration of 2.3 J µg/L, which is below the PRG of 18 µg/L. Nickel was detected five times with a maximum concentration of 66 µg/L, which is below the PRG of 73 µg/L. Potassium was detected five times with a maximum concentration of 1,140 µg/L. There are no established screening values for potassium. Sodium was detected nine times with a maximum concentration of 29,700 µg/L. There are no established screening values for sodium. Zinc was detected three times with a maximum concentration of 37.6 µg/L, which is below the PRG of 1,100 µg/L.

Chloroform was detected three times with a maximum concentration of 1.1 µg/L, which exceeded its PRG of 0.17 µg/L.

Bromodichloromethane was detected one time at a concentration of 0.5 µg/L, which exceeded its PRG of 0.18 µg/L.

Bis (2-ethylhexyl) phthalate was detected one time at a concentration of 0.6 µg/L, which is below the PRG of 4.8 µg/L.

2-methynaphthalene was detected one time at a concentration of 0.29 µg/L, which is below the PRG of 0.62 µg/L for naphthalene.

Drive Point (DP-464, October 2006)

Twelve metals were detected in the dissolved metals analysis for DP-464 (barium, boron, calcium, copper, iron, magnesium, manganese, molybdenum, nickel, potassium, sodium, and zinc).

Of these twelve metals, only iron and manganese exceeded their PRGs for tap water. Iron was detected at a concentration of 2,780 µg/L, which exceeded its PRG of 1,100 µg/L. Manganese was detected at a concentration of 119 µg/L, which exceeded its PRG of 88 µg/L.

Monitoring Wells (MW-469M1, MW-478S)

Lead has not been detected in three rounds of sampling from MW-469M1 and MW-478S.

Far Field Monitoring Wells (MW-84M2, MW-84M3, November 1999 – December 2005)

No explosives, perchlorate, or lead has been detected in the far field monitoring wells MW-84M2 and MW-84M3.

4.0 CONCEPTUAL SITE MODEL

The conceptual site model is a summary of what is known about the natural conditions and contamination at a site, and integrates the results of the investigation. It is used to identify potential contaminant sources, to depict and predict the fate and transport of the contaminants, and to assist in understanding the contaminants in context for evaluation of any potential risk to human and ecological receptors. The conceptual site model presented in this section is based on a review of historical data as well as data collected during the field activities for this investigation.

The area that makes up the BA-4 Disposal Area is not used for military training. A witness statement indicated that ammunition was potentially buried in this area due to excess inventory. Potential sources of contaminants at the BA-4 Disposal Area would be due to disposal activities (burial, burning).

The results of the remedial investigation indicate that limited disposal activities have occurred in the BA-4 Disposal Area. Two disposal sites were discovered, one containing expended jet engine starter cartridges and igniter tubes and the other containing a crushed 55-gallon drum with burnt, expended small arms ammunition and pyrotechnics. All munitions-related items were expended. There were no unexploded ordnance items found at the BA-4 Disposal Area. The disposal of the jet engine starter cartridges and igniter tubes at Area A appears to have resulted in increased levels of several metals (lead, chromium, nickel, and zinc) in the soil, along with the introduction of one SVOC, bis (2-ethylhexyl) phthalate.

The disposal of the drum containing burnt ash residue at Area E appears to have resulted in the introduction of explosives (2,6-dinitrotoluene), VOCs, (acetone, chloromethane, and 4-methyl-2-pentanone), SVOCs (bis (2-ethylhexyl) phthalate, hexachlorobenzene, and di-n-butyl phthalate), and increased levels of several metals to the soil. Dioxin, also found in the soil adjacent to the drum appears to have been created by the burning process and may have contaminated the soil after the drum had been crushed. Removal of the soil surrounding the location of the drum in May 2007 removed most contaminants; however, post excavation sampling showed that there were still traces of dioxin in the soil. These levels were below the MCP Method 1 S-1/GW-1 cleanup standards).

The discovered items and the contaminated soil from both disposal sites have been removed and disposed of off-site. Post excavation confirmation soil samples following the RRA conducted at the Area A and Area E disposal sites indicated that remnants of a few metals (arsenic, iron, lead, manganese, and molybdenum) and dioxin still exist in soil at levels that exceed MMR SSLs.

There are no indications that there is any groundwater contamination as a result of disposal activities at the BA-4 Disposal Area.

(This page left intentionally blank)

5.0 RISK SCREENING

This risk screening evaluation is used to assess the effectiveness of the soil removal action and the need for any additional remedial actions to prevent future risk to human health and the environment. The screening considers impacts to human health through contact with groundwater from the site as well as human health and ecological impacts from soil contact.

5.1 Summary of Human Health Risk Assessment

The site-specific MCP Method 1 S-1/GW-1 risk screening was conducted to evaluate the potential impacts from contaminants detected in soil and groundwater for all current and foreseeable site activities and uses. The screening level risk assessment was based on a comparison of the maximum detected concentration of a contaminant in soil or groundwater to regulatory screening levels protective of human health and the environment. Consideration was also given to whether a detected contaminant could be the result of some other source such as laboratory contamination or naturally occurring background conditions.

5.1.1 Data Collection and Evaluation

Analytical results for the MSP2 soil sampling conducted in 2001 and the groundwater data for the water supply well, ASPWell, prior to September, 2002 were not used in the risk screening because they no longer represented existing site conditions. The contaminated soil has been removed under an RRA and the ASPWell is no longer in service as a water supply well. The results used in the risk screening best represent the current conditions at the disposal area. As discussed in Section 3, Tables 3-4 and 3-5 provide a summary of the soil and groundwater analytical results used in the risk screening.

Groundwater data evaluated in the risk screening are from an on-site water supply well (ASPWell_2002), two on-site groundwater monitoring wells (MW-469M1 and MW-478S), and one direct-push boring (DP-464). All detected analytes were evaluated in the risk screening.,

5.1.2 Risk Screening

Post excavation soil results were compared to screening criteria. As shown in Table 3-4, all detected analytes for which standards have been derived were below the Massachusetts Contingency Plan Method 1 S1/GW1 soil cleanup standards. These standards are protective of human health without the need for land use restrictions. The Method 1 standards consider both direct contact and leaching to groundwater. The soil results were also compared to MMR Soil Screening Levels (SSL) to further evaluate the potential for leaching of the detected analytes to groundwater. The metals antimony, arsenic, iron, lead, manganese and molybdenum were reported in the soil samples from Area A above the SSLs. The levels of the metals detected are very low; consistent with background concentrations, and are unlikely to present a leaching risk to groundwater.

Groundwater results were compared to applicable standards to assess potential future risks from exposure to groundwater at BA-4 Disposal Area. All groundwater results were below the MCP Method 1 GW1 groundwater cleanup standards. In addition, Table 3-5 provides a summary of the groundwater results and includes a comparison of groundwater results to PRGs.

In the ASPWell, copper, bromodichloromethane and chloroform were above the PRG levels. The copper detection is likely from the materials used to construct the well and water supply system. The bromodichloromethane is likely a laboratory contaminant or related to disinfection of the well after construction. According to the Agency for Toxic Substances and Disease Registry (ATDSR), bromodichloromethane is used in laboratories. In addition, bromodichloromethane is formed as a by-product when chlorine is used for disinfection of the well or to kill bacteria in drinking water. The reported concentration from the ASPWell is below the Federal MCL for total trihalomethanes of 100 ug/L.

Iron and manganese were reported in drive point groundwater samples collected at Area A at concentrations above PRGs. These detections are likely the result of naturally occurring background concentrations of these metals. Chloroform was detected in monitoring well MW-84 at levels above the PRG. As mentioned previously, chloroform is commonly detected in groundwater and is likely not from BA-4.

Current groundwater and soil conditions were considered to evaluate the potential ecological risks remaining at the BA-4 Disposal Area. Potential exposures to ecological receptors are very limited. There are no known ecological exposure pathways to groundwater. There are no nearby surface waters that receive discharge from groundwater or surface water runoff from the site. In addition, the analytes detected in groundwater are likely reflective of background conditions. Soil contamination was successfully removed as part of the RRA. All metals in soil were reduced to concentrations that are consistent with background. The residual dioxin contamination in soil at Area E is likely very limited in extent and is below Method 1 S1/GW1 standards. Furthermore, exposure to this soil by ecological receptors is limited since the excavation was backfilled with clean soil, restricting exposure to the residual dioxin levels. There is no evidence of stressed biota at the BA-4 Disposal Site and the area surrounding the BA-4 Disposal Area is not considered prime habitat. Given these considerations, no significant environmental risk exists at the BA-4 Disposal Area.

5.1.3 Uncertainty

All risk evaluations contain elements of uncertainty. Most assumptions made in conducting the risk screening were biased toward health protectiveness, that is, toward overestimating rather than underestimating risk. There is, therefore, a reasonable degree of certainty that actual risks to individuals exposed to contamination from the BA-4 Disposal Area will not be higher than those estimated in the risk screening and are likely lower. Uncertainties particular to this assessment are discussed below.

Most of the soil samples were multi-increment samples. Multi-increment samples are essentially a physical averaging of the soil collected from a number of points throughout the grid. Physical averaging reduces inter-sample variability, which results in increased precision of the resulting estimate of the overall average concentration. The principal limitations of multi-increment sampling are loss of discrete information about the individual sample points, and the

potential for dilution of the contaminants in a sample with uncontaminated material. In this case, any such loss of information at the “low end” of the range of concentrations because of dilution is not believed to affect the findings of this report. Furthermore, this kind of physical averaging probably more reasonably estimates the exposure point concentrations.

(This page left intentionally blank)

6.0 CONCLUSIONS

Historic disposal activities lead to detectable levels of several analytes in the soil at the BA-4 Disposal Area. These included increased levels of several metals, along with the introduction of an explosive compound, some VOCs and SVOCs. There are no indications of any groundwater contamination as a result of disposal activities at the BA-4 Disposal Area. This is consistent with the assumed conceptual site model described in Section 4.0

The contaminated soil along with the buried items discovered were removed and disposed of off-site. Results of post-excavation confirmatory soil sampling indicates that remnants of a few metals (arsenic, iron, lead, manganese, and molybdenum) and dioxin still exist in soil at levels that exceed MMR SSLs. The metals detected are consistent with background levels and the residual dioxin detections are not expected to pose a threat to groundwater. The post excavation soil sample results are all below Massachusetts Contingency Plan Method 1 S1/GW1 cleanup standards indicating that no significant risk to human health or the environment exists from potential contact with soil at the BA-4 Disposal Area.

Monitoring well screens MW-84M2 and MW-84M3, installed in 1999, are located along the particle track and at depths to capture contamination migrating from BA-4. These well screens have been monitored periodically since installation and there have been no detections of explosives, perchlorate or lead in either well. A water supply well, ASPWell, has been sampled for an extensive list of analytes since 1999, however, only lead was detected above drinking water standards. Subsequent investigations determined elevated lead concentrations in this well were from well construction material. A new well, installed in 2002, has met all drinking water standards. Other monitoring wells, MW-469M1 adjacent to the original water supply well, MW-478S located at Area A, and a drive point, DP-464 located at Area E, were installed and sampled for metals since 2006. Lead has not been detected in any of the monitoring wells or the drive point samples.

(This page left intentionally blank)

7.0 REFERENCES

AMEC, 2005a. Letter to Ms. Carol A. Keating, U.S. Environmental Protection Agency, Region 1, Boston, MA. Request for Information Regarding SESOIL as part of USEPA's Review of the Army's 11/1/05 RTC – Draft HERA Work Plan. December 12, 2005. 13 p.

Cape Cod Commission, 1998. Massachusetts Military Reservation Master Plan Final Report: Prepared in conjunction with the Community Working Group by the Cape Cod Commission.

IAGWSP, 2006. Final Ammunition Supply Point Rapid Response Action Work Plan, Impact Area Groundwater Study Program, October 16, 2006.

IAGWSP, 2006b. Ammunition Supply Point Groundwater Investigation Project Note, Impact Area Groundwater Study Program, June 29, 2006.

IAGWSP, 2007. Documentation of the Actions That Will be Conducted to Remove Dioxin Impacted Soil from the Area E Disposal Site Project Note, Impact Area Groundwater Study Program, February 28, 2007.

MAARNG, 2001. Integrated Natural Resources Management Plan. Camp Edwards, Massachusetts. Massachusetts Army National Guard.

MassDEP, 2003. The Massachusetts Contingency Plan [310 CMR 40.0000] effective: June 27, 2003. Massachusetts Department of Environmental Protection. Bureau of Waste Site Cleanup.

Masterson, J. P., B.D. Stone, D. A. Walter, and J. Savoie, 1997. Hydrogeologic Framework of Western Cape Cod, Massachusetts. U. S. Geological Survey. Hydrologic Investigation Atlas HA-741. Marlborough, MA.

NGB, 1990. Final Environmental Impact Statement (FEIS)/Final Environmental Impact Report (FEIR), 102 Fighter Interceptor Wing, Massachusetts Air National Guard, June 1990.

Rood, A. and Hull, L., 2007. Updated Calculation of Maximum Allowable Soil Concentrations for the Protection of Groundwater for Lead and Other Compounds Associated with Firearms at the Massachusetts Military Reserve, Idaho National Laboratory, April 11, 2007.

Tetra Tech, 2003. MSP2 Ammunition Supply Point Geophysical Investigation Final Letter Report, Tetra Tech, May 9, 2003.

Tetra Tech, 2003a. Munitions Survey Project Phase 1 Final Report, Tetra Tech, 2003.

Tetra Tech, 2003b. MSP Phase 3 Ammunition Supply Point Supplemental Work Plan, Tetra Tech, May 5, 2003.

Tetra Tech, 2003c. Final Munitions Survey Program Phase 3 Ammunition Supply Point Supplemental Investigation Work Plan, Tetra Tech, 2003.

USACE, 1998. Archive Search Report.

USACE, 2002. Natural and Cultural Resources Environmental Compliance Assessment. Impact Area Groundwater Study, Massachusetts Military Reservation, Cape Cod, Massachusetts. United Army Corps of Engineers, New England District, and ENSR International, Westford, Massachusetts.

USACE, 2006. Final Ammunition Supply Point Rapid Response Action Work Plan, United Army Corps of Engineers, New England District, October 16, 2006.

USDA, 1993. United States Department of Agriculture. Soil Survey of Barnstable County, Massachusetts, March 1993. 211 p.

USEPA, 1989. Risk Assessment Guidance for Superfund Volume I. Human Health Evaluation Manual (Part A). Office of Emergency and Remedial Response, Washington, D.C. USEPA 540/1- 89/002. December.

USEPA, 1997a. Health Effects Assessment Summary Tables. FY 1997 Update. U.S. Environmental Protection Agency. Office of Solid Waste and Emergency Response. USEPA-540- R-97-036. July.

USEPA, 2001a. Risk Assessment Guidance for Superfund, Volume I: Human Health Environmental Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments). Final. USEPA Publication 9285.7-47. December.

USEPA, 2002a. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. Peer Review Draft. Office of Solid Waste and Emergency Response. OSWER 9355.4- 24. March.

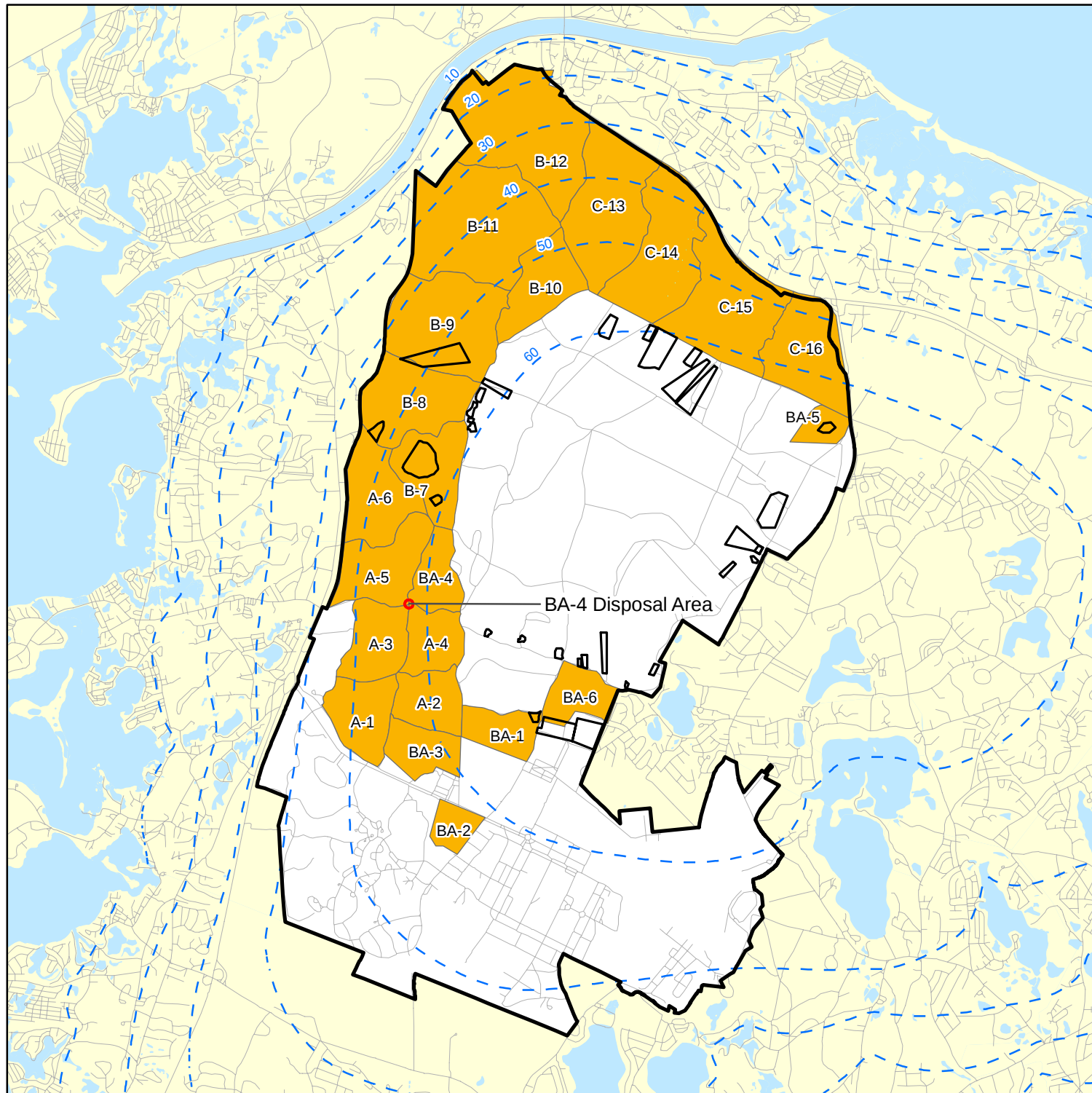
USEPA, 2004a. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment). Final. Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, Washington, D.C. 20460.

USEPA. 2004c. ProUCL Version 3.0. User Guide. April.

USEPA, 2006. Provisional Peer Reviewed Toxicity Values for Aluminum (CASRN 7429-90-05). Superfund Health Risk Technical Support Center, National Center for Environmental Assessment. October.

FIGURES

(This page left intentionally blank)



Impact Area Groundwater Study Program

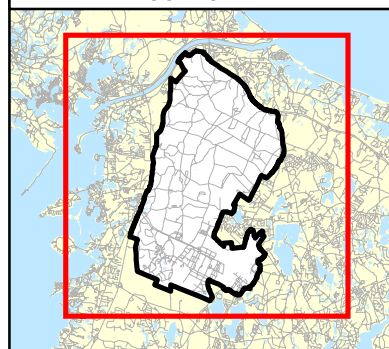
LEGEND

- Small Arms Ranges
- Military Training Areas

Groundwater Elevation Contours (in feet above NGVD)

- Water Level Contours - MMR10

LOCATION MAP



NOTES & SOURCES

Basemap data from US Geological Survey 7 1/2 minute
Topographic Maps: Source: MassGIS
Aerial Photos: Color Digital Orthophotos; Date Flown: 2002
Source: EarthData International

TITLE

BA-4 Disposal Area
Location of Study Area

0 7,000
Feet

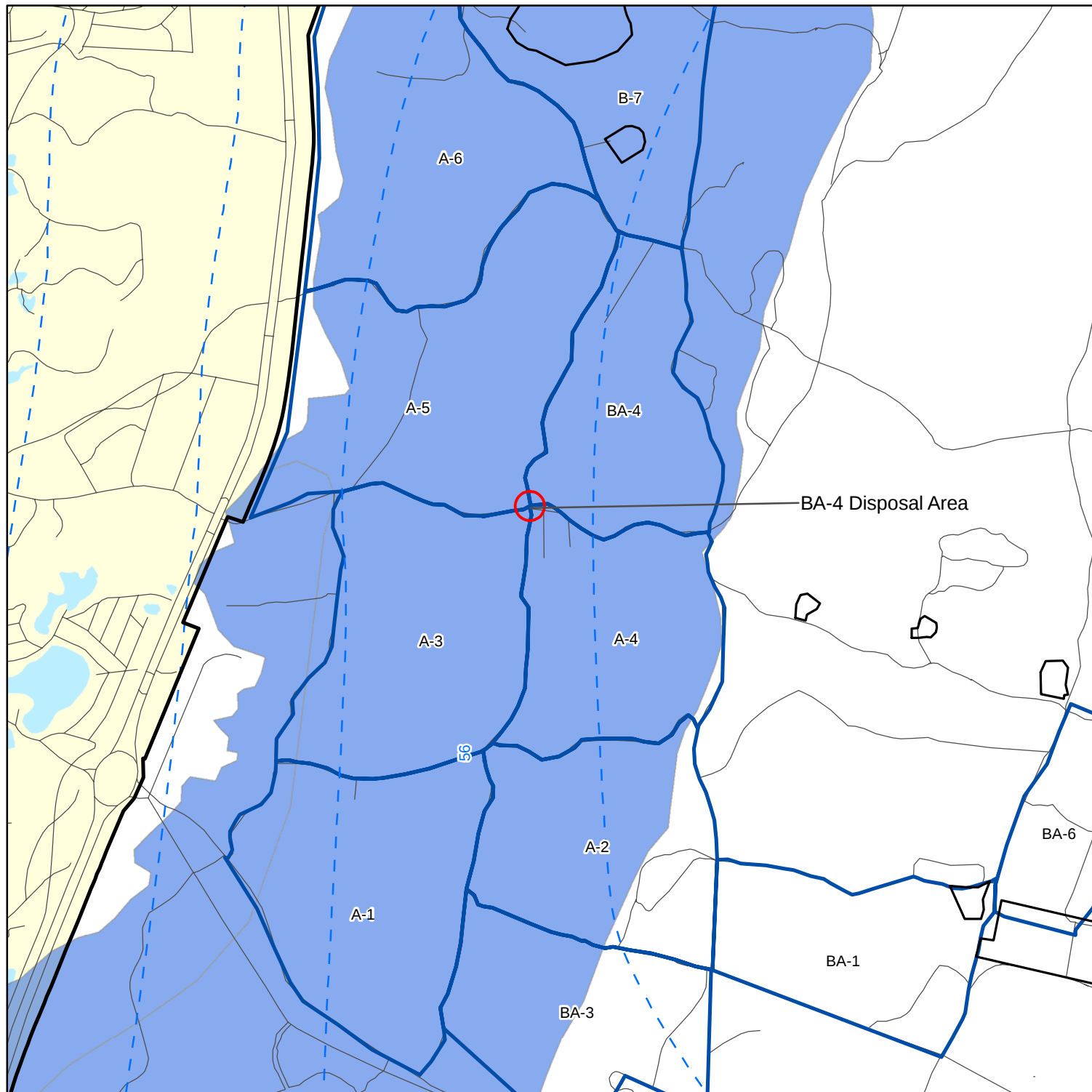


US Army Corps
of Engineers
New England District

M:\MMR2007\M\MMR2007\ASPI\Figures\Fig1-1_090507.pdf
M:\MMR2007\M\MMR2007\ASPI\MXD\Fig1-1_090507.mxd
September 5, 2007 DWN: MTW CHKD: SEL

FIGURE

1-1

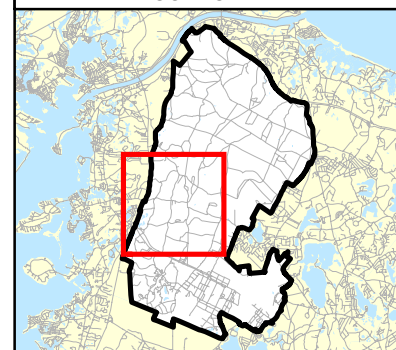


Impact Area Groundwater Study Program

LEGEND

- Small Arms Ranges
- Military Training Areas
- Groundwater Elevation Contours**
(in feet above NGVD)
 - Water Level Contours - MMR10
- Moraine Deposits
- Outwash Deposits

LOCATION MAP



NOTES & SOURCES

Basemap data from US Geological Survey 7 1/2 minute
Topographic Maps: Source: MassGIS
Aerial Photos: Color Digital Orthophotos; Date Flown: 2002
Source: EarthData International

TITLE

Location of the
BA-4 Disposal Area

0 2,000
Feet

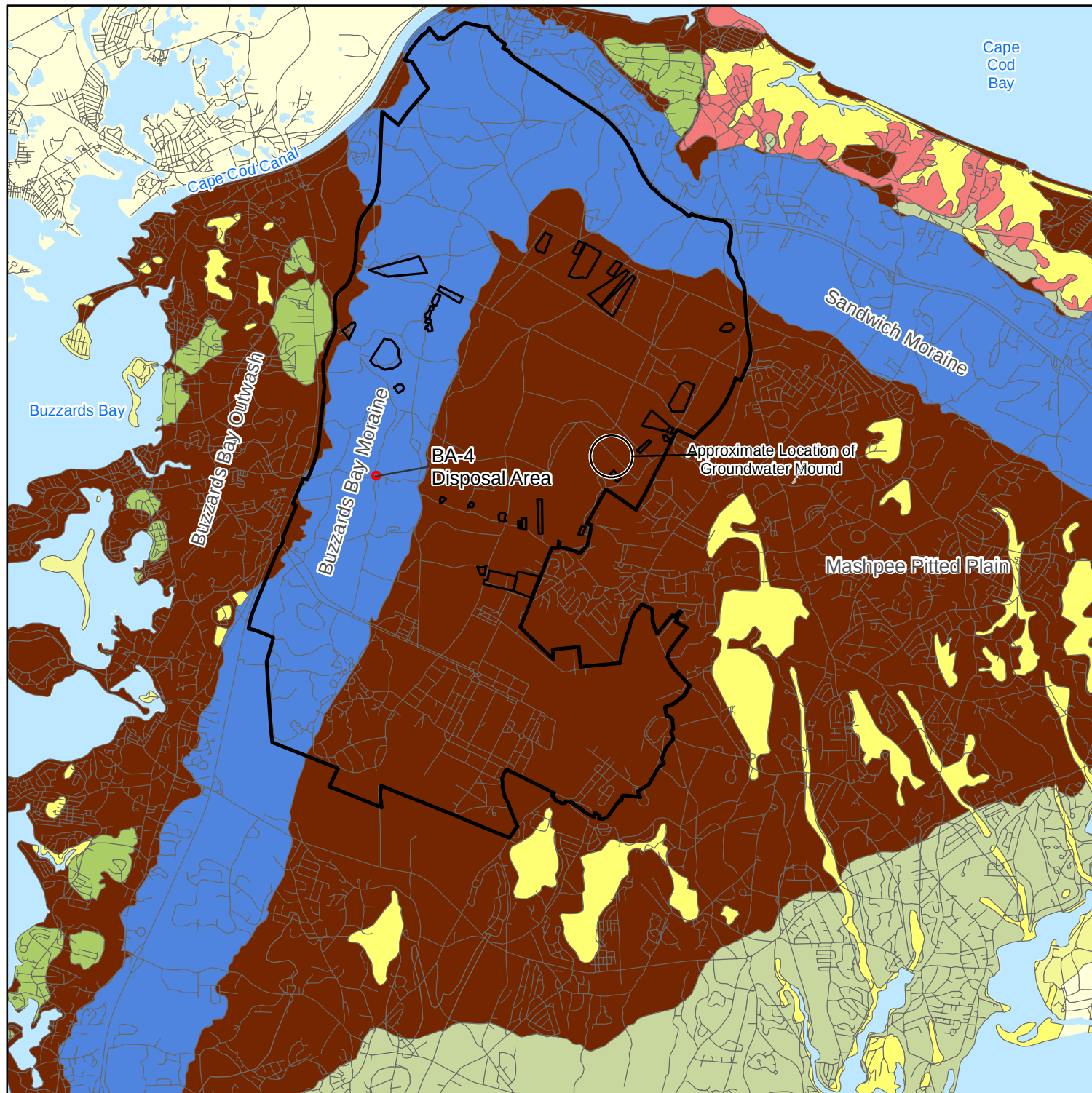


US Army Corps
of Engineers
New England District

M:\MMR\2007\M\MMR\2007\ASPI\Figures\Fig2-1_090507.pdf
M:\MMR\2007\M\MMR\2007\ASPI\Fig2-1_090507.mxd
September 5, 2007 DWN: MTW CHKD: SEL

FIGURE

2-1



Impact Area Groundwater Study Program

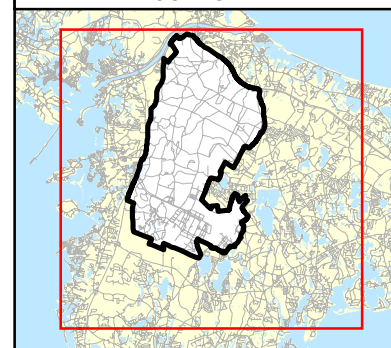
LEGEND

Small Arms Ranges

Surficial Geology

- Sand and Gravel Deposits
- Till or Bedrock
- Sandy Till over Sand
- End Moraines
- Large Sand Deposits
- Fine-Grained Deposits
- Floodplain Alluvium

LOCATION MAP



NOTES & SOURCES

Basemap data from US Geological Survey 7 1/2 minute
Topographic Maps: Source: MassGIS
Aerial Photos: Color Digital Orthophotos; Date Flown: 2002
Source: EarthData International

TITLE

BA-4 Disposal Area
Surficial Geology of Western Cape Cod

0 1
Miles



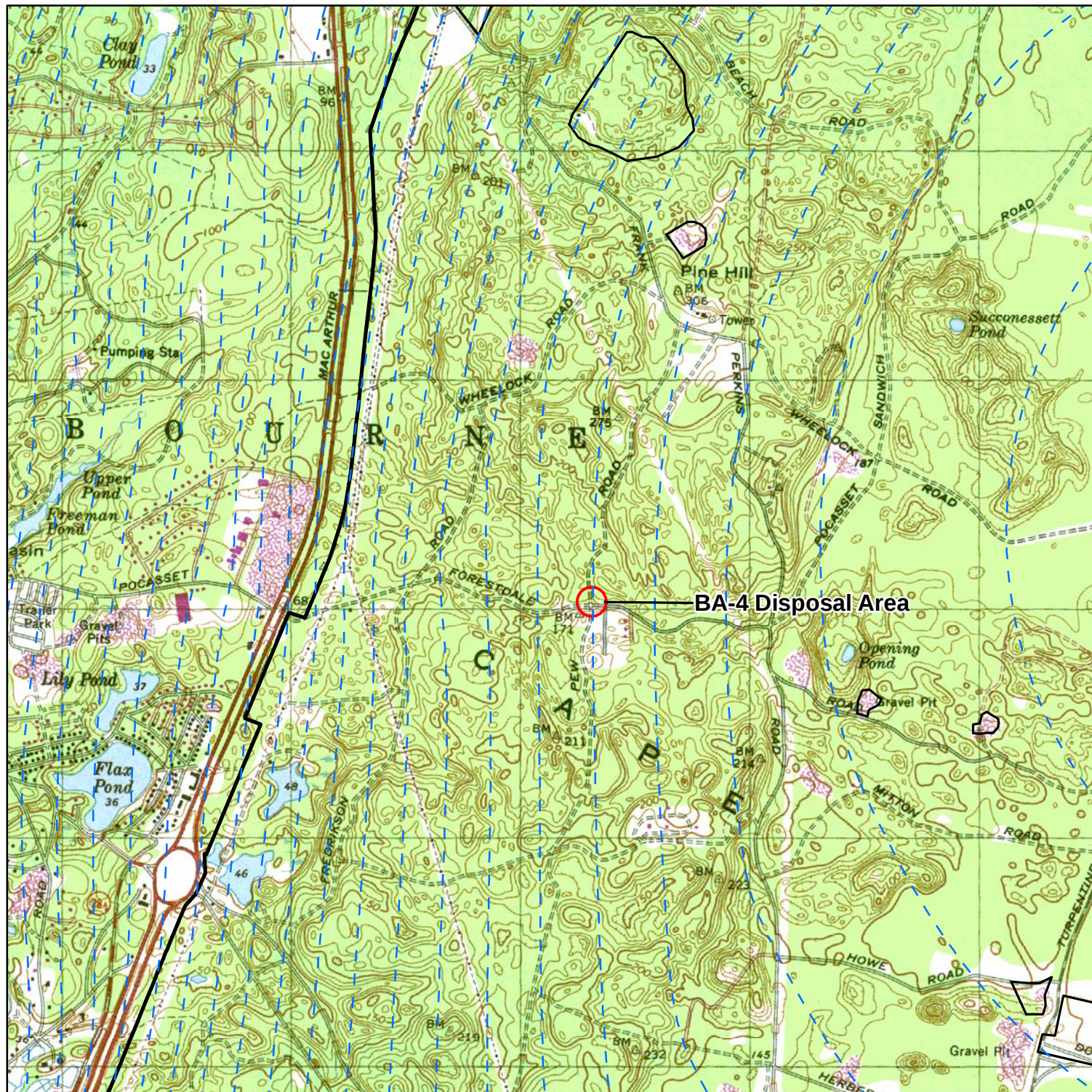
US Army Corps
of Engineers
New England District

M:\MMR\2007\ASPI\Figures\Fig2-2_090507.pdf
M:\MMR\2007\ASPI\MXDs\Fig2-2_090507.mxd
September 5, 2007 DWN: MTW CHKD: SEL



FIGURE

2-2



Impact Area Groundwater Study Program

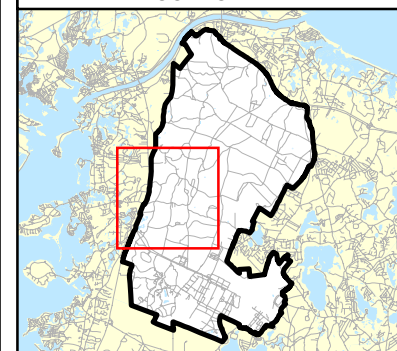
LEGEND

Small Arms Ranges

Groundwater Elevation Contours (in feet above NGVD)

MMR-10

LOCATION MAP



NOTES & SOURCES

Basemap data from US Geological Survey 7 1/2 minute
Topographic Maps: Source: MassGIS
Aerial Photos: Color Digital Orthophotos; Date Flown: 2002
Source: EarthData International

TITLE

Surface Water Bodies
in Proximity to the BA-4 Disposal Area

0 2,000
Feet

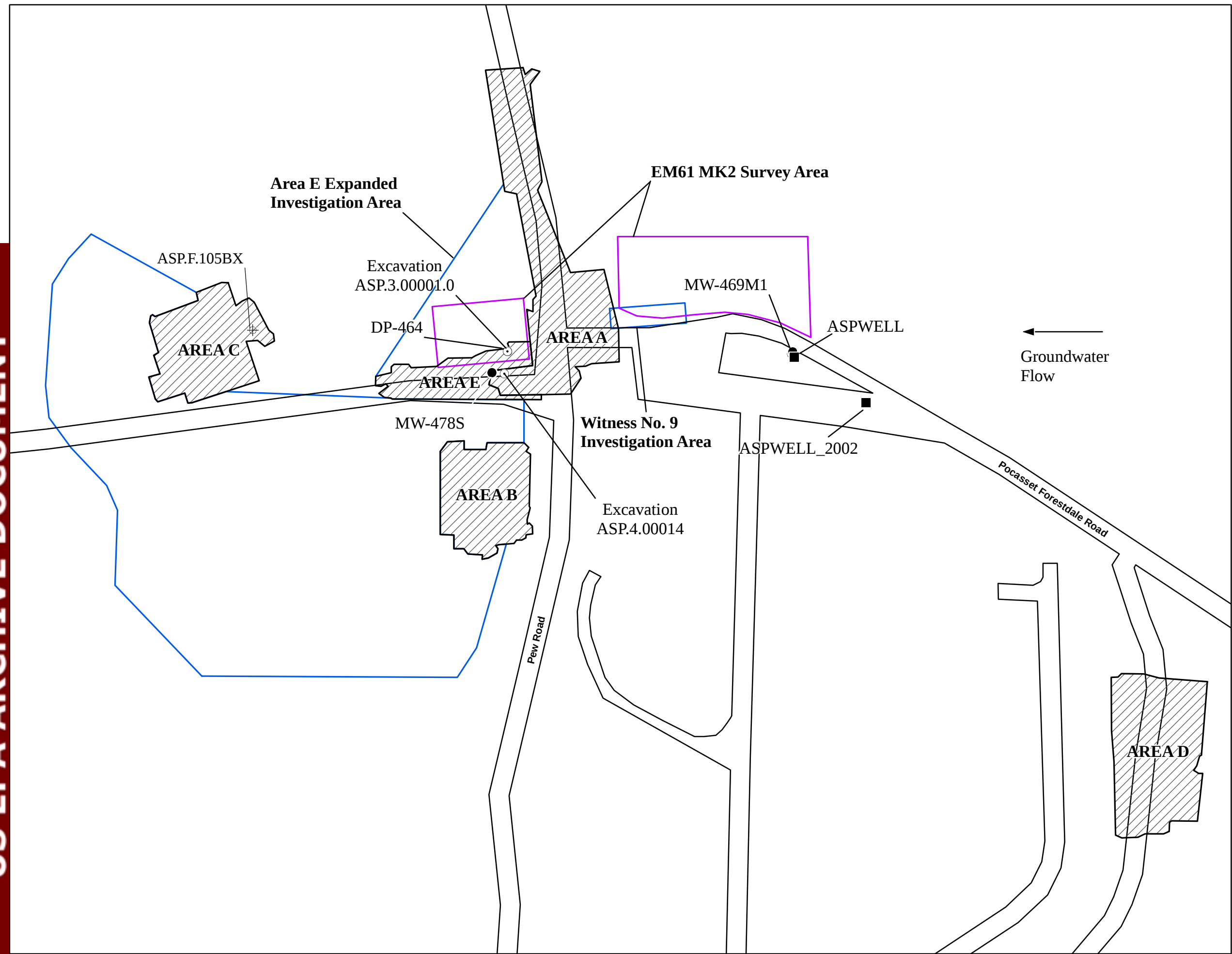


US Army Corps
of Engineers
New England District

M:\MMR\2007\M\MMR\2007\ASPI\Figures\Fig2-3_090507.pdf
M:\MMR\2007\M\MMR\2007\ASPI\MXD\Fig2-3_090507.mxd
September 5, 2007 DWN: MTW CHKD: SEL

FIGURE

2-3

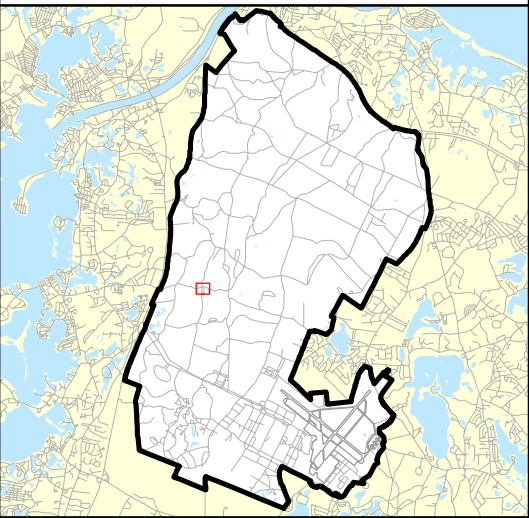


Impact Area Groundwater Study Program

Legend

- MSP2 Investigation Areas
- MSP3 Schonstedt Survey Area
- MSP3 EM61 MK2 Survey Area
- Soil Sample Location
- Drive Point
- Monitoring Well
- Water Supply Well

LOCATION MAP



NOTES & SOURCES

Basemap data from US Geological Survey 7 1/2 minute
Topographic Maps. Source: MassGIS
Aerial Photos: Color Digital Orthophotos:
Date Flown: 2002 Source: EarthData International

TITLE

MSP2 and MSP3
Geophysical Investigation Areas
(2001-2007)

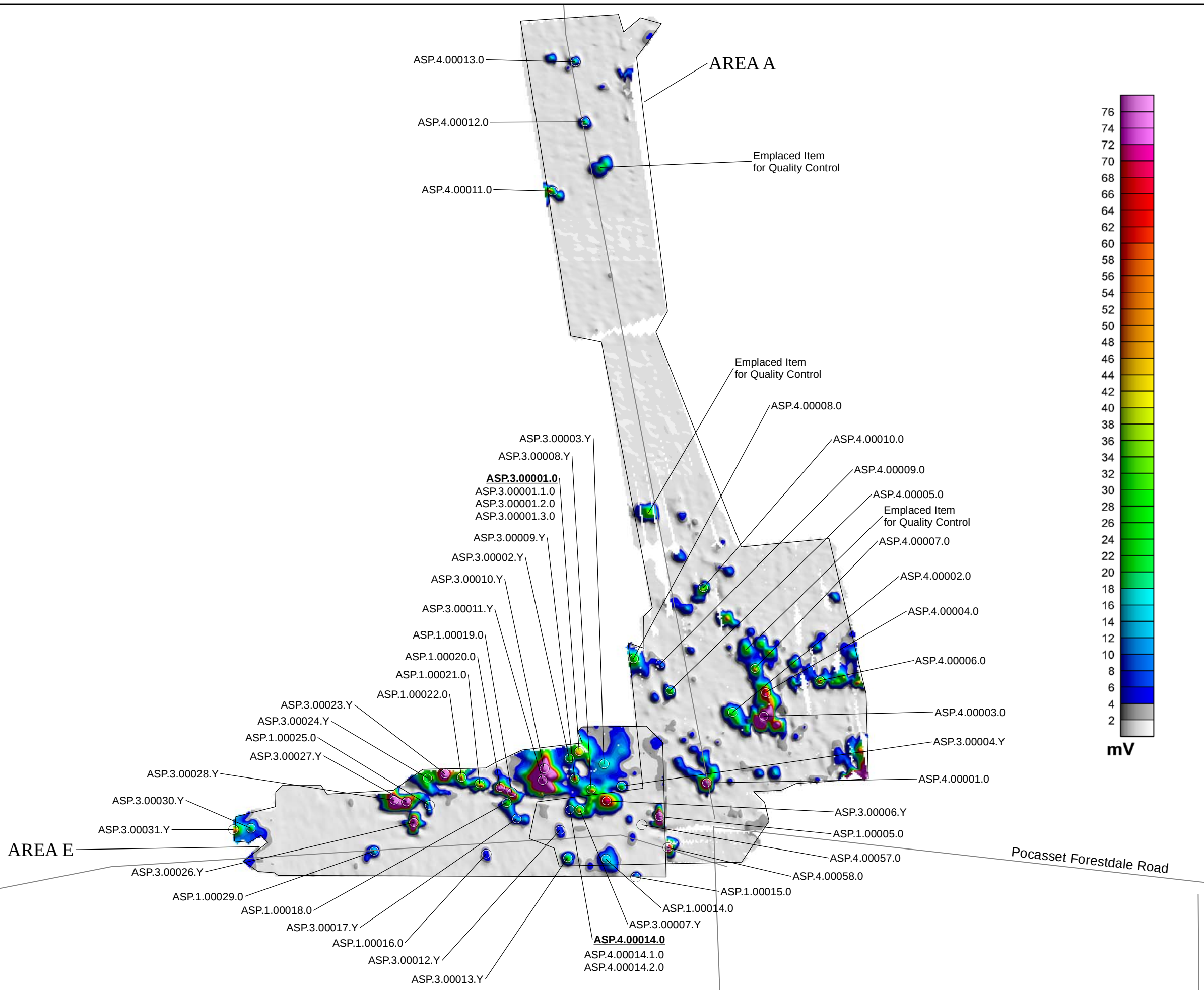
0 100
Feet



DRAFT

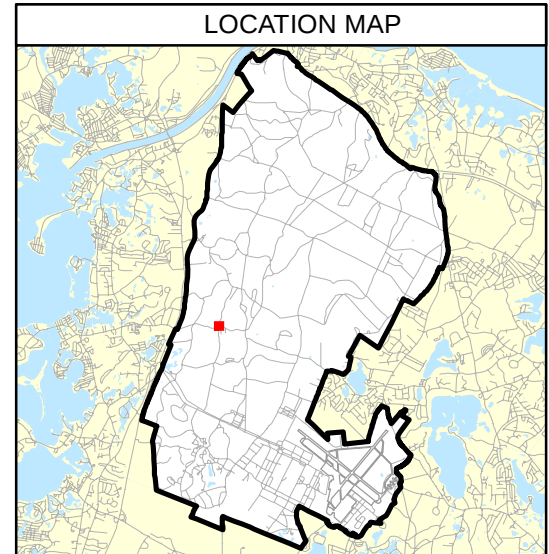
M:\MMR\2007\MMR\2007\ASPI\Figures\Fig3-1_012009.pdf
M:\MMR\2007\MMR\2007\ASPI\Figures\Fig3-1_012009.mxd
January 20, 2009 DWN: MTW CHKD: DCW

FIGURE
3-1



 **Impact Area
Groundwater Study Program**

- Item Locations at Selected Anomalies
- ASP.4.00001.0 Item Location
Identification Numbers
- ASP.3.00001.0 Item Location
Identification Numbers
That Have Been Sampled
- ASP.3.00001.1.0 Soil Sample
Identification Numbers
- Area Boundary
- Road



NOTES & SOURCES

Basemap data from US Geological Survey 7 1/2 minute
Topographic Maps. Source: MassGIS
Aerial Photos: Color Digital Orthophotos:
Date Flown: 2002. Source: EarthData International

TITLE

MSP2 EM61 MK2
Geophysical Survey Anomaly Locations
Areas A and E
(2001)

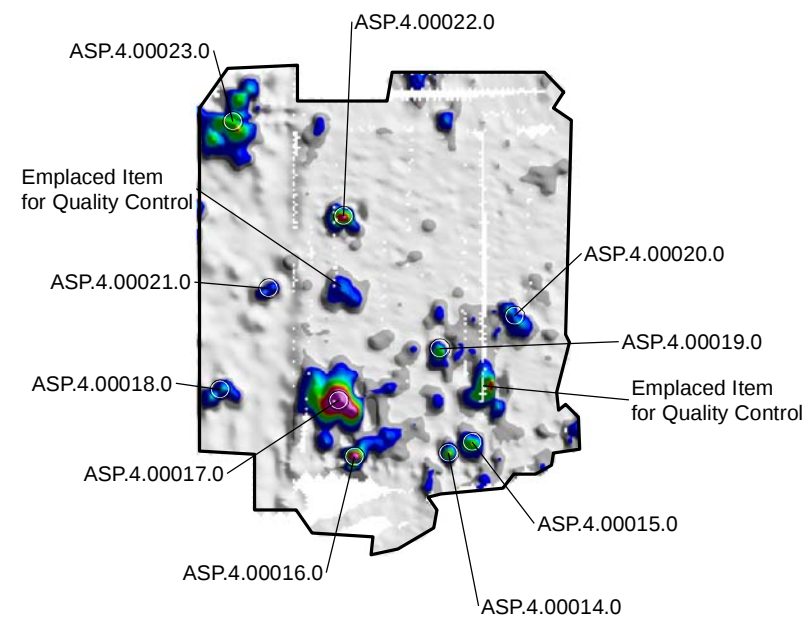
0 40
Feet



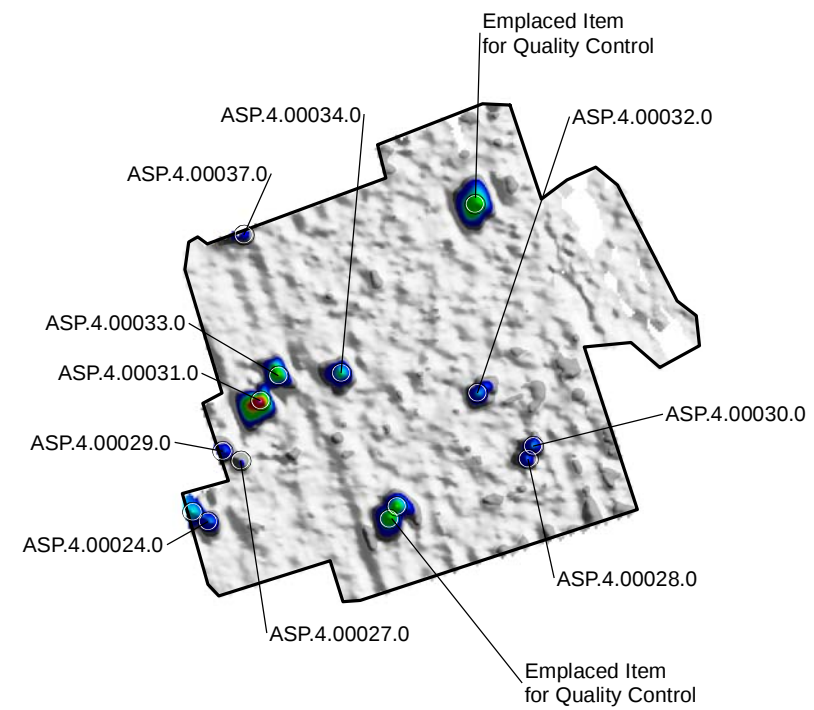
 **DRAFT**

FIGURE
3-2

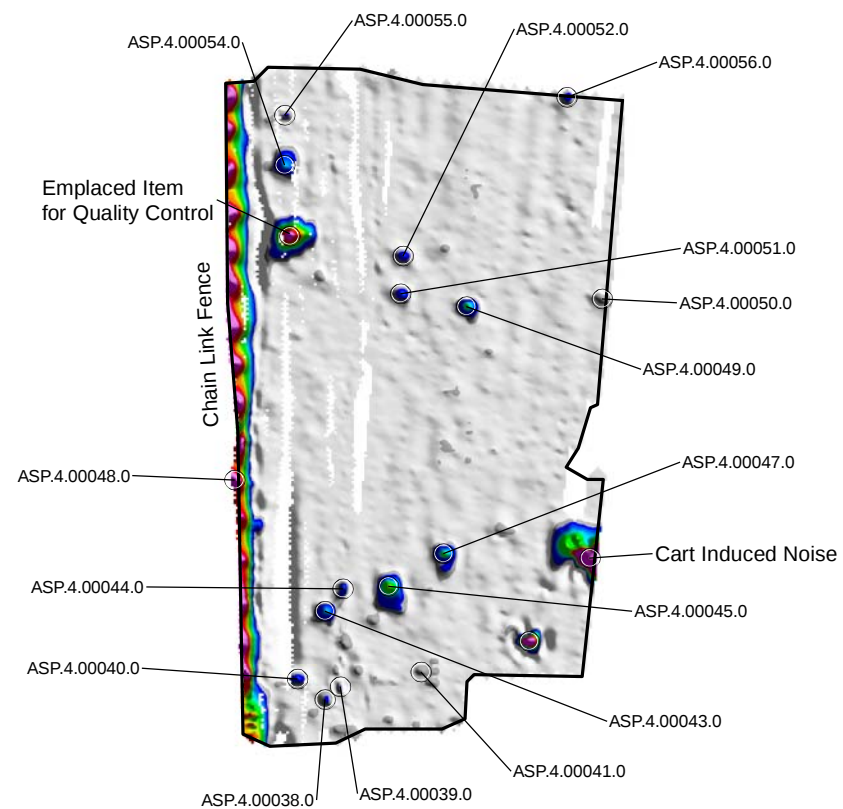
M:\MMR\2007\MMR\2007\ASPI\Figures\Fig3-2_082707.pdf
M:\MMR\2007\MMR\2007\ASPI\Figures\Fig3-2_082707.mxd
August 27, 2007 DWN: MTW CHKD: SEL



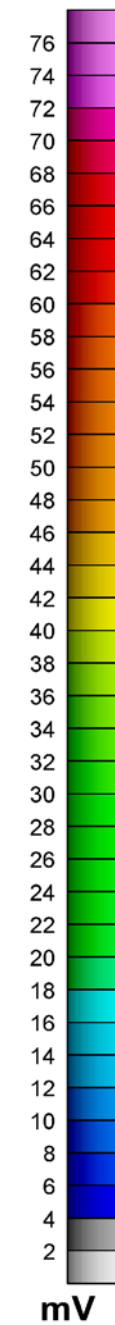
AREA B



AREA C



AREA D



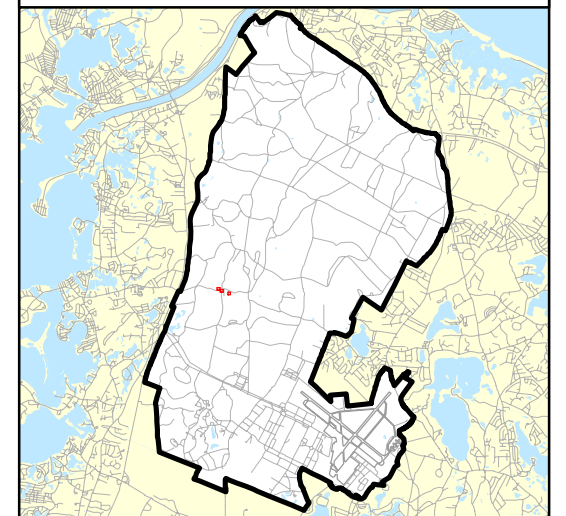
Impact Area Groundwater Study Program

○ Item Locations at Selected Anomalies

ASP.4.00001.0 Item Location Identification Numbers

□ Area Boundary

LOCATION MAP



NOTES & SOURCES

Basemap data from US Geological Survey 7 1/2 minute
Topographic Maps. Source: MassGIS
Aerial Photos: Color Digital Orthophotos:
Date Flown: 2002 Source: EarthData International

TITLE

MSP2 EM61 MK2
Geophysical Survey Anomaly Locations
Areas B, C and D
(2001)

0 50
Feet



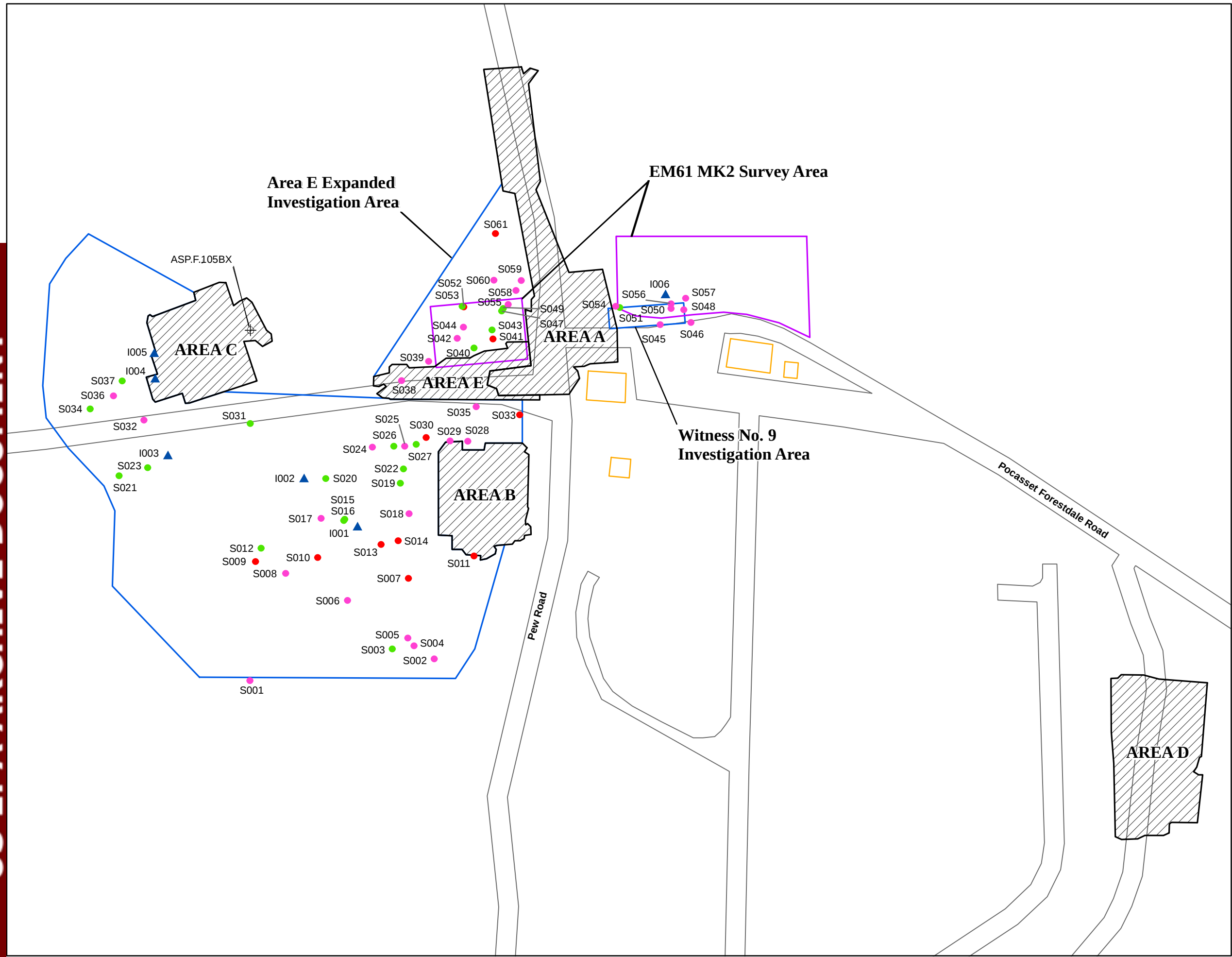
DRAFT



FIGURE

3-3

M:\MMR\2007\MMR\2007\ASPI\Figures\Fig3-3_082707.pdf
M:\MMR\2007\MMR\2007\ASPI\Figures\Fig3-3_082707.mxd
August 27, 2007 DWN: MTW CHKD: SEL

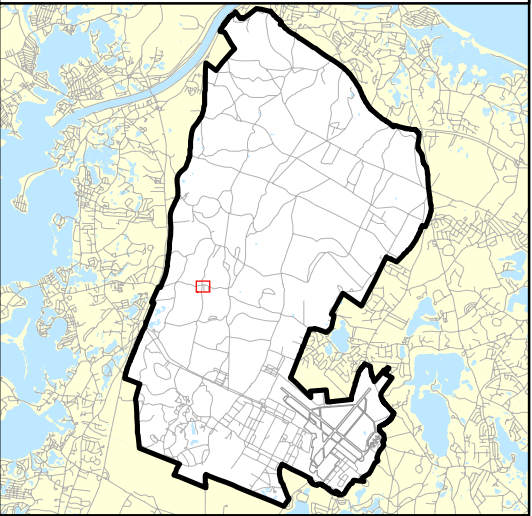


Impact Area Groundwater Study Program

Legend

- MSP2 Investigation Areas
- MSP3 Schonstedt Survey Area
- MSP3 EM61 MK2 Survey Area
- Building
- Non-Ordnance and Explosives Scrap/Debris found on surface
- Small Subsurface Item (1m - 2m)
- Medium Subsurface Item (2m - 4m)
- Large Subsurface Item (>4m)
- Soil Sample Location

LOCATION MAP



NOTES & SOURCES

Basemap data from US Geological Survey 7 1/2 minute
Topographic Maps. Source: MassGIS
Aerial Photos: Color Digital Orthophotos:
Date Flown: 2002. Source: EarthData International

TITLE

MSP3 Schonstedt
Geophysical Survey Anomaly Locations
(2003)

0 100
Feet

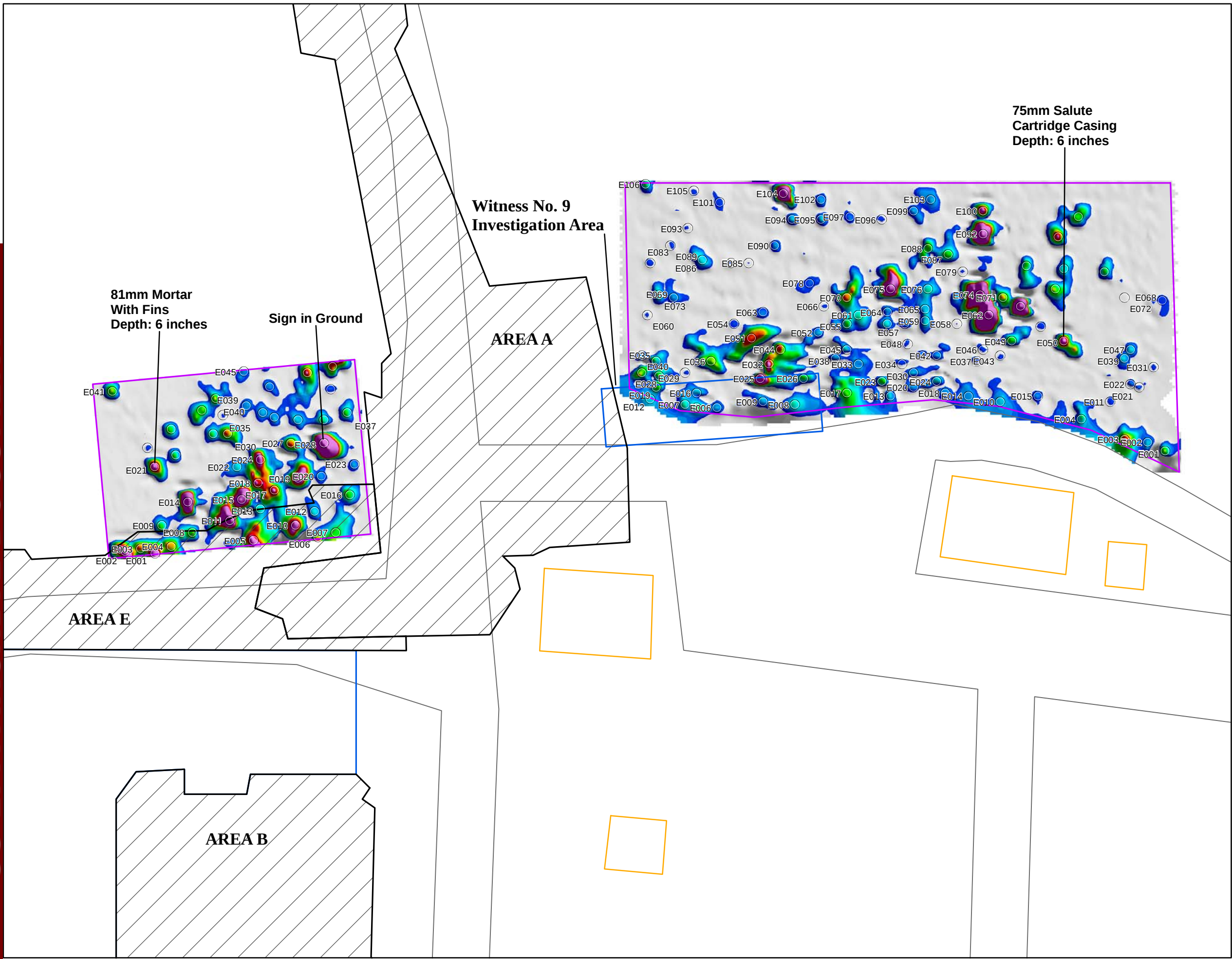


DRAFT

M:\MMR\2007\MMR\2007\ASPI\Figures\Fig3-4_082907.pdf
M:\MMR\2007\MMR\2007\ASPI\Figures\Fig3-4_082907.mxd
August 29, 2007 DWN: MTW CHKD: SEL

FIGURE

3-4

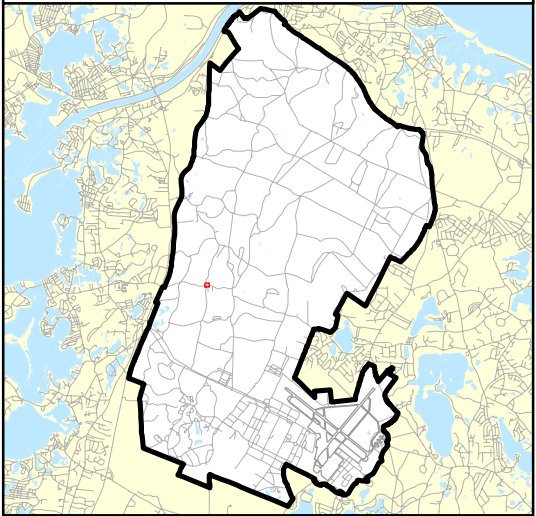


**Impact Area
Groundwater Study Program**

Legend

- MSP2 Investigation Areas
- MSP3 EM61 MK2 Survey Area
- MSP3 EM61 MK2 Anomaly
- MSP3 Schonstedt Investigation Area
- Building

LOCATION MAP



NOTES & SOURCES

Basemap data from US Geological Survey 7 1/2 minute
Topographic Maps. Source: MassGIS
Aerial Photos: Color Digital Orthophotos:
Date Flown: 2002. Source: EarthData International

TITLE

**MSP3 EM61 MK2
Geophysical Survey Anomaly Locations
(2003)**

0 35
Feet



DRAFT

M:\MMR\2007\MMR\2007\ASPI\Figures\Fig3-5_082907.pdf
M:\MMR\2007\MMR\2007\ASPI\Figures\Fig3-5_082907.mxd
August 29, 2007 DWN: MTW CHKD: SEL

FIGURE

3-5



Impact Area Groundwater Study Program

LEGEND

Groundwater Elevation Contours
(in feet above NGVD)

— MMR 10

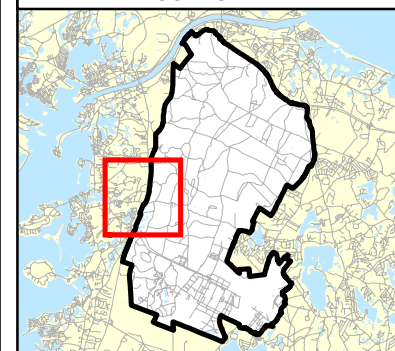
— Forward Particle Tracks

< < Forward Particle Track Time Marker.
Each Arrow depicts 1 year of
Groundwater Flow.

● Monitoring Well

■ Water Supply Well

LOCATION MAP



NOTES & SOURCES

Basemap data from US Geological Survey 7 1/2 minute
Topographic Maps: Source: MassGIS
Aerial Photos: Color Digital Orthophotos; Date Flown: 2001
Source: MassGIS

TITLE

Particle Forward Tracks from the
BA-4 Disposal Area

0 2,000
Feet



US Army Corps
of Engineers
New England District

DRAFT

FIGURE

3-6

M:\MMR\2007\M:\MMR\2007\ASPI\Figures\Fig3-6_090507.pdf
M:\MMR\2007\M:\MMR\2007\ASPI\MXD\Fig3-6_090507.mxd
September 5, 2007 DWN: MTW CHKD: SEL



Impact Area Groundwater Study Program

LEGEND

Groundwater Elevation Contours
(in feet above NGVD)

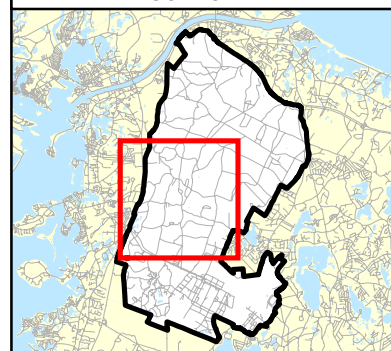
--- MMR 10

— Reverse Particle Track

● Point of Entry to the Water Table to Reach
Respective Screen Depth

● Monitoring Well

LOCATION MAP



NOTES & SOURCES

Basemap data from US Geological Survey 7 1/2 minute
Topographic Maps: Source: MassGIS
Aerial Photos: Color Digital Orthophotos; Date Flown: 2001
Source: MassGIS

TITLE

Particle Back Tracks from Well MW-84

0 2,000
Feet



US Army Corps
of Engineers
New England District

DRAFT

FIGURE

3-7

M:\MMR\2007\M:\MMR\2007\ASPI\Figures\Fig3-7_090507.pdf
M:\MMR\2007\M:\MMR\2007\ASPI\MXD\Fig3-7_090507.mxd
September 5, 2007 DWN: MTW CHKD: SEL

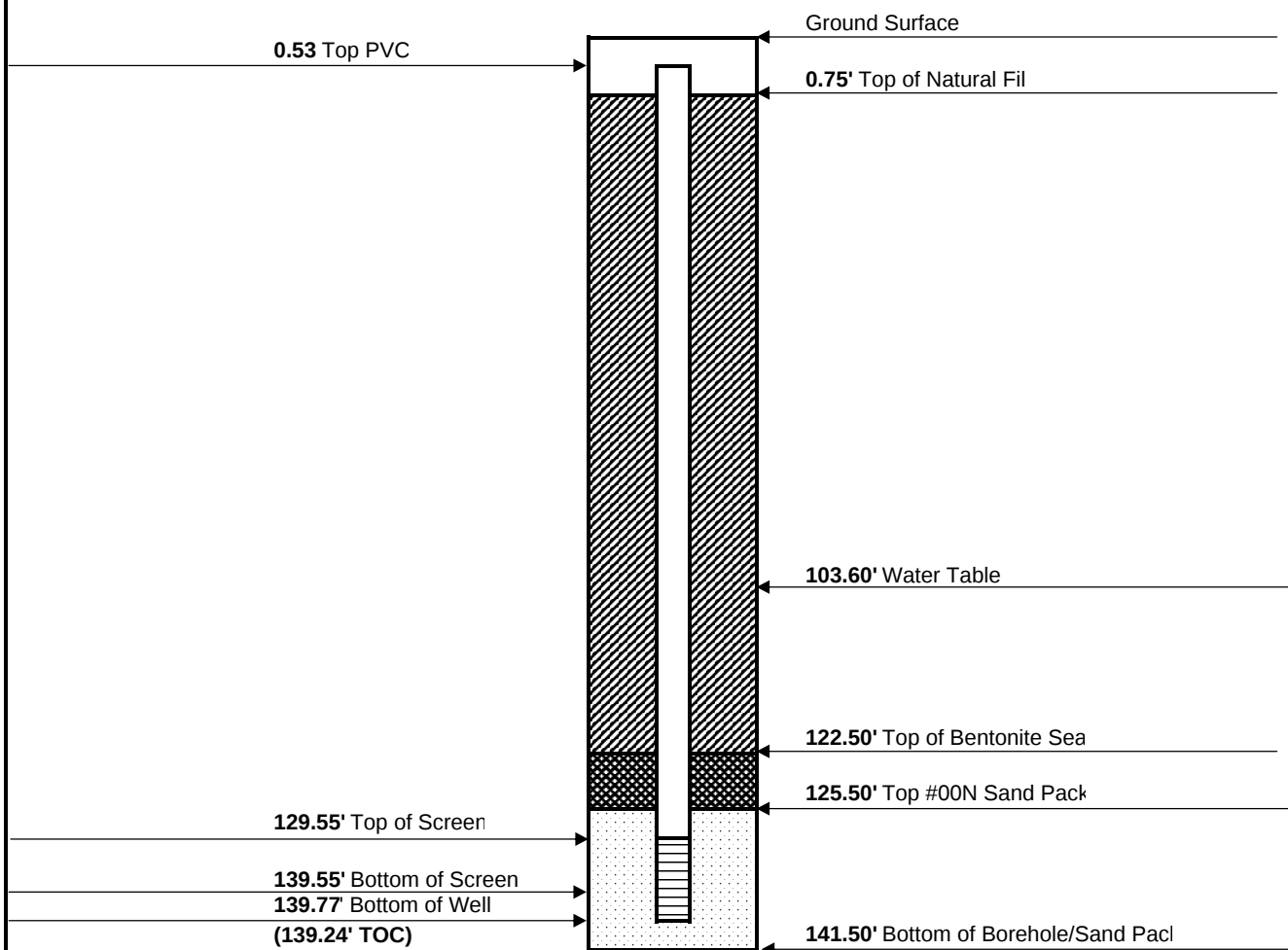


DRAFT

Jacobs Engineering Monitoring Well Construction Diagram

Project Name/Number:	ASP/35AY5301
Loc. I.D.:	MW-469M1
Location:	ASP-1
Drilling Contractor/Driller	Dragin Drilling / Brett Swiatek
Geologist:	Don Melcher
Drilling Method:	Hollow Stem Auger
Sampling Method:	na
Start Date:	10/2/2006
Complete Date:	10/3/2006
Total Drilled Depth:	141.50'
MW-469M1 Screen Interval	129.55-139.55'

KEY	
	Bentonite sea
	Natural Cave-In
	No. 00N; 1 Sand
	10 slot screen
	Schedule 80 PVC (2.5" OD)
	Schedule 40 PVC (2.0" OD)



TITLE

Well Construction Diagram
MW-469M1

FIGURE

3-8

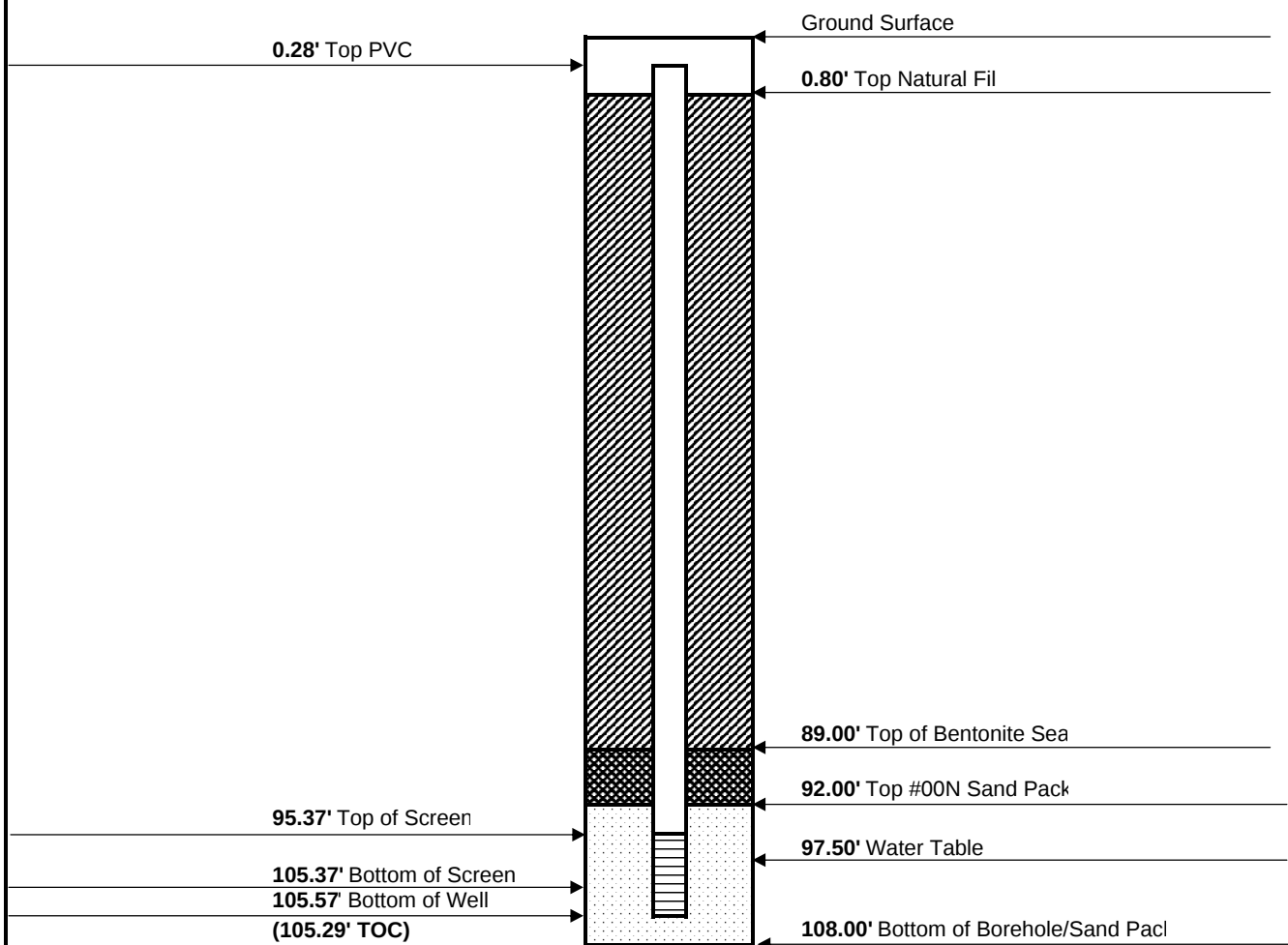


DRAFT

Jacobs Engineering Monitoring Well Construction Diagram

Project Name/Number:	Tungsten Small Arms Ranges/35AY5301
Loc. I.D.:	MW-478S (ASP-2)
Location:	West of ASP Office
Drilling Contractor/Driller	Dragin Drilling / Floyd Cross
Geologist:	Lou Baerga
Drilling Method:	Hollow Stem Auger
Sampling Method:	na
Start Date:	12/1/2006
Complete Date:	12/4/2006
Total Drilled Depth:	108
MW-455S Screen Interval:	95.37-105.37

KEY	
	Bentonite sea
	Natural Cave-In
	No. 00N; 1 Sand
	10 slot screen
	Schedule 80 PVC (2.5" OD)
	Schedule 40 PVC (2.0" OD)



TITLE

Well Construction Diagram
MW-478S

FIGURE

3-9

TABLES

(This page left intentionally blank)

Table 3-1
Intrusive Anomaly Investigation
MSP Phase 2

ITEM ID	CATEGORY	ITEM DESCRIPTION	DEPTH (inches bgs)	Northing	Easting
Area A					
ASP.4.00001.O	Scrap/Debris	Twisted metal (12" x 12")	5	4617247.07	369355.50
ASP.4.00002.O	Scrap/Debris	Rebar (3" x 0.25")	1	4617255.97	369358.79
ASP.4.00003.O	Scrap/Debris	Metal gate (2' x 2')	7	4617255.49	369362.72
ASP.4.00004.O	Scrap/Debris	Concrete block with rebar (septic tank lid)	14	4617258.45	369362.96
ASP.4.00005.O	Scrap/Debris	Nails and wire	4	4617258.69	369350.93
ASP.4.00006.O	Scrap/Debris	Railroad tie with metal spike	0	4617259.97	369369.77
ASP.4.00007.O	Scrap/Debris	Banding material (12" x 1")	0	4617261.50	369361.59
ASP.4.00008.O	Scrap/Debris	Nails and wire	1	4617262.70	369346.28
ASP.4.00009.O	Scrap/Debris	Banding material	4	4617262.06	369349.65
ASP.4.00010.O	Scrap/Debris	Metal disks and rebar	0	4617271.68	369355.10
ASP.4.00011.O	Scrap/Debris	Metal bar	0	4617321.70	369336.11
ASP.4.00012.O	Scrap/Debris	Steel washer	3	4617330.44	369340.19
ASP.4.00013.O	Scrap/Debris	Rebar (8" long)	0	4617338.14	369338.91
ASP.4.00014	Other military material	Jet engine starter cartridges (312)	53	4617243.70	369338.27
ASP.4.00057.O	Scrap/Debris	Banding material (4" x 1")	8	4617241.78	369347.33
ASP.4.00058.O	Scrap/Debris	Steel rails (2) (48" x 6")	4	4617238.89	369350.62
Area B					
ASP.4.00014.O	Scrap/Debris	Banding Strap	2	4617190.90	369337.10
ASP.4.00015.O	Scrap/Debris	Nail and banding material	2	4617191.74	369338.98
ASP.4.00016.O	Scrap/Debris	Nail	1	4617190.59	369329.59
ASP.4.00017.O	Other military material	Ammo can lid	0	4617195.08	369328.33
ASP.4.00018.O	Scrap/Debris	Banding material	2	4617195.91	369318.94
ASP.4.00019.O	Scrap/Debris	Wire	0	4617199.15	369336.37
ASP.4.00020.O	Scrap/Debris	Metal clip, fuze setter	1	4617201.76	369342.32
ASP.4.00021.O	Scrap/Debris	Wire	0	4617203.95	369322.80
ASP.4.00022.O	Scrap/Debris	Rebar (16" long)	1	4617209.69	369328.75
ASP.4.00023.O	Scrap/Debris	Banding material	1	4617217.21	369319.98
Area C					
ASP.4.00024.O	Scrap/Debris	Rebar (4' x 1")	6	4617240.40	369223.80
ASP.4.00027.O	Scrap/Debris	Smoke grenade top	12	4617245.20	369226.40
ASP.4.00028.O	Scrap/Debris	Smoke grenade top	8	4617245.40	369249.20
ASP.4.00029.O	Geologic feature	Hot rock	9	4617246.00	369225.00

Table 3-1
Intrusive Anomaly Investigation
MSP Phase 2

ITEM ID	CATEGORY	ITEM DESCRIPTION	DEPTH (inches bgs)	Northing	Easting
ASP.4.00030.O	Scrap/Debris	Crushed canteen cup	8	4617246.40	369249.60
ASP.4.00031.O	Scrap/Debris	Beer can and nails (4)	3	4617250.00	369228.00
ASP.4.00032.O	Scrap/Debris	Old can lid	20	4617250.60	369245.20
ASP.4.00033.O	Scrap/Debris	Truck parts, nails, communication wire	3	4617252.00	369229.40
ASP.4.00034.O	Large segment	105-mm projectile (1)	19	4617252.20	369234.40
ASP.4.00037.O	Scrap/Debris	Chain link fence	5	4617263.18	369226.65
Area D					
ASP.4.00038.O	Scrap/Debris	Metal pipe (3" x 1")	5	4617095.20	369545.00
ASP.4.00039.O	Scrap/Debris	Wire cable (8" long)	0	4617096.20	369546.20
ASP.4.00040.O	Scrap/Debris	Aluminum plate	2	4617096.80	369542.80
ASP.4.00041.O	Scrap/Debris	Wire (3" x 2")	3	4617097.40	369552.60
ASP.4.00043.O	Scrap/Debris	Aluminum plate (3" x 3")	0	4617102.20	369545.00
ASP.4.00044.O	Scrap/Debris	Metal wire (13" long)	0	4617104.00	369546.40
ASP.4.00045.O	Scrap/Debris	Metal pipe (14" x 1.5")	17	4617104.20	369550.00
ASP.4.00047.O	Scrap/Debris	Large metal bolt, stake (12")	3	4617106.80	369554.40
ASP.4.00048.O	Scrap/Debris	Grounding rod (2")	0	4617112.60	369537.80
ASP.4.00049.O	Scrap/Debris	Aluminum plate (3" x 3")	1	4617126.40	369556.20
ASP.4.00050.O	Scrap/Debris	Gas cap (2" diameter)	2	4617127.00	369567.00
ASP.4.00051.O	UXO/OE	Practice grenade MKII (1), delay fuse	5	4617127.40	369551.00
ASP.4.00052.O	Scrap/Debris	Fence post top	2	4617130.40	369551.20
ASP.4.00054.O	Scrap/Debris	Pipe (3" x 1"), hot rock	3	4617137.60	369541.80
ASP.4.00055.O	Scrap/Debris	Aluminum plate with bolt (3" x 3")	1	4617141.60	369541.80
ASP.4.00056.O	Scrap/Debris	Aluminum disk (1" diameter)	1	4617143.00	369564.20
Area E					
ASP.1.00005.O	Scrap/Debris	Aluminum sheet metal (12" x 14")	3	4617242.79	369349.56
ASP.1.00014.O	Scrap/Debris	Nail	4	4617237.46	369342.78
ASP.1.00015.O	Scrap/Debris	Bolt (3/8" x 1.25")	8	4617235.20	369346.58
ASP.1.00016.O	Scrap/Debris	Nails (2)	7	4617238.10	369327.70
ASP.1.00018.O	Scrap/Debris	Nails (2)	6	4617244.60	369330.32
ASP.1.00019.O	Scrap/Debris	Banding material (40" x 1.25")	8	4617245.86	369330.95
ASP.1.00020.O	Scrap/Debris	See ASP.1.00019.O	8	4617246.50	369329.51
ASP.1.00021.O	Scrap/Debris	Nail	0	4617246.95	369326.89
ASP.1.00022.O	Scrap/Debris	Rebar (36" x 0.5")	10	4617247.76	369324.63

**Table 3-1
Intrusive Anomaly Investigation
MSP Phase 2**

ITEM ID	CATEGORY	ITEM DESCRIPTION	DEPTH (inches bgs)	Northing	Easting
ASP.1.00025.O	Scrap/Debris	Wood and nails	1	4617244.24	369320.56
ASP.1.00029.O	Scrap/Debris	Metal (6" x 6")	6	4617238.46	369313.61
ASP.3.00001.O	Other military material	Flares, small arms, rifle grenades, rocket catapults, ammo cans, drum	3	4617251.01	369339.44
ASP.3.00003.Y	Scrap/Debris	Banding material (5" x 1")	6	4617249.48	369342.60
ASP.3.00004.Y	Scrap/Debris	C shaped fuse wrenches (2)	4	4617246.68	369344.77
ASP.3.00006.Y	Scrap/Debris	Piece of starter cartridge (6" diameter)	6	4617244.78	369342.87
ASP.3.00007.Y	Scrap/Debris	Piece of starter cartridge (6" diameter)	4	4617243.70	369339.53
ASP.3.00008.Y	Scrap/Debris	Piece of starter cartridge (6" diameter)	6	4617246.31	369340.98
ASP.3.00009.Y	Scrap/Debris	Piece of starter cartridge (6" diameter)	4	4617247.67	369338.90
ASP.3.00010.Y	Scrap/Debris	Angle iron (multiple pieces)	18	4617248.84	369335.02
ASP.3.00011.Y	Scrap/Debris	Angle iron	0	4617247.40	369334.83
ASP.3.00012.Y	Scrap/Debris	Communications wire (8" long)	8	4617241.08	369337.00
ASP.3.00013.Y	Scrap/Debris	Propellant can lid (6" diameter)	10	4617237.64	369338.00
ASP.3.00017.Y	Scrap/Debris	Communications wire (5' long)	6	4617242.52	369331.58
ASP.3.00023.Y	Scrap/Debris	Concrete with rebar (3' x 1.5')	6	4617248.21	369322.55
ASP.3.00024.Y	Scrap/Debris	See ASP.3.00023.Y	6	4617247.67	369320.29
ASP.3.00026.Y	Scrap/Debris	Propellant can lid (6" diameter)	0	4617242.07	369318.58
ASP.3.00027.Y	Scrap/Debris	Metal screen (1' x 2')	6	4617244.69	369317.67
ASP.3.00028.Y	Scrap/Debris	Metal screen (1' x 1'), door hinge, dead bolt	6	4617244.87	369316.14
ASP.3.00030.Y	Scrap/Debris	Nut and bolt	0	4617241.35	369298.07
ASP.3.00031.Y	Scrap/Debris	Magnetic switch	1	4617241.17	369295.91

Notes:

Northing and Easting coordinates based on Universal Transverse Mercator North American Datum 83 Zone 19 North data
bgs - below ground surface
OE - ordnance and explosive
UXO - unexploded ordnance

Bold items indicate disposal sites.

(This page left intentionally blank)

Table 3-2
MSP-2 ASP Soil Analytical Results

Location	Sample ID	Date	Test	Analyte	Result	Qual	DL ¹	RL ¹	Units	Bkgd Moraine (0-1') or (1 2')	> Bkgd	SSL	> SSL	PRG	> PRG	S-1/ GW-1	> S1/ GW1	RCS-1	> RCS1
Area A - Jet Engine Starter Cartridges - Fill Material (4.5-5')																			
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	CLP ILM04.1	ALUMINUM	6940				mg/Kg	12384		54006		7614					
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	CLP ILM04.1	ARSENIC	3.53				mg/Kg	3.90		0.009	X	0.39	X	30		30	
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	CLP ILM04.1	BARIUM	13.2	J			mg/Kg	20.20		120.35		537.49		1000		1000	
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	CLP ILM04.1	CALCIUM	178	J			mg/Kg	166	X								
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	CLP ILM04.1	CHROMIUM	67.8	J			mg/Kg	15.50	X	7.02	X	210.68		1000		1000	
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	CLP ILM04.1	COBALT	4.67	J			mg/Kg	4.50	X	132.38		902.89				500	
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	CLP ILM04.1	COPPER	11.9				mg/Kg	7.4	X	45.73		312.86				1000	
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	CLP ILM04.1	IRON	15000	J			mg/Kg	12020	X	2422	X	2346	X				
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	CLP ILM04.1	LEAD	461	J			mg/Kg	10.2	X	4.05	X	40	X	300	X	300	X
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	CLP ILM04.1	MAGNESIUM	961	J			mg/Kg	1980									
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	CLP ILM04.1	MANGANESE	91.7				mg/Kg	122		44.15	X	176.24					
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	CLP ILM04.1HG	MERCURY	0.019	J			mg/Kg	0.10		0.02		2.35		20		20	
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	CLP ILM04.1	MOLYBDENUM	1.09	J			mg/Kg	0.89	X	0.18	X	39.11					
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	CLP ILM04.1	NICKEL	85.3				mg/Kg	9.40	X	292.13		156.43		300		300	
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	CLP ILM04.1	POTASSIUM	532	J			mg/Kg	733									
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	CLP ILM04.1	SELENIUM	1.18				mg/Kg	1.10	X	2.76		39.11		400		400	
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	CLP ILM04.1	SODIUM	119	J			mg/Kg	198									
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	CLP ILM04.1	VANADIUM	13.6				mg/Kg	20.10		260.05		7.82	X	400		400	
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	CLP ILM04.1	ZINC	244				mg/Kg	24.40	X	2202		2346		2500		2500	
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	E350.2	NITROGEN, AMMONIA (AS N)	6.73				mg/Kg	13.3								100	
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	SW8270C	BIS(2-ETHYLHEXYL) PHTHALATE	31.3	J			µg/kg			72016		34741		100000		100000	
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	SW8270	Non-Detect on all other SVOC analytes	ND	U			µg/kg										
ASP.4.00014	ASP.4.00014.1.0	8/31/2001	SW8330	Non detect on all explosive compounds	ND	U			µg/kg										
Area A - Jet Engine Starter Cartridges - Pit Bottom (6.25-6.5')																			
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	CLP ILM04.1	ALUMINUM	8300				mg/Kg	12384		54006		7614	X				
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	CLP ILM04.1	ARSENIC	4.95				mg/Kg	3.90	X	0.009	X	0.39	X	30		30	
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	CLP ILM04.1	BARIUM	17.1	J			mg/Kg	20.20		120.35		537.49		1000		1000	
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	CLP ILM04.1	CALCIUM	264	J			mg/Kg	166	X								
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	CLP ILM04.1	CHROMIUM	13.3	J			mg/Kg	15.50		7.02	X	210.68		1000		1000	
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	CLP ILM04.1	COBALT	2.44	J			mg/Kg	4.50		132.38		902.89				500	
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	CLP ILM04.1	COPPER	9.35				mg/Kg	7.4	X	45.73		312.86				1000	
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	CLP ILM04.1	IRON	12200	J			mg/Kg	12020	X	2422	X	2346	X				
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	CLP ILM04.1	LEAD	8.12	J			mg/Kg	10.2		4.05		40		300		300	
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	CLP ILM04.1	MAGNESIUM	2030				mg/Kg	1980	X								
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	CLP ILM04.1	MANGANESE	99.9				mg/Kg	122		44.15	X	176.24					
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	CLP ILM04.1HG	MERCURY	0.021	J			mg/Kg	0.10		0.02	X	2.35		20		20	
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	CLP ILM04.1	NICKEL	8.54	J			mg/Kg	9.40		292.13		156.43		300		300	
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	CLP ILM04.1	POTASSIUM	1010	J			mg/Kg	733	X								

SSL - MMR Soil Screening Level

PRG - Preliminary Remediation Goal

BKGD - MMR Background Soil Concentration

S-1/GW-1 - MCP Method 1 value

RCS1 - MCP Reportable Concentration for S1 Soil

J - Estimated value

Table 3-2
MSP-2 ASP Soil Analytical Results

Location	Sample ID	Date	Test	Analyte	Result	Qual	DL ¹	RL ¹	Units	Bkgd Moraine (0-1') or (1 2')	> Bkgd	SSL	> SSL	PRG	> PRG	S-1/ GW-1	> S1/ GW1	RCS-1	> RCS1
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	CLP ILM04.1	SODIUM	115	J			mg/Kg	198									
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	CLP ILM04.1	VANADIUM	17.5				mg/Kg	20.10		260.05		7.82	X	400		400	
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	CLP ILM04.1	ZINC	24.6				mg/Kg	24.40	X	2202		2346		2500		2500	
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	E353.2	NITRATE/NITRITE (AS N)	1.64				mg/Kg	0.85	X			780					
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	E350.2	NITROGEN, AMMONIA (AS N)	6.95				mg/Kg	13.3								100	
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	SW8270C	BIS(2-ETHYLHEXYL) PHTHALATE	30.2	J			µg/kg			72016		34741		100000		100000	
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	SW8270	Non-Detect on all other SVOC analytes	ND	U			µg/kg										
ASP.4.00014	ASP.4.00014.2.0	8/31/2001	SW8330	Non detect on all explosive compounds	ND	U			µg/kg										
Area E - 55 Gallon Drum - Fill Material (3-6")																			
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP ILM04.1	ALUMINUM	6610	J			mg/Kg	15495		54006		7614					
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP ILM04.1	ARSENIC	3.69				mg/Kg	3.90		0.009	X	0.39	X	30		30	
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP ILM04.1	BARIUM	55.6				mg/Kg	15.60	X	120.35		537.49		1000		1000	
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP ILM04.1	BERYLLIUM	0.29	J			mg/Kg	0.33		2.60		15.44		0.70		0.70	
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP ILM04.1	CADMIUM	0.739	J			mg/Kg	0.35	X	0.40	X	3.70		30		30	
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP ILM04.1	CALCIUM	223	J			mg/Kg	179	X								
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP ILM04.1	CHROMIUM	9.49				mg/Kg	14.70		7.02	X	210.68		1000		1000	
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP ILM04.1	COBALT	1.78	J			mg/Kg	2.90		132.38		902.89				500	
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP ILM04.1	COPPER	10.5				mg/Kg	11		45.73		312.86				1000	
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP ILM04.1	IRON	8630				mg/Kg	12051		2422	X	2346	X				
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP ILM04.1	LEAD	15.1				mg/Kg	19		4.05	X	40		300		300	
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP ILM04.1	MAGNESIUM	1110				mg/Kg	1487									
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP ILM04.1	MANGANESE	79.5				mg/Kg	106		44.15	X	176.24					
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP ILM04.1HG	MERCURY	0.021	J			mg/Kg	0.10		0.02		2.35		20		20	
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP ILM04.1	MOLYBDENUM	0.587	J			mg/Kg	1.10		0.18	X	39.11					
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP ILM04.1	NICKEL	4.72	J			mg/Kg	6.90		292.13		156.43		300		300	
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP ILM04.1	POTASSIUM	520	J			mg/Kg	563									
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP ILM04.1	VANADIUM	13.9				mg/Kg	21.70		260.05		7.82	X	400		400	
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP ILM04.1	ZINC	50.4				mg/Kg	25.60	X	2202		2346		2500		2500	
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP 390 VOA	ACETONE	24.7	J			µg/kg			107		1.4E+06		3000		3000	
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP 390 VOA	4-METHYL-2-PENTANONE	1.32	J			µg/kg					528089		500		500	
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	CLP 390 VOA	Non-Detect on all other VOC analytes	ND	U			µg/kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8270C	HEXACHLOROBENZENE	406				µg/kg			6.98	X	303.99	X	700		700	
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8270C	BIS(2-ETHYLHEXYL) PHTHALATE	127	J			µg/kg			72016		34741		100000		100000	
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8270	Non-Detect on all other SVOC analytes	ND	U			µg/kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8330	Non detect on all explosive compounds	ND	U			µg/kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	1,2,3,4,6,7,8-HpCDD	132				ng/Kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	1,2,3,4,6,7,8-HpCDF	21.4				ng/Kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	1,2,3,4,7,8,9-HpCDF	1.28				ng/Kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	1,2,3,4,7,8-HxCDD	1.23				ng/Kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	1,2,3,6,7,8-HxCDD	4.91				ng/Kg										

SSL - MMR Soil Screening Level

PRG - Preliminary Remediation Goal

BKGD - MMR Background Soil Concentration

S-1/GW-1 - MCP Method 1 value

RCS1 - MCP Reportable Concentration for S1 Soil

J - Estimated value

Table 3-2
MSP-2 ASP Soil Analytical Results

Location	Sample ID	Date	Test	Analyte	Result	Qual	DL ¹	RL ¹	Units	Bkgd Moraine (0-1') or (1 2')	> Bkgd	SSL	> SSL	PRG	> PRG	S-1/ GW-1	> S1/ GW1	RCS-1	> RCS1
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	1,2,3,6,7,8-HxCDF	0.804				ng/Kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	1,2,3,7,8,9-HxCDD	4.43				ng/Kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	1,2,3,7,8-PeCDD	1.16				ng/Kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	2,3,4,6,7,8-HxCDF	1.23				ng/Kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	2,3,4,7,8-PeCDF	0.628				ng/Kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	2,3,7,8-TCDD	0.24				ng/Kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	2,3,7,8-TCDF	0.227				ng/Kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	OCDD	2340				ng/Kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	OCDF	103				ng/Kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	Total HpCDDs	247				ng/Kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	Total HpCDFs	76.6				ng/Kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	Total HxCDDs	33.4				ng/Kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	Total HxCDFs	24				ng/Kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	Total PeCDDs	4.47				ng/Kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	Total PeCDFs	7.71				ng/Kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	Total TCDDs	1.08				ng/Kg										
ASP.3.00001	ASP.3.00001.1.0	9/28/2001	SW8290	Total TCDFs	3.54				ng/Kg										
Area E - 55 Gallon Drum - Ash Material (3-6")																			
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	ALUMINUM	35300				mg/Kg	15495	X	54006		7614	X				
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	ANTIMONY	4.97	J			mg/Kg	1.4	X	0.27	X	3.13	X	10		10	
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	ARSENIC	45.9				mg/Kg	3.90	X	0.009	X	0.39	X	30	X	30	X
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	BARIUM	2120				mg/Kg	15.60	X	120.35	X	537.49	X	1000	X	1000	X
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	BORON	26.7				mg/Kg	17.30	X	9.52	X	1600					
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	CADMIUM	87.2				mg/Kg	0.35	X	0.40	X	3.70	X	30	X	30	X
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	CALCIUM	1830	J			mg/Kg	179	X								
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	CHROMIUM	152	J			mg/Kg	14.70	X	7.02	X	210.68		1000		1000	
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	COBALT	21.3	J			mg/Kg	2.90	X	132.38		902.89				500	
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	COPPER	1890				mg/Kg	11	X	45.73	X	312.86	X			1000	X
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	IRON	106000				mg/Kg	12051	X	2422	X	2346	X				
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	LEAD	950				mg/Kg	19	X	4.05	X	40	X	300	X	300	X
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	MAGNESIUM	1220	J			mg/Kg	1487									
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	MANGANESE	839				mg/Kg	106	X	44.15	X	176.24	X				
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1HG	MERCURY	0.084				mg/Kg	0.10		0.02	X	2.35		20		20	
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	MOLYBDENUM	12.4				mg/Kg	1.10	X	0.18	X	39.11					
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	NICKEL	131				mg/Kg	6.90	X	292.13		156.43		300		300	
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	POTASSIUM	613	J			mg/Kg	563	X								
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	SILVER	2.07	J			mg/Kg	0.52	X	16.23		39.11		100		100	
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	SODIUM	1120	J			mg/Kg	164	X								
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	VANADIUM	51.7	J			mg/Kg	21.70	X	260.05		7.82	X	400		400	
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP ILM04.1	ZINC	4290				mg/Kg	25.60	X	2202	X	2346	X	2500	X	2500	X

SSL - MMR Soil Screening Level

PRG - Preliminary Remediation Goal

BKGD - MMR Background Soil Concentration

S-1/GW-1 - MCP Method 1 value

RCS1 - MCP Reportable Concentration for S1 Soil

J - Estimated value

Table 3-2
MSP-2 ASP Soil Analytical Results

Location	Sample ID	Date	Test	Analyte	Result	Qual	DL ¹	RL ¹	Units	Bkgd Moraine (0-1') or (1 2')	> Bkgd	SSL	> SSL	PRG	> PRG	S-1/ GW-1	> S1/ GW1	RCS-1	> RCS1
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP 390 VOA	ACETONE	8.47	J			µg/kg			107		1.4E+06		3000		3000	
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP 390 VOA	CHLOROMETHANE	7.73	J			µg/kg			0.399	X	4685				100000	
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	CLP 390 VOA	Non-Detect on all other VOC analytes	ND				µg/kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8270C	BIS(2-ETHYLHEXYL) PHTHALATE	56.3	J			µg/kg			72016		34741		100000		100000	
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8270C	DI-N-BUTYL PHTHALATE	60.8	J			µg/kg			150832		611031				50000	
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8270C	Non-Detect on all other SVOC analytes	ND	U			µg/kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8330	2,6-DINITROTOLUENE	120				µg/kg			8.76	X	6110.31				100000	
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8330	Non detect on all other explosive compounds	ND	U			µg/kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	1,2,3,4,6,7,8-HpCDD	684				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	1,2,3,4,6,7,8-HpCDF	242				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	1,2,3,4,7,8,9-HpCDF	24.8				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	1,2,3,4,7,8-HxCDD	13.7				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	1,2,3,4,7,8-HxCDF	66.5				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	1,2,3,6,7,8-HxCDD	50.3				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	1,2,3,6,7,8-HxCDF	60.1				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	1,2,3,7,8,9-HxCDD	44.7				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	1,2,3,7,8,9-HxCDF	23.6				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	1,2,3,7,8-PeCDD	19.8				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	1,2,3,7,8-PeCDF	46.8				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	2,3,4,6,7,8-HxCDF	91				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	2,3,4,7,8-PeCDF	92				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	2,3,7,8-TCDD	3.57				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	2,3,7,8-TCDF	24.9				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	OCDD	2940				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	OCDF	145				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	Total HpCDDs	1230				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	Total HpCDFs	391				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	Total HxCDDs	485				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	Total HxCDFs	608				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	Total PeCDDs	209				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	Total PeCDFs	942				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	Total TCDDs	79.1				ng/Kg										
ASP.3.00001	ASP.3.00001.2.0	9/27/2001	SW8290	Total TCDFs	743				ng/Kg										
Area E - 55 Gallon Drum - Native Soil (4.5-5')																			
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	CLP ILM04.1	ARSENIC	2.44				mg/Kg	3.90		0.009	X	0.39	X	30		30	
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	CLP ILM04.1	BARIUM	89.7				mg/Kg	20.20	X	120.35		537.49		1000		1000	
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	CLP ILM04.1	BERYLLIUM	0.233	J			mg/Kg	0.41		2.60		15.44		0.70		0.70	
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	CLP ILM04.1	CADMIUM	1.52				mg/Kg	0.32	X	0.40	X	3.70		30		30	
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	CLP ILM04.1	CALCIUM	240	J			mg/Kg	166	X								
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	CLP ILM04.1	CHROMIUM	9.5	J			mg/Kg	15.50		7.02	X	210.68		1000		1000	

SSL - MMR Soil Screening Level

PRG - Preliminary Remediation Goal

BKGD - MMR Background Soil Concentration

S-1/GW-1 - MCP Method 1 value

RCS1 - MCP Reportable Concentration for S1 Soil

J - Estimated value

Table 3-2
MSP-2 ASP Soil Analytical Results

Location	Sample ID	Date	Test	Analyte	Result	Qual	DL ¹	RL ¹	Units	Bkgd Moraine (0-1') or (1 2')	> Bkgd	SSL	> SSL	PRG	> PRG	S-1/ GW-1	> S1/ GW1	RCS-1	> RCS1
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	CLP ILM04.1	COBALT	1.89	J			mg/Kg	4.50		132.38		902.89				500	
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	CLP ILM04.1	COPPER	8.36				mg/Kg	7.4	X	45.73		312.86				1000	
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	CLP ILM04.1	IRON	9800				mg/Kg	12020		2422	X	2346	X				
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	CLP ILM04.1	LEAD	10.9				mg/Kg	10.2	X	4.05	X	40		300		300	
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	CLP ILM04.1	MAGNESIUM	1100				mg/Kg	1980									
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	CLP ILM04.1	MANGANESE	94.9				mg/Kg	122		44.15	X	176.24					
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	CLP ILM04.1	MOLYBDENUM	0.89	J			mg/Kg	0.89		0.18	X	39.11					
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	CLP ILM04.1	NICKEL	5.15	J			mg/Kg	9.40		292.13		156.43		300		300	
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	CLP ILM04.1	POTASSIUM	548	J			mg/Kg	733									
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	CLP ILM04.1	VANADIUM	14.5				mg/Kg	20.10		260.05		7.82	X	400		400	
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	CLP ILM04.1	ZINC	67.9				mg/Kg	24.40	X	2202		2346		2500		2500	
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	CLP 390 VOA	ACETONE	7.59	J			µg/kg			107		1.4E+06		3000		3000	
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	CLP 390 VOA	Non-Detect on all other VOC analytes	ND	U			µg/kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8270C	BIS(2-ETHYLHEXYL) PHTHALATE	29.1	J			µg/kg			72016		34741		100000		100000	
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8270C	Non-Detect on all other SVOC analytes	ND	U			µg/kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8330	Non detect on all explosive compounds	ND	U			µg/kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	1,2,3,4,6,7,8-HpCDD	65.1				ng/Kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	1,2,3,4,6,7,8-HpCDF	9.89				ng/Kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	1,2,3,4,7,8-HxCDD	0.419				ng/Kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	1,2,3,6,7,8-HxCDD	1.74				ng/Kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	1,2,3,6,7,8-HxCDF	0.645				ng/Kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	1,2,3,7,8,9-HxCDD	1.28				ng/Kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	1,2,3,7,8-PeCDD	0.401				ng/Kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	2,3,4,6,7,8-HxCDF	1.21				ng/Kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	2,3,4,7,8-PeCDF	0.8				ng/Kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	2,3,7,8-TCDD	0.179				ng/Kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	2,3,7,8-TCDF	0.195				ng/Kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	OCDD	2190				ng/Kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	OCDF	36.4				ng/Kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	Total HpCDDs	126				ng/Kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	Total HpCDFs	35.7				ng/Kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	Total HxCDDs	11.6				ng/Kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	Total HxCDFs	13.3				ng/Kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	Total PeCDDs	1.15				ng/Kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	Total PeCDFs	6.36				ng/Kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	Total TCDDs	0.884				ng/Kg										
ASP.3.00001	ASP.3.00001.3.0	9/27/2001	SW8290	Total TCDFs	3.43				ng/Kg										

Notes: 1. This data is unavailable. Some of the older MSP2 data was not converted to ERPIMS format and was not uploaded into EDMS due to missing data fields.

SSL - MMR Soil Screening Level
 PRG - Preliminary Remediation Goal
 BKGD - MMR Background Soil Concentration
 S-1/GW-1 - MCP Method 1 value
 RCS1 - MCP Reportable Concentration for S1 Soil

J - Estimated value

(This page left intentionally blank)

**Table 3-3
Intrusive Anomaly Investigation
MSP Phase 3**

ITEM ID	CATEGORY	ANOMALY SIZE/ITEM DESCRIPTION	Northing	Easting
Cleared Areas Outside Areas B & C				
I001	Scrap/Debris	Surface Item - Ammunition can	4617209.66	369273.38
I002	Scrap/Debris	Surface Item - Reinforced concrete	4617217.19	369228.88
I003	Scrap/Debris	Surface Item - Metal pipe	4617242.35	369224.65
I004	Scrap/Debris	Surface Item - Metal stake	4617250.66	369224.37
S001	Schonstedt Reading	Medium - greater than 2 meters	4617143.45	369255.65
S002	Schonstedt Reading	Medium - greater than 2 meters	4617150.58	369315.93
<u>S003</u>	<u>Scrap/Debris</u>	<u>Small - Machine parts</u>	<u>4617153.83</u>	<u>369302.26</u>
S004	Schonstedt Reading	Medium - greater than 2 meters	4617154.79	369309.34
<u>S005</u>	<u>Scrap/Debris</u>	<u>Medium - Machine parts</u>	<u>4617157.39</u>	<u>369307.26</u>
S006	Schonstedt Reading	Medium - greater than 2 meters	4617169.65	369287.55
<u>S007</u>	<u>Scrap/Debris</u>	<u>Large - Cans, wire, trash</u>	<u>4617176.85</u>	<u>369307.46</u>
S008	Schonstedt Reading	Medium - greater than 2 meters	4617178.50	369267.36
<u>S009</u>	<u>Scrap/Debris</u>	<u>Large - Stock steel bar</u>	<u>4617182.41</u>	<u>369257.47</u>
<u>S010</u>	<u>Scrap/Debris</u>	<u>Large - Machine parts</u>	<u>4617183.74</u>	<u>369277.81</u>
<u>S011</u>	<u>Scrap/Debris</u>	<u>Large - Sheet metal</u>	<u>4617184.23</u>	<u>369328.97</u>
S012	Schonstedt Reading	Small - greater than 1 meter	4617186.72	369259.33
<u>S013</u>	<u>Scrap/Debris</u>	<u>Large - Construction debris, reinforced concrete</u>	<u>4617187.94</u>	<u>369298.60</u>
<u>S014</u>	<u>Scrap/Debris</u>	<u>Large - See S013</u>	<u>4617189.17</u>	<u>369304.14</u>
S015	Schonstedt Reading	Small - greater than 1 meter	4617195.80	369286.36
S016	Schonstedt Reading	Small - greater than 1 meter	4617196.18	369286.64
S017	Schonstedt Reading	Medium - greater than 2 meters	4617196.49	369278.92
S018	Schonstedt Reading	Medium - greater than 2 meters	4617198.02	369307.73
S019	Schonstedt Reading	Small - greater than 1 meter	4617207.95	369304.86
<u>S020</u>	<u>Scrap/Debris</u>	<u>Small - Wire</u>	<u>4617209.45</u>	<u>369280.45</u>
S021	Schonstedt Reading	Small - greater than 1 meter	4617210.43	369212.94
S022	Schonstedt Reading	Small - greater than 1 meter	4617212.68	369305.91
<u>S023</u>	<u>Scrap/Debris</u>	<u>Small - Machine parts</u>	<u>4617213.08</u>	<u>369222.26</u>
<u>S024</u>	<u>Scrap/Debris</u>	<u>Medium - Steel cable</u>	<u>4617219.75</u>	<u>369295.71</u>
S025	Schonstedt Reading	Medium - greater than 2 meters	4617220.04	369306.27
S026	Schonstedt Reading	Small - greater than 1 meter	4617220.05	369302.77
S027	Schonstedt Reading	Small - greater than 1 meter	4617220.67	369310.03
S028	Schonstedt Reading	Medium - greater than 2 meters	4617221.73	369326.86
S029	Schonstedt Reading	Medium - greater than 2 meters	4617221.75	369321.17
<u>S030</u>	<u>Scrap/Debris</u>	<u>Large - Beer cans</u>	<u>4617222.89</u>	<u>369313.31</u>
S031	Schonstedt Reading	Small - greater than 1 meter	4617227.52	369255.77
S032	Schonstedt Reading	Medium - greater than 2 meters	4617228.54	369221.02
<u>S033</u>	<u>Scrap/Debris</u>	<u>Large - Machine parts</u>	<u>4617230.29</u>	<u>369343.89</u>
S034	Schonstedt Reading	Small - greater than 1 meter	4617232.29	369203.45
S035	Schonstedt Reading	Medium - greater than 2 meters	4617233.00	369329.66
<u>S036</u>	<u>Scrap/Debris</u>	<u>Medium - Rebar</u>	<u>4617236.50</u>	<u>369211.07</u>
S037	Schonstedt Reading	Small - greater than 1 meter	4617241.43	369213.96
Area North of Area E				
S038	Schonstedt Reading	Medium - greater than 2 meters	4617241.53	369305.26
<u>S039</u>	<u>Scrap/Debris</u>	<u>Medium - Cans, wire, trash</u>	<u>4617247.83</u>	<u>369314.08</u>
S040	Schonstedt Reading	Small - greater than 1 meter	4617252.13	369328.90
<u>S041</u>	<u>Scrap/Debris</u>	<u>Large - Machine parts</u>	<u>4617255.08</u>	<u>369335.09</u>
S042	Schonstedt Reading	Medium - greater than 2 meters	4617255.29	369323.48

**Table 3-3
Intrusive Anomaly Investigation
MSP Phase 3**

ITEM ID	CATEGORY	ANOMALY SIZE/ITEM DESCRIPTION	Northing	Easting
S043	Schonstedt Reading	Small - greater than 1 meter	4617258.04	369334.87
S044	Schonstedt Reading	Medium - greater than 2 meters	4617258.93	369325.51
S047	Schonstedt Reading	Small - greater than 1 meter	4617264.25	369338.00
S049	Schonstedt Reading	Small - greater than 1 meter	4617265.02	369338.45
<u>S052</u>	<u>Scrap/Debris</u>	<u>Large - Rebar</u>	<u>4617265.58</u>	<u>369325.57</u>
S053	Schonstedt Reading	Small - greater than 1 meter	4617265.78	369325.08
S055	Schonstedt Reading	Medium - greater than 2 meters	4617266.42	369340.09
S058	Schonstedt Reading	Medium - greater than 2 meters	4617270.94	369342.61
S059	Schonstedt Reading	Medium - greater than 2 meters	4617274.24	369344.43
S060	Schonstedt Reading	Medium - greater than 2 meters	4617274.32	369335.45
<u>S061</u>	<u>Scrap/Debris</u>	<u>Large - Wire</u>	<u>4617289.60</u>	<u>369335.94</u>
<u>E001</u>	<u>Scrap/Debris</u>	<u>112.1 mV - Machine parts</u>	<u>4617246.33</u>	<u>369321.72</u>
E002	EM61 MK2 Reading	67.6 mV	4617246.56	369318.31
E003	EM61 MK2 Reading	33.1 mV	4617246.84	369320.08
E004	EM61 MK2 Reading	29.7 mV	4617247.11	369323.56
E005	EM61 MK2 Reading	59.3 mV	4617247.81	369332.95
E006	EM61 MK2 Reading	27.5 mV	4617248.17	369340.31
<u>E007</u>	<u>Scrap/Debris</u>	<u>16.0 mV - Railroad spike</u>	<u>4617248.71</u>	<u>369342.33</u>
E008	EM61 MK2 Reading	20.6 mV	4617248.72	369325.98
E009	EM61 MK2 Reading	17.8 mV	4617249.52	369322.49
E010	EM61 MK2 Reading	70.0 mV	4617249.52	369337.77
<u>E011</u>	<u>Scrap/Debris</u>	<u>256.1 mV - Machine parts</u>	<u>4617250.06</u>	<u>369330.26</u>
E012	EM61 MK2 Reading	9.0 mV	4617251.13	369339.91
E013	EM61 MK2 Reading	11.8 mV	4617251.40	369333.75
<u>E014</u>	<u>Scrap/Debris</u>	<u>193.0 mV - Cans, wire, trash</u>	<u>4617252.20</u>	<u>369325.44</u>
<u>E015</u>	<u>Scrap/Debris</u>	<u>108.2 mV - Rebar</u>	<u>4617252.47</u>	<u>369331.60</u>
E016	EM61 MK2 Reading	15.9 mV	4617253.01	369343.93
E017	EM61 MK2 Reading	57.8 mV	4617253.54	369335.36
E018	EM61 MK2 Reading	48.2 mV	4617254.35	369333.48
<u>E019</u>	<u>Scrap/Debris</u>	<u>95.2 mV - Machine parts</u>	<u>4617254.88</u>	<u>369338.04</u>
E020	EM61 MK2 Reading	5.5 mV	4617255.15	369340.72
E021	EM61 MK2 Reading	76.3 mV	4617256.22	369321.69
E022	EM61 MK2 Reading	9.4 mV	4617256.22	369331.07
E023	EM61 MK2 Reading	6.3 mV	4617256.49	369344.47
<u>E024</u>	<u>Scrap/Debris</u>	<u>75.7 mV - Railroad tie with nails</u>	<u>4617257.03</u>	<u>369333.75</u>
E025	EM61 MK2 Reading	15.8 mV	4617257.56	369324.10
E026	EM61 MK2 Reading	2.9 mV	4617258.37	369320.88
E027	EM61 MK2 Reading	37.8 mV	4617258.90	369337.23
E028	EM61 MK2 Reading	359.4 mV	4617258.90	369340.98
E029	EM61 MK2 Reading	14.4 mV	4617259.98	369328.39
E030	EM61 MK2 Reading	38.7 mV	4617259.98	369.00
E031	EM61 MK2 Reading	17.9 mV	4617260.51	369323.56
E032	EM61 MK2 Reading	7.3 mV	4617261.58	369338.04
E033	EM61 MK2 Reading	13.0 mV	4617261.58	369340.98
E034	EM61 MK2 Reading	6.8 mV	4617261.85	369335.36
E035	EM61 MK2 Reading	2.6 mV	4617262.12	369329.46
E036	EM61 MK2 Reading	6.9 mV	4617262.39	369334.02
E037	EM61 MK2 Reading	17.0 mV	4617262.39	369343.66

Table 3-3
Intrusive Anomaly Investigation
MSP Phase 3

ITEM ID	CATEGORY	ANOMALY SIZE/ITEM DESCRIPTION	Northing	Easting
E038	EM61 MK2 Reading	19.3 mV	4617262.66	369327.05
E039	EM61 MK2 Reading	5.9 mV	4617263.19	369332.14
E040	EM61 MK2 Reading	28.9 mV	4617264.00	369328.66
<u>E041</u>	<u>Scrap/Debris</u>	<u>25.2 mV - Nails</u>	<u>4617264.80</u>	<u>369316.86</u>
E042	EM61 MK2 Reading	3.3 mV	4617265.07	369341.79
E043	EM61 MK2 Reading	5.3 mV	4617265.34	369334.82
E044	EM61 MK2 Reading	56.2 mV	4617266.94	369339.11
E045	EM61 MK2 Reading	6.4 mV	4617267.08	369331.87
E046	EM61 MK2 Reading	34.8 mV	4617267.66	369341.97
Witness #9 Area				
I005	Scrap/Debris	Ammunition can	4617269.84	369391.50
S045	Schonstedt Reading	Medium - greater than 2 meters	4617259.82	369389.78
S046	Schonstedt Reading	Medium - greater than 2 meters	4617260.45	369399.84
S048	Schonstedt Reading	Medium - greater than 2 meters	4617264.68	369397.57
S050	Schonstedt Reading	Medium - greater than 2 meters	4617265.03	369393.36
S051	Schonstedt Reading	Small - greater than 1 meter	4617265.39	369376.64
<u>S054</u>	<u>Scrap/Debris</u>	<u>Medium - Machine parts</u>	<u>4617265.83</u>	<u>369375.28</u>
S056	Schonstedt Reading	Medium - greater than 2 meters	4617266.61	369393.38
S057	Schonstedt Reading	Medium - greater than 2 meters	4617268.39	369398.13
E001	EM61 MK2 Reading	25.2 mV	4617258.03	369436.98
E002	EM61 MK2 Reading	7.4 mV	4617259.35	369435.00
E003	EM61 MK2 Reading	42.2 mV	4617259.35	369432.36
E004	EM61 MK2 Reading	11.3 mV	4617261.66	369427.41
E005	EM61 MK2 Reading	12.4 mV	4617262.98	369383.52
E006	EM61 MK2 Reading	6.7 mV	4617262.98	369385.83
E007	EM61 MK2 Reading	13.5 mV	4617263.31	369382.20
E008	EM61 MK2 Reading	10.8 mV	4617263.31	369394.74
E009	EM61 MK2 Reading	6.7 mV	4617263.64	369391.11
E010	EM61 MK2 Reading	7.2 mV	4617263.64	369418.17
E011	EM61 MK2 Reading	2.9 mV	4617263.64	369430.71
E012	EM61 MK2 Reading	7.8 mV	4617263.97	369378.24
E013	EM61 MK2 Reading	8.2 mV	4617264.30	369405.63
E014	EM61 MK2 Reading	5.4 mV	4617264.30	369414.54
E015	EM61 MK2 Reading	4.8 mV	4617264.30	369422.46
E016	EM61 MK2 Reading	7.3 mV	4617264.63	369383.52
E017	EM61 MK2 Reading	18.9 mV	4617264.63	369400.68
E018	EM61 MK2 Reading	5.3 mV	4617264.63	369411.90
E019	EM61 MK2 Reading	18.6 mV	4617265.29	369378.90
E020	EM61 MK2 Reading	6.5 mV	4617265.29	369408.27
E021	EM61 MK2 Reading	4.6 mV	4617265.29	369434.01
E022	EM61 MK2 Reading	5.6 mV	4617265.62	369433.02
E023	EM61 MK2 Reading	21.1 mV	4617265.95	369404.64
E024	EM61 MK2 Reading	9.5 mV	4617265.95	369410.91
<u>E025</u>	<u>Munitions Debris</u>	<u>184.2 mV - 105mm cartridge (empty)</u>	<u>4617266.28</u>	<u>369390.78</u>
E026	EM61 MK2 Reading	14.0 mV	4617266.28	369395.73
E027	EM61 MK2 Reading	16.1 mV	4617266.61	369379.23
E028	EM61 MK2 Reading	23.7 mV	4617266.94	369377.25
E029	EM61 MK2 Reading	2.5 mV	4617266.94	369382.20

Table 3-3
Intrusive Anomaly Investigation
MSP Phase 3

ITEM ID	CATEGORY	ANOMALY SIZE/ITEM DESCRIPTION	Northing	Easting
E030	EM61 MK2 Reading	8.2 mV	4617266.94	369408.27
E031	EM61 MK2 Reading	3.0 mV	4617267.60	369435.66
<u>E032</u>	<u>Munitions Debris</u>	<u>74.2 mV - 40mm cartridge (empty)</u>	<u>4617267.93</u>	<u>369391.77</u>
E033	EM61 MK2 Reading	3.5 mV	4617267.93	369402.00
E034	EM61 MK2 Reading	2.4 mV	4617267.93	369406.95
E035	EM61 MK2 Reading	10.6 mV	4617268.26	369378.90
E036	EM61 MK2 Reading	23.3 mV	4617268.26	369385.17
E037	EM61 MK2 Reading	2.8 mV	4617268.26	369415.53
E038	EM61 MK2 Reading	7.7 mV	4617268.59	369399.36
E039	EM61 MK2 Reading	7.8 mV	4617268.59	369432.36
E040	EM61 MK2 Reading	5.7 mV	4617268.92	369377.25
E041	EM61 MK2 Reading	5.5 mV	4617268.92	369409.26
E042	EM61 MK2 Reading	6.7 mV	4617268.92	369410.91
E043	EM61 MK2 Reading	2.4 mV	4617268.92	369418.17
E044	EM61 MK2 Reading	35.6 mV	4617269.58	369393.09
E045	EM61 MK2 Reading	8.8 mV	4617269.58	369400.68
E046	EM61 MK2 Reading	3.1 mV	4617269.58	369416.19
E047	EM61 MK2 Reading	9.4 mV	4617269.58	369433.02
E048	EM61 MK2 Reading	2.8 mV	4617270.24	369407.61
E049	EM61 MK2 Reading	18.8 mV	4617270.57	369419.49
E050	EM61 MK2 Reading	83.0 mV	4617270.57	369425.43
<u>E051</u>	<u>Scrap/Debris</u>	<u>39.3 mV -Nails</u>	<u>4617270.90</u>	<u>369389.79</u>
E052	EM61 MK2 Reading	7.1 mV	4617271.56	369397.38
E053	EM61 MK2 Reading	2.8 mV	4617272.22	369422.79
E054	EM61 MK2 Reading	3.2 mV	4617272.55	369387.81
E055	EM61 MK2 Reading	18.2 mV	4617272.55	369400.68
E056	EM61 MK2 Reading	11.0 mV	4617272.55	369405.30
E057	EM61 MK2 Reading	5.2 mV	4617272.55	369407.28
E058	EM61 MK2 Reading	2.3 mV	4617272.55	369413.22
E059	EM61 MK2 Reading	8.2 mV	4617272.88	369409.59
E060	EM61 MK2 Reading	2.8 mV	4617273.54	369377.91
E061	EM61 MK2 Reading	11.8 mV	4617273.54	369402.00
<u>E062</u>	<u>Scrap/Debris</u>	<u>322.5 mV - Cans, wire, trash</u>	<u>4617273.54</u>	<u>369416.85</u>
E063	EM61 MK2 Reading	3.9 mV	4617273.87	369391.11
E064	EM61 MK2 Reading	5.3 mV	4617273.87	369405.30
E065	EM61 MK2 Reading	7.1 mV	4617274.20	369409.59
E036	EM61 MK2 Reading	2.3 mV	4617274.53	369398.04
<u>E067</u>	<u>Scrap/Debris</u>	<u>757.3 mV - Machine parts</u>	<u>4617274.53</u>	<u>369420.48</u>
E068	EM61 MK2 Reading	2.5 mV	4617275.19	369436.65
E069	EM61 MK2 Reading	6.5 mV	4617275.52	369380.88
E070	EM61 MK2 Reading	38.2 mV	4617275.52	369400.68
E071	EM61 MK2 Reading	32.3 mV	4617275.52	369418.50
E072	EM61 MK2 Reading	2.1 mV	4617275.52	369432.36
E073	EM61 MK2 Reading	9.9 mV	4617275.85	369379.23
<u>E074</u>	<u>Scrap/Debris</u>	<u>528.4 mV - Steel cable</u>	<u>4617275.85</u>	<u>369415.86</u>
<u>E075</u>	<u>Munitions Debris</u>	<u>248.8 mV - Small arms cartridges (expended)</u>	<u>4617276.51</u>	<u>369405.63</u>
E076	EM61 MK2 Reading	12.0 mV	4617276.51	369409.92
E077	EM61 MK2 Reading	22.8 mV	4617276.51	369424.44

Table 3-3
Intrusive Anomaly Investigation
MSP Phase 3

ITEM ID	CATEGORY	ANOMALY SIZE/ITEM DESCRIPTION	Northing	Easting
E078	EM61 MK2 Reading	3.2 mV	4617277.17	369396.39
E079	EM61 MK2 Reading	2.6 mV	4617278.49	369413.88
E080	EM61 MK2 Reading	16.0 mV	4617278.49	369430.05
E081	EM61 MK2 Reading	10.5 mV	4617278.82	369425.43
E082	EM61 MK2 Reading	15.6 mV	4617279.15	369421.14
E083	EM61 MK2 Reading	2.9 mV	4617279.48	369378.24
E084	EM61 MK2 Reading	2.0 mV	4617279.48	369387.48
E085	EM61 MK2 Reading	2.1 mV	4617279.48	369389.46
E086	EM61 MK2 Reading	8.8 mV	4617279.81	369384.18
E087	EM61 MK2 Reading	17.0 mV	4617280.47	369412.23
E088	EM61 MK2 Reading	20.2 mV	4617281.13	369409.92
E089	EM61 MK2 Reading	2.0 mV	4617281.46	369380.55
E090	EM61 MK2 Reading	6.5 mV	4617281.46	369392.43
E091	EM61 MK2 Reading	57.2 mV	4617282.45	369424.77
<u>E092</u>	<u>Scrap/Debris</u>	<u>316.6 mV - Machine parts</u>	<u>4617282.78</u>	<u>369416.19</u>
E093	EM61 MK2 Reading	2.3 mV	4617283.44	369382.53
E094	EM61 MK2 Reading	8.3 mV	4617284.43	369394.41
E095	EM61 MK2 Reading	8.8 mV	4617284.43	369397.71
E096	EM61 MK2 Reading	2.7 mV	4617284.43	369404.64
E097	EM61 MK2 Reading	3.7 mV	4617284.76	369401.01
<u>E098</u>	<u>Scrap/Debris</u>	<u>17.7 mV - Hammer</u>	<u>4617284.76</u>	<u>369427.08</u>
E099	EM61 MK2 Reading	7.2 mV	4617285.42	369408.27
<u>E100</u>	<u>Scrap/Debris</u>	<u>76.1 mV - Cans, wire, trash</u>	<u>4617285.42</u>	<u>369416.19</u>
E101	EM61 MK2 Reading	2.9 mV	4617286.41	369386.16
E102	EM61 MK2 Reading	5.5 mV	4617286.74	369397.71
E103	EM61 MK2 Reading	6.1 mV	4617286.74	369410.25
<u>E104</u>	<u>Scrap/Debris</u>	<u>276.1 mV - Machine parts</u>	<u>4617287.40</u>	<u>369393.42</u>
E105	EM61 MK2 Reading	2.3 mV	4617287.73	369383.19
E106	EM61 MK2 Reading	12.6 mV	4617288.48	369377.70

Notes: Underlined italics indicates anomalies that were intrusively investigated

bgs - below ground surface

mV - millivolts

NA - not applicable

(This page left intentionally blank)

Table 3-4
MSP3 ASP Soil Analytical Results

Location	Sample ID	Date	Test	Analyte	Result	Qual	DL	RL	Units	Bkgd Moraine (1-2')	> Bkgd	SSL	> SSL	PRG	> PRG	S-1/ GW-1	> S1/ GW1	RCS-1	> RCS1
105mm Ammunition Box																			
ASP.F.105BX	ASP.F.105BX.1.0	4/14/2003	SW8330	Non detect on all explosive compounds	ND	U			µg/kg										
ASP.F.105BX	ASP.F.105BX.2.0	4/14/2003	SW8330	Non detect on all explosive compounds	ND	U			µg/kg										
Area A - North Sidewall																			
ASP.4.00014	TT083006ASP-C-01N	8/30/2006	E331.0	PERCHLORATE	0.46	J	0.24	0.8	µg/kg			3.14		7821					
ASP.4.00014	TT083006ASP-C-01N	8/30/2006	SW6010B	ALUMINUM	9830		9	9	mg/Kg	12384		54006		7614	X				
ASP.4.00014	TT083006ASP-C-01N	8/30/2006	SW6010B	ARSENIC	4.4		0.36	0.36	mg/Kg	3.90	X	0.009	X	0.39	X	30		30	
ASP.4.00014	TT083006ASP-C-01N	8/30/2006	SW6010B	BARIUM	30.3		0.41	0.41	mg/Kg	20.20	X	120.35		537.49		1000		1000	
ASP.4.00014	TT083006ASP-C-01N	8/30/2006	SW6010B	BERYLLIUM	0.4		0.023	0.023	mg/Kg	0.41		2.60		15.44		0.7		0.7	
ASP.4.00014	TT083006ASP-C-01N	8/30/2006	SW6010B	BORON	3.9		0.56	0.56	mg/Kg	8.10		9.52		1600					
ASP.4.00014	TT083006ASP-C-01N	8/30/2006	SW6010B	CALCIUM	439		14	14	mg/Kg	166	X								
ASP.4.00014	TT083006ASP-C-01N	8/30/2006	SW6010B	COBALT	3.7		0.21	0.21	mg/Kg	4.50		132.38		902.89				500	
ASP.4.00014	TT083006ASP-C-01N	8/30/2006	SW6010B	COPPER	9.9		0.17	0.17	mg/Kg	7.4	X	45.73		312.86				1000	
ASP.4.00014	TT083006ASP-C-01N	8/30/2006	SW6010B	IRON	14700		4.6	4.6	mg/Kg	12020	X	2422	X	2346	X				
ASP.4.00014	TT083006ASP-C-01N	8/30/2006	SW6010B	LEAD	6.1		0.15	0.15	mg/Kg	10.2		4.05	X	40		300		300	
ASP.4.00014	TT083006ASP-C-01N	8/30/2006	SW6010B	MAGNESIUM	1860		13.6	13.6	mg/Kg	1980									
ASP.4.00014	TT083006ASP-C-01N	8/30/2006	SW6010B	MANGANESE	250		0.046	0.046	mg/Kg	122	X	44.15	X	176.24	X				
ASP.4.00014	TT083006ASP-C-01N	8/30/2006	SW7471A	MERCURY	0.019	J	0.016	0.016	mg/Kg	0.10		0.02		2.35		20		20	
ASP.4.00014	TT083006ASP-C-01N	8/30/2006	SW6010B	MOLYBDENUM	3.3		0.14	0.14	mg/Kg	0.89	X	0.18	X	39.11					
ASP.4.00014	TT083006ASP-C-01N	8/30/2006	SW6010B	NICKEL	12		0.18	0.18	mg/Kg	9.40	X	292.13		156.43		300		300	
ASP.4.00014	TT083006ASP-C-01N	8/30/2006	SW6010B	POTASSIUM	1580		35.4	35.4	mg/Kg	733	X								
ASP.4.00014	TT083006ASP-C-01N	8/30/2006	SW6010B	SODIUM	252		42.5	42.5	mg/Kg	198	X								
ASP.4.00014	TT083006ASP-C-01N	8/30/2006	SW6010B	VANADIUM	21.8		0.21	0.21	mg/Kg	20.10	X	260.05		7.82	X	400		400	
ASP.4.00014	TT083006ASP-C-01N	8/30/2006	SW6010B	ZINC	20.6		0.14	0.14	mg/Kg	24.40		2202		2346		2500		2500	
Area A - South Sidewall																			
ASP.4.00014	TT083006ASP-C-01S	8/30/2006	E331.0	PERCHLORATE	0.41	J	0.24	0.8	µg/kg			3.14		7821					
ASP.4.00014	TT083006ASP-C-01S	8/30/2006	SW6010B	ALUMINUM	9760		9	9	mg/Kg	12384		54006		7614	X				
ASP.4.00014	TT083006ASP-C-01S	8/30/2006	SW6010B	ARSENIC	3.2		0.36	0.36	mg/Kg	3.90		0.009	X	0.39	X	30		30	
ASP.4.00014	TT083006ASP-C-01S	8/30/2006	SW6010B	BARIUM	23		0.41	0.41	mg/Kg	20.20	X	120.35		537.49		1000		1000	
ASP.4.00014	TT083006ASP-C-01S	8/30/2006	SW6010B	BERYLLIUM	0.29		0.023	0.023	mg/Kg	0.41		2.60		15.44		0.7		0.7	
ASP.4.00014	TT083006ASP-C-01S	8/30/2006	SW6010B	BORON	2.7		0.56	0.56	mg/Kg	8.10		9.52		1600					
ASP.4.00014	TT083006ASP-C-01S	8/30/2006	SW6010B	CALCIUM	291		14	14	mg/Kg	166	X								
ASP.4.00014	TT083006ASP-C-01S	8/30/2006	SW6010B	COBALT	2.9		0.21	0.21	mg/Kg	4.50		132.38		902.89				500	
ASP.4.00014	TT083006ASP-C-01S	8/30/2006	SW6010B	COPPER	7.7		0.17	0.17	mg/Kg	7.4	X	45.73		312.86				1000	
ASP.4.00014	TT083006ASP-C-01S	8/30/2006	SW6010B	IRON	14100		4.6	4.6	mg/Kg	12020	X	2422	X	2346	X				
ASP.4.00014	TT083006ASP-C-01S	8/30/2006	SW6010B	LEAD	6.3		0.15	0.15	mg/Kg	10.2		4.05	X	40		300		300	
ASP.4.00014	TT083006ASP-C-01S	8/30/2006	SW6010B	MAGNESIUM	1070		13.6	13.6	mg/Kg	1980									
ASP.4.00014	TT083006ASP-C-01S	8/30/2006	SW6010B	MANGANESE	155		0.046	0.046	mg/Kg	122	X	44.15	X	176.24					
ASP.4.00014	TT083006ASP-C-01S	8/30/2006	SW7471A	MERCURY	0.015	J	0.015	0.015	mg/Kg	0.10		0.02		2.35		20		20	
ASP.4.00014	TT083006ASP-C-01S	8/30/2006	SW6010B	MOLYBDENUM	3.2		0.14	0.14	mg/Kg	0.89	X	0.18	X	39.11					
ASP.4.00014	TT083006ASP-C-01S	8/30/2006	SW6010B	NICKEL	9.8		0.18	0.18	mg/Kg	9.40	X	292.13		156.43		300		300	

SSL - MMR Soil Screening Level
 PRG - Preliminary Remediation Goal
 BKGD - MMR Background Soil Concentration
 S-1/GW-1 - MCP Method 1 value
 RCS1 - MCP Reportable Concentration for S1 Soil

J - Estimated value

Table 3-4
MSP3 ASP Soil Analytical Results

Location	Sample ID	Date	Test	Analyte	Result	Qual	DL	RL	Units	Bkgd Moraine (1-2')	> Bkgd	SSL	> SSL	PRG	> PRG	S-1/ GW-1	> S1/ GW1	RCS-1	> RCS1
ASP.4.00014	TT083006ASP-C-01S	8/30/2006	SW6010B	POTASSIUM	1000		35.4	35.4	mg/Kg	733	X								
ASP.4.00014	TT083006ASP-C-01S	8/30/2006	SW6010B	SODIUM	217		42.5	42.5	mg/Kg	198	X								
ASP.4.00014	TT083006ASP-C-01S	8/30/2006	SW6010B	VANADIUM	19.2		0.21	0.21	mg/Kg	20.10		260.05		7.82	X	400		400	
ASP.4.00014	TT083006ASP-C-01S	8/30/2006	SW6010B	ZINC	20.8		0.14	0.14	mg/Kg	24.40		2202		2346		2500		2500	
Area A - East Sidewall																			
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	E331.0	PERCHLORATE	0.29	J	0.24	0.8	µg/kg			3.14		7821					
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	SW6010B	ALUMINUM	8620		8.7	8.7	mg/Kg	12384		54006		7614	X				
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	SW6010B	ARSENIC	3.4		0.35	0.35	mg/Kg	3.90		0.009	X	0.39	X	30		30	
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	SW6010B	BARIUM	17		0.4	0.4	mg/Kg	20.20		120.35		537.49		1000		1000	
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	SW6010B	BERYLLIUM	0.27		0.022	0.022	mg/Kg	0.41		2.60		15.44		0.7		0.7	
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	SW6010B	BORON	2.2		0.54	0.54	mg/Kg	8.10		9.52		1600					
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	SW6010B	CALCIUM	272		13.5	13.5	mg/Kg	166	X								
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	SW6010B	COBALT	2		0.21	0.21	mg/Kg	4.50		132.38		902.89				500	
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	SW6010B	COPPER	6.5		0.16	0.16	mg/Kg	7.4		45.73		312.86				1000	
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	SW6010B	IRON	15200		4.4	4.4	mg/Kg	12020	X	2422	X	2346	X				
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	SW6010B	LEAD	4.1		0.15	0.15	mg/Kg	10.2		4.05	X	40		300		300	
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	SW6010B	MAGNESIUM	634		13.1	13.1	mg/Kg	1980									
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	SW6010B	MANGANESE	235		0.044	0.044	mg/Kg	122	X	44.15	X	176.24	X				
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	SW7471A	MERCURY	0.019	J	0.014	0.014	mg/Kg	0.10		0.02		2.35		20		20	
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	SW6010B	MOLYBDENUM	1		0.13	0.13	mg/Kg	0.89	X	0.18	X	39.11					
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	SW6010B	NICKEL	7.6		0.18	0.18	mg/Kg	9.40		292.13		156.43		300		300	
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	SW6010B	POTASSIUM	837		34.1	34.1	mg/Kg	733	X								
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	SW6010B	SILVER	0.2	J	0.15	0.15	mg/Kg	0.52		16.23		39.11		100		100	
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	SW6010B	SODIUM	180		40.9	40.9	mg/Kg	198									
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	SW6010B	VANADIUM	16.5		0.2	0.2	mg/Kg	20.10		260.05		7.82	X	400		400	
ASP.4.00014	TT083006ASP-C-01E	8/30/2006	SW6010B	ZINC	10.5		0.14	0.14	mg/Kg	24.40		2202		2346		2500		2500	
Area A - West Sidewall																			
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	E331.0	PERCHLORATE	0.57	J	0.24	0.8	µg/kg			3.14		7821					
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW6010B	ALUMINUM	11000		8.9	8.9	mg/Kg	12384		54006		7614	X				
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW6010B	ANTIMONY	0.82	J	0.59	0.59	mg/Kg	1.4		0.27	X	3.13		10		10	
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW6010B	ARSENIC	4.6		0.35	0.35	mg/Kg	3.90	X	0.009	X	0.39	X	30		30	
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW6010B	BARIUM	31.9		0.41	0.41	mg/Kg	20.20	X	120.35		537.49		1000		1000	
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW6010B	BERYLLIUM	0.45		0.023	0.023	mg/Kg	0.41	X	2.60		15.44		0.7		0.7	
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW6010B	BORON	3.8		0.55	0.55	mg/Kg	8.10		9.52		1600					
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW6010B	CALCIUM	484		13.8	13.8	mg/Kg	166	X								
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW6010B	COBALT	3.8		0.21	0.21	mg/Kg	4.50		132.38		902.89				500	
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW6010B	COPPER	9.4		0.17	0.17	mg/Kg	7.4	X	45.73		312.86				1000	
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW6010B	IRON	15200		4.5	4.5	mg/Kg	12020	X	2422	X	2346	X				
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW6010B	LEAD	7		0.15	0.15	mg/Kg	10.2		4.05	X	40		300		300	
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW6010B	MAGNESIUM	2190		13.4	13.4	mg/Kg	1980	X								
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW6010B	MANGANESE	209		0.045	0.045	mg/Kg	122	X	44.15	X	176.24	X				

SSL - MMR Soil Screening Level
 PRG - Preliminary Remediation Goal
 BKGd - MMR Background Soil Concentration
 S-1/GW-1 - MCP Method 1 value
 RCS1 - MCP Reportable Concentration for S1 Soil

J - Estimated value

Table 3-4
MSP3 ASP Soil Analytical Results

Location	Sample ID	Date	Test	Analyte	Result	Qual	DL	RL	Units	Bkgd Moraine (1-2')	> Bkgd	SSL	> SSL	PRG	> PRG	S-1/ GW-1	> S1/ GW1	RCS-1	> RCS1
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW7471A	MERCURY	0.015	J	0.013	0.013	mg/Kg	0.10		0.02		2.35		20		20	
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW6010B	MOLYBDENUM	0.91		0.14	0.14	mg/Kg	0.89	X	0.18	X	39.11					
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW6010B	NICKEL	12.4		0.18	0.18	mg/Kg	9.40	X	292.13		156.43		300		300	
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW6010B	POTASSIUM	1690		34.9	34.9	mg/Kg	733	X								
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW6010B	SILVER	0.22	J	0.15	0.15	mg/Kg	0.52		16.23		39.11		100		100	
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW6010B	SODIUM	281		41.8	41.8	mg/Kg	198	X								
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW6010B	VANADIUM	21.6		0.2	0.2	mg/Kg	20.10	X	260.05		7.82	X	400		400	
ASP.4.00014	TT083006ASP-C-01W	8/30/2006	SW6010B	ZINC	24.5		0.14	0.14	mg/Kg	24.40	X	2202		2346		2500		2500	
Area A - Bottom																			
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	E331.0	PERCHLORATE	0.57	J	0.24	0.8	µg/kg			3.14		7821					
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW6010B	ALUMINUM	11700		8.9	8.9	mg/Kg	12384		54006		7614	X				
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW6010B	ANTIMONY	0.89	J	0.58	0.58	mg/Kg	1.4		0.27	X	3.13		10		10	
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW6010B	ARSENIC	5.1		0.35	0.35	mg/Kg	3.90	X	0.009	X	0.39	X	30		30	
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW6010B	BARIUM	32.6		0.4	0.4	mg/Kg	20.20	X	120.35		537.49		1000		1000	
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW6010B	BERYLLIUM	0.43		0.022	0.022	mg/Kg	0.41	X	2.60		15.44		0.7		0.7	
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW6010B	BORON	3.9		0.54	0.54	mg/Kg	8.10		9.52		1600					
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW6010B	CALCIUM	469		13.7	13.7	mg/Kg	166	X								
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW6010B	COBALT	3.6		0.21	0.21	mg/Kg	4.50		132.38		902.89				500	
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW6010B	COPPER	10.7		0.16	0.16	mg/Kg	7.4	X	45.73		312.86				1000	
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW6010B	IRON	16600		4.5	4.5	mg/Kg	12020	X	2422	X	2346	X				
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW6010B	LEAD	10.3		0.15	0.15	mg/Kg	10.2	X	4.05	X	40		300		300	
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW6010B	MAGNESIUM	2170		13.3	13.3	mg/Kg	1980	X								
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW6010B	MANGANESE	135		0.045	0.045	mg/Kg	122	X	44.15	X	176.24					
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW7471A	MERCURY	0.014	J	0.014	0.014	mg/Kg	0.10		0.02		2.35		20		20	
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW6010B	MOLYBDENUM	2.3		0.13	0.13	mg/Kg	0.89	X	0.18	X	39.11					
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW6010B	NICKEL	13.2		0.18	0.18	mg/Kg	9.40	X	292.13		156.43		300		300	
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW6010B	POTASSIUM	1630		34.6	34.6	mg/Kg	733	X								
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW6010B	SILVER	0.19	J	0.15	0.15	mg/Kg	0.52		16.23		39.11		100		100	
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW6010B	SODIUM	248		41.5	41.5	mg/Kg	198	X								
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW6010B	VANADIUM	20.7		0.2	0.2	mg/Kg	20.10	X	260.05		7.82	X	400		400	
ASP.4.00014	TT083006ASP-C-01B	8/30/2006	SW6010B	ZINC	29.7		0.14	0.14	mg/Kg	24.40	X	2202		2346		2500		2500	
Area A - Bottom Replicate																			
ASP.4.00014	TT083006ASP-C-01B-FD	8/30/2006	E331.0	PERCHLORATE	0.55	J	0.24	0.8	µg/kg			3.14		7821					
ASP.4.00014	TT083006ASP-C-01B-FD	8/30/2006	SW6010B	ALUMINUM	10900		8.6	8.6	mg/Kg	12384		54006		7614	X				
ASP.4.00014	TT083006ASP-C-01B-FD	8/30/2006	SW6010B	ARSENIC	4.5		0.34	0.34	mg/Kg	3.90	X	0.009	X	0.39	X	30		30	
ASP.4.00014	TT083006ASP-C-01B-FD	8/30/2006	SW6010B	BARIUM	35.3		0.39	0.39	mg/Kg	20.20	X	120.35		537.49		1000		1000	
ASP.4.00014	TT083006ASP-C-01B-FD	8/30/2006	SW6010B	BERYLLIUM	0.46		0.022	0.022	mg/Kg	0.41	X	2.60		15.44		0.7		0.7	
ASP.4.00014	TT083006ASP-C-01B-FD	8/30/2006	SW6010B	BORON	4.2		0.53	0.53	mg/Kg	8.10		9.52		1600					
ASP.4.00014	TT083006ASP-C-01B-FD	8/30/2006	SW6010B	CALCIUM	476		13.3	13.3	mg/Kg	166	X								
ASP.4.00014	TT083006ASP-C-01B-FD	8/30/2006	SW6010B	COBALT	4		0.2	0.2	mg/Kg	4.50		132.38		902.89				500	

SSL - MMR Soil Screening Level
 PRG - Preliminary Remediation Goal
 BKGD - MMR Background Soil Concentration
 S-1/GW-1 - MCP Method 1 value
 RCS1 - MCP Reportable Concentration for S1 Soil

J - Estimated value

Table 3-4
MSP3 ASP Soil Analytical Results

Location	Sample ID	Date	Test	Analyte	Result	Qual	DL	RL	Units	Bkgd Moraine (1-2')	> Bkgd	SSL	> SSL	PRG	> PRG	S-1/ GW-1	> S1/ GW1	RCS-1	> RCS1
ASP.4.00014	TT083006ASP-C-01B-FD	8/30/2006	SW6010B	COPPER	11.6		0.16	0.16	mg/Kg	7.4	X	45.73		312.86				1000	
ASP.4.00014	TT083006ASP-C-01B-FD	8/30/2006	SW6010B	IRON	15500		4.4	4.4	mg/Kg	12020	X	2422	X	2346	X				
ASP.4.00014	TT083006ASP-C-01B-FD	8/30/2006	SW6010B	LEAD	11		0.14	0.14	mg/Kg	10.2	X	4.05	X	40			300		300
ASP.4.00014	TT083006ASP-C-01B-FD	8/30/2006	SW6010B	MAGNESIUM	2340		12.9	12.9	mg/Kg	1980	X								
ASP.4.00014	TT083006ASP-C-01B-FD	8/30/2006	SW6010B	MANGANESE	145		0.043	0.043	mg/Kg	122	X	44.15	X	176.24					
ASP.4.00014	TT083006ASP-C-01B-FD	8/30/2006	SW6010B	MOLYBDENUM	2.4		0.13	0.13	mg/Kg	0.89	X	0.18	X	39.11					
ASP.4.00014	TT083006ASP-C-01B-FD	8/30/2006	SW6010B	NICKEL	14.3		0.17	0.17	mg/Kg	9.40	X	292.13		156.43			300		300
ASP.4.00014	TT083006ASP-C-01B-FD	8/30/2006	SW6010B	POTASSIUM	1740		33.6	33.6	mg/Kg	733	X								
ASP.4.00014	TT083006ASP-C-01B-FD	8/30/2006	SW6010B	SILVER	0.24	J	0.14	0.14	mg/Kg	0.52		16.23		39.11			100		100
ASP.4.00014	TT083006ASP-C-01B-FD	8/30/2006	SW6010B	SODIUM	283		40.3	40.3	mg/Kg	198	X								
ASP.4.00014	TT083006ASP-C-01B-FD	8/30/2006	SW6010B	VANADIUM	22.5		0.2	0.2	mg/Kg	20.10	X	260.05		7.82	X		400		400
ASP.4.00014	TT083006ASP-C-01B-FD	8/30/2006	SW6010B	ZINC	32.4		0.14	0.14	mg/Kg	24.40	X	2202		2346			2500		2500

Location	Sample ID	Date	Test	Analyte	Result	Qual	DL	RL	Units	TEQ
Area E - North Sidewall										
TTASPETP01	SS05167-C-01N	5/16/2007	SW8290	2,3,7,8-TCDD	ND	U	0.28	1.4	ng/Kg	0.00
				Total TCDD						0.00
TTASPETP01	SS05167-C-01N	5/16/2007	SW8290	1,2,3,7,8-PeCDD	1.2	J	0.14	6.8	ng/Kg	0.60
				Total PeCDD						0.60
TTASPETP01	SS05167-C-01N	5/16/2007	SW8290	1,2,3,4,7,8-HxCDD	1.5	J	0.1	6.8	ng/Kg	0.15
TTASPETP01	SS05167-C-01N	5/16/2007	SW8290	1,2,3,6,7,8-HxCDD	4.5	J	0.11	6.8	ng/Kg	0.45
TTASPETP01	SS05167-C-01N	5/16/2007	SW8290	1,2,3,7,8,9-HxCDD	5.1	J	0.097	6.8	ng/Kg	0.51
				Total HxCDD						1.11
TTASPETP01	SS05167-C-01N	5/16/2007	SW8290	1,2,3,4,6,7,8-HpCDD	110		0.21	6.8	ng/Kg	1.10
				Total HpCDD						1.10
TTASPETP01	SS05167-C-01N	5/16/2007	SW8290	OCTACHLORDIBENZO-p-DIOXIN	2200	J	0.24	14	ng/Kg	2.20
TTASPETP01	SS05167-C-01N	5/16/2007	SW8290	2,3,7,8-TCDF	ND	U	0.2	1.4	ng/Kg	0.00
				Total TCDF						0.00
TTASPETP01	SS05167-C-01N	5/16/2007	SW8290	1,2,3,7,8-PeCDF	0.16	J	0.12	6.8	ng/Kg	0.008
TTASPETP01	SS05167-C-01N	5/16/2007	SW8290	2,3,4,7,8-PeCDF	0.28	J	0.099	6.8	ng/Kg	0.14
				Total PeCDF						0.148
TTASPETP01	SS05167-C-01N	5/16/2007	SW8290	1,2,3,4,7,8-HxCDF	1.3	J	0.081	6.8	ng/Kg	0.13
TTASPETP01	SS05167-C-01N	5/16/2007	SW8290	1,2,3,6,7,8-HxCDF	1.4	J	0.084	6.8	ng/Kg	0.14
TTASPETP01	SS05167-C-01N	5/16/2007	SW8290	2,3,4,6,7,8-HxCDF	1.1	J	0.093	6.8	ng/Kg	0.11
TTASPETP01	SS05167-C-01N	5/16/2007	SW8290	1,2,3,7,8,9-HxCDF	ND	U	0.11	6.8	ng/Kg	0.00
				Total HxCDF						0.38
TTASPETP01	SS05167-C-01N	5/16/2007	SW8290	1,2,3,4,6,7,8-HpCDF	24		0.13	6.8	ng/Kg	0.24
TTASPETP01	SS05167-C-01N	5/16/2007	SW8290	1,2,3,4,7,8,9-HpCDF	1.1	J	0.18	6.8	ng/Kg	0.011
				Total HpCDF						0.251

SSL - MMR Soil Screening Level

PRG - Preliminary Remediation Goal

BKGD - MMR Background Soil Concentration

S-1/GW-1 - MCP Method 1 value

RCS1 - MCP Reportable Concentration for S1 Soil

J - Estimated value

Table 3-4
MSP3 ASP Soil Analytical Results

Location	Sample ID	Date	Test	Analyte	Result	Qual	DL	RL	Units	TEQ
TTASPETP01	SS05167-C-01N	5/16/2007	SW8290	OCTACHLORDIBENZOFURAN	47		0.16	14	ng/Kg	0.047
				Total TEQ						5.836
Area E - South Sidewall										
TTASPETP01	SS05167-C-01S	5/16/2007	SW8290	2,3,7,8-TCDD	ND	U	0.31	1.2	ng/Kg	0.00
				Total TCDD						0.00
TTASPETP01	SS05167-C-01S	5/16/2007	SW8290	1,2,3,7,8-PeCDD	0.41	J	0.14	5.9	ng/Kg	0.205
				Total PeCDD						0.205
TTASPETP01	SS05167-C-01S	5/16/2007	SW8290	1,2,3,4,7,8-HxCDD	0.39	J	0.11	5.9	ng/Kg	0.039
TTASPETP01	SS05167-C-01S	5/16/2007	SW8290	1,2,3,6,7,8-HxCDD	0.77	J	0.12	5.9	ng/Kg	0.077
TTASPETP01	SS05167-C-01S	5/16/2007	SW8290	1,2,3,7,8,9-HxCDD	0.77	J	0.11	5.9	ng/Kg	0.077
				Total HxCDD						0.193
TTASPETP01	SS05167-C-01S	5/16/2007	SW8290	1,2,3,4,6,7,8-HpCDD	27		0.16	5.9	ng/Kg	0.27
				Total HpCDD						0.27
TTASPETP01	SS05167-C-01S	5/16/2007	SW8290	OCTACHLORDIBENZO-p-DIOXIN	890	J	0.27	12	ng/Kg	0.89
TTASPETP01	SS05167-C-01S	5/16/2007	SW8290	2,3,7,8-TCDF	0.32	J	0.23	1.2	ng/Kg	0.032
				Total TCDF						0.032
TTASPETP01	SS05167-C-01S	5/16/2007	SW8290	1,2,3,7,8-PeCDF	ND	U	0.12	5.9	ng/Kg	0.00
TTASPETP01	SS05167-C-01S	5/16/2007	SW8290	2,3,4,7,8-PeCDF	0.23	J	0.1	5.9	ng/Kg	0.115
				Total PeCDF						0.115
TTASPETP01	SS05167-C-01S	5/16/2007	SW8290	1,2,3,4,7,8-HxCDF	0.36	J	0.069	5.9	ng/Kg	0.036
TTASPETP01	SS05167-C-01S	5/16/2007	SW8290	1,2,3,6,7,8-HxCDF	0.32	J	0.065	5.9	ng/Kg	0.032
TTASPETP01	SS05167-C-01S	5/16/2007	SW8290	2,3,4,6,7,8-HxCDF	0.21	J	0.075	5.9	ng/Kg	0.021
TTASPETP01	SS05167-C-01S	5/16/2007	SW8290	1,2,3,7,8,9-HxCDF	0.23	U	0.11	5.9	ng/Kg	0.023
				Total HxCDF						0.112
TTASPETP01	SS05167-C-01S	5/16/2007	SW8290	1,2,3,4,6,7,8-HpCDF	3.6		0.11	5.9	ng/Kg	0.036
TTASPETP01	SS05167-C-01S	5/16/2007	SW8290	1,2,3,4,7,8,9-HpCDF	0.33	J	0.13	5.9	ng/Kg	0.003
				Total HpCDF						0.039
TTASPETP01	SS05167-C-01S	5/16/2007	SW8290	OCTACHLORDIBENZOFURAN	6.3		0.16	12	ng/Kg	0.006
				Total TEQ						1.862
Area E - East Sidewall										
TTASPETP01	SS05167-C-01E	5/16/2007	SW8290	2,3,7,8-TCDD	ND	U	0.25	1.2	ng/Kg	0.00
				Total TCDD						0.00
TTASPETP01	SS05167-C-01E	5/16/2007	SW8290	1,2,3,7,8-PeCDD	2.9	J	0.13	6.1	ng/Kg	1.45
				Total PeCDD						1.45
TTASPETP01	SS05167-C-01E	5/16/2007	SW8290	1,2,3,4,7,8-HxCDD	3.8	J	0.12	6.1	ng/Kg	0.38
TTASPETP01	SS05167-C-01E	5/16/2007	SW8290	1,2,3,6,7,8-HxCDD	13		0.13	6.1	ng/Kg	1.30
TTASPETP01	SS05167-C-01E	5/16/2007	SW8290	1,2,3,7,8,9-HxCDD	12		0.12	6.1	ng/Kg	1.20
				Total HxCDD						2.88
TTASPETP01	SS05167-C-01E	5/16/2007	SW8290	1,2,3,4,6,7,8-HpCDD	270		0.23	6.1	ng/Kg	2.70
				Total HpCDD						2.70

SSL - MMR Soil Screening Level
 PRG - Preliminary Remediation Goal
 BKGD - MMR Background Soil Concentration
 S-1/GW-1 - MCP Method 1 value
 RCS1 - MCP Reportable Concentration for S1 Soil

J - Estimated value

Table 3-4
MSP3 ASP Soil Analytical Results

Location	Sample ID	Date	Test	Analyte	Result	Qual	DL	RL	Units	TEQ
TTASPETP01	SS05167-C-01E	5/16/2007	SW8290	OCTACHLORDIBENZO-p-DIOXIN	4200	J	0.18	12	ng/Kg	4.20
TTASPETP01	SS05167-C-01E	5/16/2007	SW8290	2,3,7,8-TCDF	0.5	J	0.18	1.2	ng/Kg	0.05
				Total TCDF						0.05
TTASPETP01	SS05167-C-01E	5/16/2007	SW8290	1,2,3,7,8-PeCDF	0.56	J	0.099	6.1	ng/Kg	0.028
TTASPETP01	SS05167-C-01E	5/16/2007	SW8290	2,3,4,7,8-PeCDF	0.67	J	0.09	6.1	ng/Kg	0.335
				Total PeCDF						0.363
TTASPETP01	SS05167-C-01E	5/16/2007	SW8290	1,2,3,4,7,8-HxCDF	3.5	J	0.062	6.1	ng/Kg	0.35
TTASPETP01	SS05167-C-01E	5/16/2007	SW8290	1,2,3,6,7,8-HxCDF	3.8	J	0.059	6.1	ng/Kg	0.38
TTASPETP01	SS05167-C-01E	5/16/2007	SW8290	2,3,4,6,7,8-HxCDF	2.8	J	0.069	6.1	ng/Kg	0.28
TTASPETP01	SS05167-C-01E	5/16/2007	SW8290	1,2,3,7,8,9-HxCDF	ND	U	0.11	6.1	ng/Kg	0.00
				Total HxCDF						1.01
TTASPETP01	SS05167-C-01E	5/16/2007	SW8290	1,2,3,4,6,7,8-HpCDF	64		0.1	6.1	ng/Kg	0.64
TTASPETP01	SS05167-C-01E	5/16/2007	SW8290	1,2,3,4,7,8,9-HpCDF	3.2	J	0.15	6.1	ng/Kg	0.032
				Total HpCDF						0.672
TTASPETP01	SS05167-C-01E	5/16/2007	SW8290	OCTACHLORDIBENZOFURAN	140		0.098	12	ng/Kg	0.140
				Total TEQ						13.465
Area E - West Sidewall										
TTASPETP01	SS05167-C-01W	5/16/2007	SW8290	2,3,7,8-TCDD	ND	U	0.31	1.2	ng/Kg	0.00
				Total TCDD						0.00
TTASPETP01	SS05167-C-01W	5/16/2007	SW8290	1,2,3,7,8-PeCDD	0.62	J	0.14	5.9	ng/Kg	0.31
				Total PeCDD						0.31
TTASPETP01	SS05167-C-01W	5/16/2007	SW8290	1,2,3,4,7,8-HxCDD	0.62	J	0.11	5.9	ng/Kg	0.062
TTASPETP01	SS05167-C-01W	5/16/2007	SW8290	1,2,3,6,7,8-HxCDD	1.6	J	0.12	5.9	ng/Kg	0.16
TTASPETP01	SS05167-C-01W	5/16/2007	SW8290	1,2,3,7,8,9-HxCDD	1.4	J	0.11	5.9	ng/Kg	0.14
				Total HxCDD						0.362
TTASPETP01	SS05167-C-01W	5/16/2007	SW8290	1,2,3,4,6,7,8-HpCDD	39		0.16	5.9	ng/Kg	0.39
				Total HpCDD						0.39
TTASPETP01	SS05167-C-01W	5/16/2007	SW8290	OCTACHLORDIBENZO-p-DIOXIN	1300	J	0.27	12	ng/Kg	1.30
TTASPETP01	SS05167-C-01W	5/16/2007	SW8290	2,3,7,8-TCDF	ND	U	0.23	1.2	ng/Kg	0.00
				Total TCDF						0.00
TTASPETP01	SS05167-C-01W	5/16/2007	SW8290	1,2,3,7,8-PeCDF	ND	U	0.12	5.9	ng/Kg	0.00
TTASPETP01	SS05167-C-01W	5/16/2007	SW8290	2,3,4,7,8-PeCDF	0.28	J	0.1	5.9	ng/Kg	0.14
				Total PeCDF						0.14
TTASPETP01	SS05167-C-01W	5/16/2007	SW8290	1,2,3,4,7,8-HxCDF	0.45	J	0.069	5.9	ng/Kg	0.045
TTASPETP01	SS05167-C-01W	5/16/2007	SW8290	1,2,3,6,7,8-HxCDF	0.81	J	0.065	5.9	ng/Kg	0.081
TTASPETP01	SS05167-C-01W	5/16/2007	SW8290	2,3,4,6,7,8-HxCDF	0.25	J	0.075	5.9	ng/Kg	0.025
TTASPETP01	SS05167-C-01W	5/16/2007	SW8290	1,2,3,7,8,9-HxCDF	ND	U	0.088	5.9	ng/Kg	0.00
				Total HxCDF						0.151

SSL - MMR Soil Screening Level
 PRG - Preliminary Remediation Goal
 BKGD - MMR Background Soil Concentration
 S-1/GW-1 - MCP Method 1 value
 RCS1 - MCP Reportable Concentration for S1 Soil

J - Estimated value

Table 3-4
MSP3 ASP Soil Analytical Results

Location	Sample ID	Date	Test	Analyte	Result	Qual	DL	RL	Units	TEQ
TTASPETP01	SS05167-C-01W	5/16/2007	SW8290	1,2,3,4,6,7,8-HpCDF	4.8	J	0.11	5.9	ng/Kg	0.048
TTASPETP01	SS05167-C-01W	5/16/2007	SW8290	1,2,3,4,7,8,9-HpCDF	0.23	J	0.13	5.9	ng/Kg	0.002
				Total HpCDF						0.050
TTASPETP01	SS05167-C-01W	5/16/2007	SW8290	OCTACHLORDIBENZOFURAN	10	J	0.16	12	ng/Kg	0.01
				Total TEQ						2.713
Area E - West Sidewall Replicate										
TTASPETP01	SS05167-C-02W	5/16/2007	SW8290	2,3,7,8-TCDD	ND	U	0.18	1.2	ng/Kg	0.00
				Total TCDD						0.00
TTASPETP01	SS05167-C-02W	5/16/2007	SW8290	1,2,3,7,8-PeCDD	0.42	J	0.093	5.9	ng/Kg	0.21
				Total PeCDD						0.21
TTASPETP01	SS05167-C-02W	5/16/2007	SW8290	1,2,3,4,7,8-HxCDD	0.39	J	0.078	5.9	ng/Kg	0.039
TTASPETP01	SS05167-C-02W	5/16/2007	SW8290	1,2,3,6,7,8-HxCDD	1.1	J	0.085	5.9	ng/Kg	0.11
TTASPETP01	SS05167-C-02W	5/16/2007	SW8290	1,2,3,7,8,9-HxCDD	0.84	J	0.076	5.9	ng/Kg	0.084
				Total HxCDD						0.233
TTASPETP01	SS05167-C-02W	5/16/2007	SW8290	1,2,3,4,6,7,8-HpCDD	28		0.14	5.9	ng/Kg	0.28
				Total HpCDD						0.28
TTASPETP01	SS05167-C-02W	5/16/2007	SW8290	OCTACHLORDIBENZO-p-DIOXIN	1300	J	0.19	12	ng/Kg	1.30
TTASPETP01	SS05167-C-02W	5/16/2007	SW8290	2,3,7,8-TCDF	0.22	J	0.22	1.2	ng/Kg	0.022
				Total TCDF						0.022
TTASPETP01	SS05167-C-02W	5/16/2007	SW8290	1,2,3,7,8-PeCDF	0.14	J	0.066	5.9	ng/Kg	0.007
TTASPETP01	SS05167-C-02W	5/16/2007	SW8290	2,3,4,7,8-PeCDF	0.17	J	0.053	5.9	ng/Kg	0.085
				Total PeCDF						0.092
TTASPETP01	SS05167-C-02W	5/16/2007	SW8290	1,2,3,4,7,8-HxCDF	0.47	J	0.047	5.9	ng/Kg	0.047
TTASPETP01	SS05167-C-02W	5/16/2007	SW8290	1,2,3,6,7,8-HxCDF	0.49	J	0.045	5.9	ng/Kg	0.049
TTASPETP01	SS05167-C-02W	5/16/2007	SW8290	2,3,4,6,7,8-HxCDF	0.29	J	0.05	5.9	ng/Kg	0.029
TTASPETP01	SS05167-C-02W	5/16/2007	SW8290	1,2,3,7,8,9-HxCDF	ND	U	0.064	5.9	ng/Kg	0.00
				Total HxCDF						0.125
TTASPETP01	SS05167-C-02W	5/16/2007	SW8290	1,2,3,4,6,7,8-HpCDF	4	J	0.066	5.9	ng/Kg	0.04
TTASPETP01	SS05167-C-02W	5/16/2007	SW8290	1,2,3,4,7,8,9-HpCDF	0.31	J	0.092	5.9	ng/Kg	0.003
				Total HpCDF						0.043
TTASPETP01	SS05167-C-02W	5/16/2007	SW8290	OCTACHLORDIBENZOFURAN	7.3	J	0.1	12	ng/Kg	0.007
				Total TEQ						2.312
Area E - West Sidewall Replicate #2										
TTASPETP01	SS05167-C-03W	5/16/2007	SW8290	2,3,7,8-TCDD	ND	U	0.21	1.2	ng/Kg	0.00
				Total TCDD						0.00
TTASPETP01	SS05167-C-03W	5/16/2007	SW8290	1,2,3,7,8-PeCDD	0.75	J	0.1	6.1	ng/Kg	0.375
				Total PeCDD						0.375

SSL - MMR Soil Screening Level
 PRG - Preliminary Remediation Goal
 BKGD - MMR Background Soil Concentration
 S-1/GW-1 - MCP Method 1 value
 RCS1 - MCP Reportable Concentration for S1 Soil

J - Estimated value

Table 3-4
MSP3 ASP Soil Analytical Results

Location	Sample ID	Date	Test	Analyte	Result	Qual	DL	RL	Units	TEQ
TTASPETP01	SS05167-C-03W	5/16/2007	SW8290	1,2,3,4,7,8-HxCDD	0.58	J	0.077	6.1	ng/Kg	0.058
TTASPETP01	SS05167-C-03W	5/16/2007	SW8290	1,2,3,6,7,8-HxCDD	2.2	J	0.089	6.1	ng/Kg	0.22
TTASPETP01	SS05167-C-03W	5/16/2007	SW8290	1,2,3,7,8,9-HxCDD	1.8	J	0.078	6.1	ng/Kg	0.18
				Total HxCDD						0.458
TTASPETP01	SS05167-C-03W	5/16/2007	SW8290	1,2,3,4,6,7,8-HpCDD	44		0.11	6.1	ng/Kg	0.44
				Total HpCDD						0.44
TTASPETP01	SS05167-C-03W	5/16/2007	SW8290	OCTACHLORDIBENZO-p-DIOXIN	1500	J	0.15	12	ng/Kg	1.50
TTASPETP01	SS05167-C-03W	5/16/2007	SW8290	2,3,7,8-TCDF	0.25	J	0.16	1.2	ng/Kg	0.025
				Total TCDF						0.025
TTASPETP01	SS05167-C-03W	5/16/2007	SW8290	1,2,3,7,8-PeCDF	ND	U	0.075	6.1	ng/Kg	0.00
TTASPETP01	SS05167-C-03W	5/16/2007	SW8290	2,3,4,7,8-PeCDF	0.19	J	0.068	6.1	ng/Kg	0.095
				Total PeCDF						0.095
TTASPETP01	SS05167-C-03W	5/16/2007	SW8290	1,2,3,4,7,8-HxCDF	0.6	J	0.045	6.1	ng/Kg	0.06
TTASPETP01	SS05167-C-03W	5/16/2007	SW8290	1,2,3,6,7,8-HxCDF	0.59	J	0.047	6.1	ng/Kg	0.059
TTASPETP01	SS05167-C-03W	5/16/2007	SW8290	2,3,4,6,7,8-HxCDF	0.25	J	0.052	6.1	ng/Kg	0.025
TTASPETP01	SS05167-C-03W	5/16/2007	SW8290	1,2,3,7,8,9-HxCDF	ND	U	0.062	6.1	ng/Kg	0.00
				Total HxCDF						0.144
TTASPETP01	SS05167-C-03W	5/16/2007	SW8290	1,2,3,4,6,7,8-HpCDF	6.2		0.078	6.1	ng/Kg	0.062
TTASPETP01	SS05167-C-03W	5/16/2007	SW8290	1,2,3,4,7,8,9-HpCDF	0.54	J	0.11	6.1	ng/Kg	0.005
				Total HpCDF						0.067
TTASPETP01	SS05167-C-03W	5/16/2007	SW8290	OCTACHLORDIBENZOFURAN	12		0.11	12	ng/Kg	0.012
				Total TEQ						3.116
Area E - Bottom										
TTASPETP01	SS05167-C-01B	5/16/2007	SW8290	2,3,7,8-TCDD	ND	U	0.32	1.3	ng/Kg	0.00
				Total TCDD						0.00
TTASPETP01	SS05167-C-01B	5/16/2007	SW8290	1,2,3,7,8-PeCDD	1.2	J	0.15	6.6	ng/Kg	0.60
				Total PeCDD						0.60
TTASPETP01	SS05167-C-01B	5/16/2007	SW8290	1,2,3,4,7,8-HxCDD	1.5	J	0.11	6.6	ng/Kg	0.15
TTASPETP01	SS05167-C-01B	5/16/2007	SW8290	1,2,3,6,7,8-HxCDD	5.8	J	0.12	6.6	ng/Kg	0.58
TTASPETP01	SS05167-C-01B	5/16/2007	SW8290	1,2,3,7,8,9-HxCDD	5.4	J	0.11	6.6	ng/Kg	0.54
				Total HxCDD						1.27
TTASPETP01	SS05167-C-01B	5/16/2007	SW8290	1,2,3,4,6,7,8-HpCDD	120		0.23	6.6	ng/Kg	1.20
				Total HpCDD						1.20
TTASPETP01	SS05167-C-01B	5/16/2007	SW8290	OCTACHLORDIBENZO-p-DIOXIN	1900	J	0.27	13	ng/Kg	1.90
TTASPETP01	SS05167-C-01B	5/16/2007	SW8290	2,3,7,8-TCDF	0.43	J	0.22	1.3	ng/Kg	0.043
				Total TCDF						0.043
TTASPETP01	SS05167-C-01B	5/16/2007	SW8290	1,2,3,7,8-PeCDF	0.28	J	0.12	6.6	ng/Kg	0.014
TTASPETP01	SS05167-C-01B	5/16/2007	SW8290	2,3,4,7,8-PeCDF	0.39	J	0.098	6.6	ng/Kg	0.195
				Total PeCDF						0.209

SSL - MMR Soil Screening Level
 PRG - Preliminary Remediation Goal
 BKGD - MMR Background Soil Concentration
 S-1/GW-1 - MCP Method 1 value
 RCS1 - MCP Reportable Concentration for S1 Soil

J - Estimated value

Table 3-4
MSP3 ASP Soil Analytical Results

Location	Sample ID	Date	Test	Analyte	Result	Qual	DL	RL	Units	TEQ
TTASPETP01	SS05167-C-01B	5/16/2007	SW8290	1,2,3,4,7,8-HxCDF	1.3	J	0.077	6.6	ng/Kg	0.13
TTASPETP01	SS05167-C-01B	5/16/2007	SW8290	1,2,3,6,7,8-HxCDF	1.6	J	0.076	6.6	ng/Kg	0.16
TTASPETP01	SS05167-C-01B	5/16/2007	SW8290	2,3,4,6,7,8-HxCDF	1.2	J	0.079	6.6	ng/Kg	0.12
TTASPETP01	SS05167-C-01B	5/16/2007	SW8290	1,2,3,7,8,9-HxCDF	ND	U	0.1	6.6	ng/Kg	0.00
				Total HxCDF						0.41
TTASPETP01	SS05167-C-01B	5/16/2007	SW8290	1,2,3,4,6,7,8-HpCDF	22		0.1	6.6	ng/Kg	0.22
TTASPETP01	SS05167-C-01B	5/16/2007	SW8290	1,2,3,4,7,8,9-HpCDF	1.3	J	0.14	6.6	ng/Kg	0.013
				Total HpCDF						0.233
TTASPETP01	SS05167-C-01B	5/16/2007	SW8290	OCTACHLORDIBENZOFURAN	45		0.14	13	ng/Kg	0.045
				Total TEQ						5.910

SSL - MMR Soil Screening Level
 PRG - Preliminary Remediation Goal
 BKGD - MMR Background Soil Concentration
 S-1/GW-1 - MCP Method 1 value
 RCS1 - MCP Reportable Concentration for S1 Soil

J - Estimated value

(This page left intentionally blank)

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
ASP Supply Well															
SPWELL		7/20/1999	4617248.98	369433.29	NA	NA	E200.8	BARIUM	17		0.2	0.2	µg/L	2600	
SPWELL		7/20/1999	4617248.98	369433.29	NA	NA	E200.8	CHROMIUM, TOTAL	0.4		0.2	0.2	µg/L	11 ^A	
SPWELL		7/20/1999	4617248.98	369433.29	NA	NA	E200.8	LEAD	53		0.5	0.5	µg/L		
SPWELL		7/20/1999	4617248.98	369433.29	NA	NA	E300	NITROGEN, NITRATE (AS N)	ND	U	0.5	0.5	mg/L	1000	
SPWELL		7/20/1999	4617248.98	369433.29	NA	NA	E335.4	CYANIDE	ND	U	0.02	0.02	mg/L	73	
SPWELL		7/20/1999	4617248.98	369433.29	NA	NA	E504.1	Non detect on all 2 analytes	ND	U			µg/L		
SPWELL		7/20/1999	4617248.98	369433.29	NA	NA	E505	Non detect on all 7 PCB aroclors	ND	U			µg/L		
SPWELL		7/20/1999	4617248.98	369433.29	NA	NA	E515.1	Non detect on all 7 herbicides	ND	UJ			µg/L		
SPWELL		7/20/1999	4617248.98	369433.29	NA	NA	E524.2	CHLOROFORM	0.5	J	0.1	0.1	µg/L	0.17	X
SPWELL		7/20/1999	4617248.98	369433.29	NA	NA	E524.2	Non detect on 79 other VOCs	ND	U			µg/L		
SPWELL		7/20/1999	4617248.98	369433.29	NA	NA	E525.2	Non detect on 18 other SVOCs	ND	U			µg/L		
SPWELL		7/20/1999	4617248.98	369433.29	NA	NA	SW8330	Non detect on all 19 explosive compounds	ND				µg/L		
SPWELL		10/13/1999	4617248.98	369433.29	NA	NA	E200.8	BARIUM	15		0.2	0.2	µg/L	2600	
SPWELL		10/13/1999	4617248.98	369433.29	NA	NA	E200.8	CHROMIUM, TOTAL	3.3		0.2	0.2	µg/L	11 ^A	
SPWELL		10/13/1999	4617248.98	369433.29	NA	NA	E200.8	LEAD	14		0.5	0.5	µg/L		
SPWELL		10/13/1999	4617248.98	369433.29	NA	NA	E300	NITROGEN, NITRATE (AS N)	ND	U	0.5	0.5	mg/L	1000	
SPWELL		10/13/1999	4617248.98	369433.29	NA	NA	E335.4	CYANIDE	ND	U	0.02	0.02	mg/L	73	
SPWELL		10/13/1999	4617248.98	369433.29	NA	NA	E504.1	Non detect on all 2 analytes	ND	U			µg/L		
SPWELL		10/13/1999	4617248.98	369433.29	NA	NA	E505	Non detect on all 7 PCB aroclors	ND	U			µg/L		
SPWELL		10/13/1999	4617248.98	369433.29	NA	NA	E515.1	Non detect on all 7 herbicides	ND	UJ			µg/L		
SPWELL		10/13/1999	4617248.98	369433.29	NA	NA	E524.2	CHLOROFORM	0.3	J	0.1	0.1	µg/L	0.17	X
SPWELL		10/13/1999	4617248.98	369433.29	NA	NA	E524.2	Non detect on 79 other VOCs	ND	U			µg/L		
SPWELL		10/13/1999	4617248.98	369433.29	NA	NA	E525.2	Non detect on 18 other SVOCs	ND	U			µg/L		
SPWELL		10/13/1999	4617248.98	369433.29	NA	NA	SW8330	Non detect on all 19 explosive compounds	ND				µg/L		
SPWELL		10/19/1999	4617248.98	369433.29	NA	NA	E353.2	NITROGEN, NITRITE	ND	U	0.01	0.01	µg/L	100	
SPWELL		12/16/1999	4617248.98	369433.29	NA	NA	E200.8	LEAD	7.4		0.5	0.5	µg/L		

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
SPWELL		8/8/2000	4617248.98	369433.29	NA	NA	SW8330	Non detect on all 19 explosive compounds	ND				µg/L		
SPWELL	FD	8/8/2000	4617248.98	369433.29	NA	NA	SW8330	Non detect on all 19 explosive compounds	ND				µg/L		
SPWELL		12/12/2000	4617248.98	369433.29	NA	NA	CL200.7	LEAD	20.9		1.6	1.6	µg/L		
SPWELL		12/27/2000	4617248.98	369433.29	NA	NA	A3111B	SODIUM	38		0.1	5000	µg/L		
SPWELL		12/27/2000	4617248.98	369433.29	NA	NA	E200.8	BARIUM	14		0.2	200	µg/L	2600	
SPWELL		12/27/2000	4617248.98	369433.29	NA	NA	E200.8	CHROMIUM, TOTAL	0.2		0.2	10	µg/L	11 ^A	
SPWELL		12/27/2000	4617248.98	369433.29	NA	NA	E200.8	LEAD	2.2		0.5	3	µg/L		
SPWELL		12/27/2000	4617248.98	369433.29	NA	NA	E200.8	NICKEL	0.7		0.5	40	µg/L	73	
SPWELL		12/27/2000	4617248.98	369433.29	NA	NA	E300	NITROGEN, NITRATE (AS N)	ND	U			mg/L	1000	
SPWELL		12/27/2000	4617248.98	369433.29	NA	NA	E335.4	CYANIDE	ND	U	0.01	0.02	mg/L	73	
SPWELL		12/27/2000	4617248.98	369433.29	NA	NA	E353.2	NITROGEN, NITRITE	ND	U	0.006	0.1	mg/L	100000	
SPWELL		12/27/2000	4617248.98	369433.29	NA	NA	E504.1	Non detect on all 2 analytes	ND	U			µg/L		
SPWELL		12/27/2000	4617248.98	369433.29	NA	NA	E505	Non detect on all 7 PCB aroclors	ND	UJ			µg/L		
SPWELL		12/27/2000	4617248.98	369433.29	NA	NA	E515.1	Non detect on all 7 herbicides	ND	U			µg/L		
SPWELL		12/27/2000	4617248.98	369433.29	NA	NA	E524.2	CHLOROFORM	0.8	J	0.1	0.1	µg/L	0.17	X
SPWELL		12/27/2000	4617248.98	369433.29	NA	NA	E524.2	Non detect on 79 other VOCs	ND	U			µg/L		
SPWELL		12/27/2000	4617248.98	369433.29	NA	NA	E525.2	Non detect on 19 other SVOCs	ND	U			µg/L		
SPWELL		5/24/2001	4617248.98	369433.29	NA	NA	CL200.7	BARIUM	8.2		3.6	3.6	µg/L	2600	
SPWELL		5/24/2001	4617248.98	369433.29	NA	NA	CL200.7	BORON	12.9	J	8.1	8.1	µg/L	7300	
SPWELL		5/24/2001	4617248.98	369433.29	NA	NA	CL200.7	CALCIUM	2070		180	180	µg/L		
SPWELL		5/24/2001	4617248.98	369433.29	NA	NA	CL200.7	COPPER	326		2.5	2.5	µg/L	150	X
SPWELL		5/24/2001	4617248.98	369433.29	NA	NA	CL200.7	IRON	4260		37.1	37.1	µg/L	1100	X
SPWELL		5/24/2001	4617248.98	369433.29	NA	NA	CL200.7	LEAD	30.4		1.3	1.3	µg/L		
SPWELL		5/24/2001	4617248.98	369433.29	NA	NA	CL200.7	MAGNESIUM	1450		189	189	µg/L		
SPWELL		5/24/2001	4617248.98	369433.29	NA	NA	CL200.7	MANGANESE	61.6		0.3	0.3	µg/L	88	
SPWELL		5/24/2001	4617248.98	369433.29	NA	NA	CL200.7	MOLYBDENUM	1.4	J	1.2	1.2	µg/L	18	
SPWELL		5/24/2001	4617248.98	369433.29	NA	NA	CL200.7	POTASSIUM	1000		359	359	µg/L		
SPWELL		5/24/2001	4617248.98	369433.29	NA	NA	CL200.7	SODIUM	24900		334	334	µg/L		

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
SPWELL		5/24/2001	4617248.98	369433.29	NA	NA	CL200.7	ZINC	34.8	J	2.4	4.8	µg/L	1100	
SPWELL		5/24/2001	4617248.98	369433.29	NA	NA	CL245.1	MERCURY	ND	U	0.0646	0.1	µg/L	1.1	
SPWELL		9/27/2001	4617248.98	369433.29	NA	NA	CL200.7	BARIUM	5.9	J	4	4	µg/L	2600	
SPWELL		9/27/2001	4617248.98	369433.29	NA	NA	CL200.7	CALCIUM	1550		319	319	µg/L		
SPWELL		9/27/2001	4617248.98	369433.29	NA	NA	CL200.7	COPPER	353		1	1	µg/L	150	X
SPWELL		9/27/2001	4617248.98	369433.29	NA	NA	CL200.7	IRON	1580		15.7	15.7	µg/L	1100	X
SPWELL		9/27/2001	4617248.98	369433.29	NA	NA	CL200.7	LEAD	13.4		0.6	0.6	µg/L		
SPWELL		9/27/2001	4617248.98	369433.29	NA	NA	CL200.7	MAGNESIUM	1090		195	195	µg/L		
SPWELL		9/27/2001	4617248.98	369433.29	NA	NA	CL200.7	MANGANESE	51.4		0.6	0.6	µg/L	88	
SPWELL		9/27/2001	4617248.98	369433.29	NA	NA	CL200.7	POTASSIUM	894		233	233	µg/L		
SPWELL		9/27/2001	4617248.98	369433.29	NA	NA	CL200.7	SODIUM	22600		261	261	µg/L		
SPWELL		9/27/2001	4617248.98	369433.29	NA	NA	CL200.7	ZINC	18.2		0.9	0.9	µg/L	1100	
SPWELL		9/27/2001	4617248.98	369433.29	NA	NA	CL245.1	MERCURY	ND	U	0.0646	0.1	µg/L	1.1	
SPWELL		9/27/2001	4617248.98	369433.29	NA	NA	E314.0	PERCHLORATE	ND	U	1.5	5	µg/L	0.36	
SPWELL		9/27/2001	4617248.98	369433.29	NA	NA	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
SPWELL		12/19/2001	4617248.98	369433.29	NA	NA	CL200.7	BORON	7.5	J	7.2	7.2	µg/L	7300	
SPWELL		12/19/2001	4617248.98	369433.29	NA	NA	CL200.7	CALCIUM	2240		319	319	µg/L		
SPWELL		12/19/2001	4617248.98	369433.29	NA	NA	CL200.7	COPPER	286		2.6	2.6	µg/L	150	X
SPWELL		12/19/2001	4617248.98	369433.29	NA	NA	CL200.7	IRON	1180		19.4	19.4	µg/L	1100	X
SPWELL		12/19/2001	4617248.98	369433.29	NA	NA	CL200.7	LEAD	14		0.9	0.9	µg/L		
SPWELL		12/19/2001	4617248.98	369433.29	NA	NA	CL200.7	MAGNESIUM	1600		195	195	µg/L		
SPWELL		12/19/2001	4617248.98	369433.29	NA	NA	CL200.7	MANGANESE	15		0.9	0.9	µg/L	88	
SPWELL		12/19/2001	4617248.98	369433.29	NA	NA	CL200.7	POTASSIUM	1200		193	193	µg/L		
SPWELL		12/19/2001	4617248.98	369433.29	NA	NA	CL200.7	SODIUM	28500		580	580	µg/L		
SPWELL		12/19/2001	4617248.98	369433.29	NA	NA	CL200.7	ZINC	8		2.7	2.7	µg/L	1100	
SPWELL		12/19/2001	4617248.98	369433.29	NA	NA	CL245.1	MERCURY	ND	UJ	0.0646	0.1	µg/L	1.1	
SPWELL		6/11/2002	4617248.98	369433.29	NA	NA	CL200.7	ALUMINUM	20.8	J	19.7	19.7	µg/L	3600	
SPWELL		6/11/2002	4617248.98	369433.29	NA	NA	CL200.7	BORON	7.3	J	3.6	6.7	µg/L	7300	

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
SPWELL		6/11/2002	4617248.98	369433.29	NA	NA	CL200.7	CALCIUM	1190		128	128	µg/L		
SPWELL		6/11/2002	4617248.98	369433.29	NA	NA	CL200.7	CHROMIUM, TOTAL	0.99	J	0.8	0.8	µg/L	11 ^A	
SPWELL		6/11/2002	4617248.98	369433.29	NA	NA	CL200.7	COPPER	46.2		1.8	1.8	µg/L	150	
SPWELL		6/11/2002	4617248.98	369433.29	NA	NA	CL200.7	IRON	454		23.4	23.4	µg/L	1100	
SPWELL		6/11/2002	4617248.98	369433.29	NA	NA	CL200.7	LEAD	4.2		0.9	0.9	µg/L		
SPWELL		6/11/2002	4617248.98	369433.29	NA	NA	CL200.7	MAGNESIUM	735		132	132	µg/L		
SPWELL		6/11/2002	4617248.98	369433.29	NA	NA	CL200.7	MANGANESE	11.3		0.8	0.8	µg/L	88	
SPWELL		6/11/2002	4617248.98	369433.29	NA	NA	CL200.7	NICKEL	2.6		1.3	1.3	µg/L	73	
SPWELL		6/11/2002	4617248.98	369433.29	NA	NA	CL200.7	POTASSIUM	641		194	194	µg/L		
SPWELL		6/11/2002	4617248.98	369433.29	NA	NA	CL200.7	SODIUM	14900		548.6	654	µg/L		
SPWELL		6/11/2002	4617248.98	369433.29	NA	NA	CL200.7	ZINC	4.1		1.1	1.1	µg/L	1100	
SPWELL		6/11/2002	4617248.98	369433.29	NA	NA	CL245.1	MERCURY	ND	U	0.0383	0.1	µg/L	1.1	
SPWELL		6/11/2002	4617248.98	369433.29	NA	NA	E314.0	PERCHLORATE	ND	U	0.43	1	µg/L	0.36	
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	CL200.7	BORON	6.5	J	3.6	4.8	µg/L	7300	
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	CL200.7	CALCIUM	1390		155	155	µg/L		
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	CL200.7	COPPER	164		1.8	1.8	µg/L	150	X
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	CL200.7	IRON	252		22.6	22.6	µg/L	1100	
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	CL200.7	LEAD	2.1	J	1.1	1.1	µg/L		
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	CL200.7	MAGNESIUM	838		218	218	µg/L		
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	CL200.7	MANGANESE	2.8	J	1.3	2.5	µg/L	88	
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	CL200.7	POTASSIUM	693		274	274	µg/L		
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	CL200.7	SODIUM	16900		539	539	µg/L		
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	CL200.7	ZINC	12.7	J	4.5	6.9	µg/L	1100	
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	CL245.1	MERCURY	ND	U	0.0383	0.1	µg/L	1.1	
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	A3111B	SODIUM	16.6		0.1	0.1	mg/L		
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	E200.8	BARIUM	3.4	J	2	2	µg/L	2600	
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	E200.8	LEAD	4.82		1	1	µg/L		
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	E200.8	NICKEL	1.19	J	1	1	µg/L	73	
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	E245.1	MERCURY	ND	U	0.2	0.2	mg/L	1.1	
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	E314.0	PERCHLORATE	ND	U	0.43	1	µg/L	0.36	

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	E335.4	CYANIDE	ND	UJ	0.02	0.02	mg/L	73	
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	E353.1	NITROGEN, NITRATE (AS N)	ND	U	0.5	0.5	mg/L	1000	
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	E353.2	NITROGEN, NITRITE	ND	U	0.01	0.01	mg/L	100000	
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	E504.1	Non detect on all 2 analytes	ND	U		0.01	µg/L		
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	E505	Non detect on all 7 PCB aroclors	ND	U			µg/L		
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	E524.2	BROMODICHLOROMETHANE	0.5		0.08	0.5	µg/L	0.18	X
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	E524.2	CHLOROFORM	1.1		0.14	0.5	µg/L	0.17	X
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	E524.2	tert-BUTYL METHYL ETHER	0.5		0.076	0.5	µg/L	11	
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	E524.2	Non detect on 77 other VOCs	ND	U			µg/L		
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	E525.2	Non detect on 19 other SVOCs							
SPWELL_2002		9/19/2002	4617234.16	369456.83	NA	NA	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
SPWELL_2002		2/21/2003	4617234.16	369456.83	NA	NA	CL200.7	CALCIUM	1080		120	120	µg/L		
SPWELL_2002		2/21/2003	4617234.16	369456.83	NA	NA	CL200.7	COPPER	44.4		1.7	1.7	µg/L	150	
SPWELL_2002		2/21/2003	4617234.16	369456.83	NA	NA	CL200.7	IRON	51.2	J	28.3	48.9	µg/L	1100	
SPWELL_2002		2/21/2003	4617234.16	369456.83	NA	NA	CL200.7	MAGNESIUM	687		107	107	µg/L		
SPWELL_2002		2/21/2003	4617234.16	369456.83	NA	NA	CL200.7	MANGANESE	0.51	J	0.5	0.5	µg/L	88	
SPWELL_2002		2/21/2003	4617234.16	369456.83	NA	NA	CL200.7	POTASSIUM	462		202	202	µg/L		
SPWELL_2002		2/21/2003	4617234.16	369456.83	NA	NA	CL200.7	SODIUM	15800		327	327	µg/L		
SPWELL_2002		2/21/2003	4617234.16	369456.83	NA	NA	CL245.1	MERCURY	ND	U	0.0247	0.1	µg/L	1.1	
SPWELL_2002		2/21/2003	4617234.16	369456.83	NA	NA	E314.0	PERCHLORATE	ND	U	0.43	1	µg/L	3.6	
SPWELL_2002		2/21/2003	4617234.16	369456.83	NA	NA	SW6020	ANTIMONY	ND	U	0.3	0.3	µg/L	1.5	
SPWELL_2002		2/21/2003	4617234.16	369456.83	NA	NA	SW6020	THALLIUM	ND	U	0.1	0.1	µg/L	0.24	
SPWELL_2002		7/11/2003	4617234.16	369456.83	NA	NA	CL200.7	BORON	9.5		3.6	4.6	µg/L	7300	
SPWELL_2002		7/11/2003	4617234.16	369456.83	NA	NA	CL200.7	CADMIUM	0.43	J	0.3	0.3	µg/L	1.8	
SPWELL_2002		7/11/2003	4617234.16	369456.83	NA	NA	CL200.7	CALCIUM	607		223	223	µg/L		
SPWELL_2002		7/11/2003	4617234.16	369456.83	NA	NA	CL200.7	COPPER	48.5		1.4	1.4	µg/L	150	
SPWELL_2002		7/11/2003	4617234.16	369456.83	NA	NA	CL200.7	MAGNESIUM	314	J	182	182	µg/L		
SPWELL_2002		7/11/2003	4617234.16	369456.83	NA	NA	CL200.7	MANGANESE	1.2	J	0.7	0.7	µg/L	88	
SPWELL_2002		7/11/2003	4617234.16	369456.83	NA	NA	CL200.7	MOLYBDENUM	2.3	J	1.6	1.6	µg/L	18	

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
SPWELL_2002		7/11/2003	4617234.16	369456.83	NA	NA	CL200.7	POTASSIUM	450	J	250	250	µg/L		
SPWELL_2002		7/11/2003	4617234.16	369456.83	NA	NA	CL200.7	SODIUM	10700		219	219	µg/L		
SPWELL_2002		7/11/2003	4617234.16	369456.83	NA	NA	CL245.1	MERCURY	ND	U	0.59	0.1	µg/L	1.1	
SPWELL_2002		7/11/2003	4617234.16	369456.83	NA	NA	E314.0	PERCHLORATE	ND	UJ	0.35	1	µg/L	0.36	
SPWELL_2002		7/11/2003	4617234.16	369456.83	NA	NA	SW6020	ANTIMONY	ND	UJ	0.3	0.7	µg/L	1.5	
SPWELL_2002		7/11/2003	4617234.16	369456.83	NA	NA	SW6020	THALLIUM	ND	UJ	0.1	0.1	µg/L	0.24	
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	A3111B	MERCURY	ND	U		100	µg/L	1.1	
SPWELL_2002	FD	11/20/2003	4617234.16	369456.83	NA	NA	A3111B	MERCURY	ND	U		0.1	mg/L	1.1	
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	C200.7	BORON	6.4	J	3.6	6.4	µg/L	7300	
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	C200.7	CALCIUM	680		325	325	µg/L		
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	C200.7	COPPER	205		2	2	µg/L	150	X
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	C200.7	IRON	106		28.3	45.5	µg/L	1100	
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	C200.7	MAGNESIUM	381		167	167	µg/L		
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	C200.7	MANGANESE	2.2		1	1	µg/L	88	
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	C200.7	SODIUM	10200		502	502	µg/L		
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	CSVOL	Non detect on all 78 SVOCs	ND	U			µg/L		
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	E200.8	LEAD	1.4	J	1	1	µg/L		
SPWELL_2002	FD	11/20/2003	4617234.16	369456.83	NA	NA	E200.8	LEAD	1.7	J	1	1	µg/L		
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	E200.8	NICKEL	1.4	J	1	1	µg/L	73	
SPWELL_2002	FD	11/20/2003	4617234.16	369456.83	NA	NA	E200.8	NICKEL	1.4	J	1	1	µg/L	73	
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	E200.8	SODIUM	11000		100	100	µg/L		
SPWELL_2002	FD	11/20/2003	4617234.16	369456.83	NA	NA	E200.8	SODIUM	10		0.1	0.1	mg/L		
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	E245.1	NITROGEN, NITRITE	ND	U	10	10	µg/L	100	
SPWELL_2002	FD	11/20/2003	4617234.16	369456.83	NA	NA	E245.1	NITROGEN, NITRITE	ND	U	0.01	0.01	mg/L	100000	
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	E300	CYANIDE	ND	U	20	20	µg/L	73	
SPWELL_2002	FD	11/20/2003	4617234.16	369456.83	NA	NA	E300	CYANIDE	ND	U	0.02	0.02	mg/L	73	
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	E335.4	Non detect on all analytes	ND		0.01	0.01	µg/L		
SPWELL_2002	FD	11/20/2003	4617234.16	369456.83	NA	NA	E335.4	Non detect on all analytes	ND		0.01	0.01	µg/L		
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	E353.2	NITROGEN, NITRATE (AS N)	ND	U	500	500	µg/L	1000	

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
SPWELL_2002	FD	11/20/2003	4617234.16	369456.83	NA	NA	E353.2	NITROGEN, NITRATE (AS N)	ND	U	0.5	0.5	mg/L	1E+06	
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	E504.1	Non detect on all 2 analytes	ND	U			µg/L		
SPWELL_2002	FD	11/20/2003	4617234.16	369456.83	NA	NA	E504.1	Non detect on all 2 analytes	ND	U			µg/L		
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	E505	Non detect on all 7 PCB aroclors	ND	U			µg/L		
SPWELL_2002	FD	11/20/2003	4617234.16	369456.83	NA	NA	E505	Non detect on all 7 PCB aroclors	ND	U			µg/L		
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	E515.1	CHLOROFORM	0.7		0.5	0.5	µg/L	0.17	X
SPWELL_2002	FD	11/20/2003	4617234.16	369456.83	NA	NA	E515.1	CHLOROFORM	0.7		0.5	0.5	µg/L	0.17	X
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	E525.2	bis(2-ETHYLHEXYL) PHTHALATE	0.6		0.6	0.6	µg/L	4.8	
SPWELL_2002	FD	11/20/2003	4617234.16	369456.83	NA	NA	E525.2	bis(2-ETHYLHEXYL) PHTHALATE	ND	U	0.6	0.6	µg/L	4.8	
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	E525.2	Non detect on 77 other SVOCs	ND	U			µg/L		
SPWELL_2002	FD	11/20/2003	4617234.16	369456.83	NA	NA	E525.2	Non detect on 77 other SVOCs	ND	U			µg/L		
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	SW6020	ANTIMONY	ND	UJ	0.3	2.5	µg/L	1.5	
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	SW6020	THALLIUM	ND	U	0.1	0.1	µg/L	0.24	
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	SW7470	MERCURY	ND	U	0.059	0.1	µg/L	1.1	
SPWELL_2002		11/20/2003	4617234.16	369456.83	NA	NA	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
SPWELL_2002															
SPWELL_2002		1/22/2004	4617234.16	369456.83	NA	NA	C200.7	CALCIUM	766	J	346.2	492	µg/L		
SPWELL_2002		1/22/2004	4617234.16	369456.83	NA	NA	C200.7	COPPER	57.6		4.5	4.5	µg/L	150	
SPWELL_2002		1/22/2004	4617234.16	369456.83	NA	NA	C200.7	IRON	62.4	J	28.3	37.3	µg/L	1100	
SPWELL_2002		1/22/2004	4617234.16	369456.83	NA	NA	C200.7	POTASSIUM	480	J	479	479	µg/L		
SPWELL_2002		1/22/2004	4617234.16	369456.83	NA	NA	C200.7	SODIUM	12600		548.6	920	µg/L		
SPWELL_2002		1/22/2004	4617234.16	369456.83	NA	NA	E314.0	PERCHLORATE	ND	UJ	0.35	1	µg/L	0.36	
SPWELL_2002		1/22/2004	4617234.16	369456.83	NA	NA	SW6020	ANTIMONY	ND	U	0.3	1.2	µg/L	1.5	
SPWELL_2002		1/22/2004	4617234.16	369456.83	NA	NA	SW6020	THALLIUM	ND	U	0.1	0.1	µg/L	0.24	
SPWELL_2002		1/22/2004	4617234.16	369456.83	NA	NA	SW7470	MERCURY	ND	UJ	0.059	0.1	µg/L	1.1	
SPWELL_2002															
SPWELL_2002		7/22/2004	4617234.16	369456.83	NA	NA	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
SPWELL_2002															
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	CL200.7	BORON	9.3	J	6.9	6.9	µg/L	7300	
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	CL200.7	CALCIUM	3810		233	233	µg/L		
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	CL200.7	CHROMIUM, TOTAL	22.8		1.1	1.1	µg/L	11 ^A	X

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	CL200.7	COPPER	632		2.6	2.6	µg/L	150	X
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	CL200.7	IRON	76.5		35.5	35.5	µg/L	1100	
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	CL200.7	MAGNESIUM	2290		242	242	µg/L		
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	CL200.7	MANGANESE	13.2		1	1	µg/L	88	
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	CL200.7	NICKEL	64.8		2.9	2.9	µg/L	73	
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	CL200.7	POTASSIUM	1140		484	484	µg/L		
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	CL200.7	SODIUM	29700		358	358	µg/L		
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	CL200.7	ZINC	32.6		1.9	1.9	µg/L	1100	
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	CL245.1	MERCURY	ND	UJ	0.1	0.1	µg/L	1.1	
SPWELL_2002	FD	10/13/2004	4617234.16	369456.83	NA	NA	CL245.1	MERCURY	ND	U	0.1	0.1	µg/L	1.1	
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	E200.8	BARIUM	7.2		0.118	2	µg/L	2600	
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	E200.8	CHROMIUM, TOTAL	26		0.102	2	µg/L	11 ^A	X
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	E200.8	LEAD	1.9	J	0.15	1	µg/L		
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	E200.8	NICKEL	66		0.15	1	µg/L	73	
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	E505	Non detect on all 7 PCB aroclors	ND	U			µg/L		
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	SW6020	ANTIMONY	ND	UJ	0.3	1.4	µg/L	1.5	
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	SW6020	THALLIUM	ND	U	0.1	0.1	µg/L	0.24	
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	SW8270C	Non detect on all 78 SVOCs	ND	U			µg/L		
SPWELL_2002		10/13/2004	4617234.16	369456.83	NA	NA	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
SPWELL_2002		3/10/2005	4617234.16	369456.83	NA	NA	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
SPWELL_2002	FD	3/10/2005	4617234.16	369456.83	NA	NA	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
SPWELL_2002		6/8/2005	4617234.16	369456.83	NA	NA	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
SPWELL_2002		8/23/2005	4617234.16	369456.83	NA	NA	CL200.7	CALCIUM	1170	J	178	178	µg/L		
SPWELL_2002		8/23/2005	4617234.16	369456.83	NA	NA	CL200.7	CHROMIUM, TOTAL	1.3	J	0.7	0.7	µg/L	11 ^A	
SPWELL_2002		8/23/2005	4617234.16	369456.83	NA	NA	CL200.7	COPPER	442		2.4	2.4	µg/L	150	X
SPWELL_2002		8/23/2005	4617234.16	369456.83	NA	NA	CL200.7	MAGNESIUM	704	J	189	189	µg/L		
SPWELL_2002		8/23/2005	4617234.16	369456.83	NA	NA	CL200.7	MANGANESE	1.5	J	0.6	0.6	µg/L	88	

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
SPWELL_2002		8/23/2005	4617234.16	369456.83	NA	NA	CL200.7	NICKEL	13.2	J	1.9	1.9	µg/L	73	
SPWELL_2002		8/23/2005	4617234.16	369456.83	NA	NA	CL200.7	SODIUM	12800		640	640	µg/L		
SPWELL_2002		8/23/2005	4617234.16	369456.83	NA	NA	CL200.7	ZINC	37.6		3.2	3.2	µg/L	1100	
SPWELL_2002		8/23/2005	4617234.16	369456.83	NA	NA	CL245.1	MERCURY	ND	U	0.1	0.1	µg/L	1.1	
SPWELL_2002		8/23/2005	4617234.16	369456.83	NA	NA	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
SPWELL_2002		8/23/2005	4617234.16	369456.83	NA	NA	SW6020	ANTIMONY	ND	U	0.3	0.3	µg/L	1.5	
SPWELL_2002		8/23/2005	4617234.16	369456.83	NA	NA	SW6020	THALLIUM	ND	U	0.1	0.15	µg/L	0.24	
SPWELL_2002		8/23/2005	4617234.16	369456.83	NA	NA	SW8270C	2-METHYLNAPHTHALENE	0.29	J	0.28	5.4	µg/L	0.62 ^B	
SPWELL_2002		8/23/2005	4617234.16	369456.83	NA	NA	SW8270C	Non detect on 77 other SVOCs	ND	U			µg/L		
SPWELL_2002		8/23/2005	4617234.16	369456.83	NA	NA	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
SPWELL_2002		1/18/2006	4617234.16	369456.83	NA	NA	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
Drive Point at Area E Excavation Location															
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	ALUMINUM (TOTAL)	96.7	J	24.1	200	µg/L	3600	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	ANTIMONY (TOTAL)	ND	U	11.7	60	µg/L	1.5	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	ARSENIC (TOTAL)	ND	U	4.3	10	µg/L	0.045	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	BARIUM (TOTAL)	14.6	J	6.4	200	µg/L	2600	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	BERYLLIUM (TOTAL)	ND	U	0.1	5	µg/L	7.3	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	BORON (TOTAL)	39.2	J	5.4	100	µg/L	7300	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	CADMIUM (TOTAL)	ND	U	0.5	5	µg/L	1.8	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	CALCIUM (TOTAL)	7040		153	5000	µg/L		
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	CHROMIUM (TOTAL)	2.9	J	0.7	10	µg/L	11 ^A	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	COBALT (TOTAL)	ND	U	3.2	50	µg/L	73	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	COPPER (TOTAL)	2.8	J	2	25	µg/L	150	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	IRON (TOTAL)	4100		23.1	200	µg/L	1100	X
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	LEAD (TOTAL)	ND	U	2.8	10	µg/L		
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	MAGNESIUM (TOTAL)	4130	J	160	5000	µg/L		
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	MANGANESE (TOTAL)	122		0.5	15	µg/L	88	X
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	MOLYBDENUM (TOTAL)	4.2	J	2.9	10	µg/L	18	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	NICKEL (TOTAL)	10	J	2.5	40	µg/L	73	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	POTASSIUM (TOTAL)	2990	J	418	5000	µg/L		

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	SELENIUM (TOTAL)	ND	U	4.5	35	µg/L	18	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	SILVER (TOTAL)	ND	U	1.4	10	µg/L	18	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	SODIUM (TOTAL)	29500		447	5000	µg/L		
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	THALLIUM (TOTAL)	ND	U	8.6	25	µg/L	0.24	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	VANADIUM (TOTAL)	ND	U	2.7	50	µg/L	3.6	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	ZINC (TOTAL)	37.7		2.9	20	µg/L	1100	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW7471A	MERCURY (TOTAL)	ND	U	0.1	0.2	µg/L	1.1	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	ALUMINUM (DISSOLVED)	ND	U	24.1	200	µg/L	3600	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	ANTIMONY (DISSOLVED)	ND	U	11.7	60	µg/L	1.5	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	ARSENIC (DISSOLVED)	ND	U	4.3	10	µg/L	0.045	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	BARIUM (DISSOLVED)	14	J	6.4	200	µg/L	2600	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	BERYLLIUM (DISSOLVED)	ND	U	0.1	5	µg/L	7.3	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	BORON (DISSOLVED)	42.7	J	5.4	100	µg/L	7300	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	CADMIUM (DISSOLVED)	ND	U	0.5	5	µg/L	1.8	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	CALCIUM (DISSOLVED)	7140		153	5000	µg/L		
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	CHROMIUM (DISSOLVED)	ND	U	0.7	10	µg/L	11 ^A	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	COBALT (DISSOLVED)	ND	U	3.2	50	µg/L	73	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	COPPER (DISSOLVED)	2	J	2	25	µg/L	150	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	IRON (DISSOLVED)	2780		23.1	200	µg/L	1100	X
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	LEAD (DISSOLVED)	ND	U	2.8	10	µg/L		
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	MAGNESIUM (DISSOLVED)	4160	J	160	5000	µg/L		
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	MANGANESE (DISSOLVED)	119		0.5	15	µg/L	88	X
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	MOLYBDENUM (DISSOLVED)	5.4	J	2.9	10	µg/L	18	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	NICKEL (DISSOLVED)	10	J	2.5	40	µg/L	73	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	POTASSIUM (DISSOLVED)	2910	J	418	5000	µg/L		
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	SELENIUM (DISSOLVED)	ND	U	4.5	35	µg/L	18	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	SILVER (DISSOLVED)	ND	U	1.4	10	µg/L	18	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	SODIUM (DISSOLVED)	29700		447	5000	µg/L		
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	THALLIUM (DISSOLVED)	ND	U	8.6	25	µg/L	0.24	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	VANADIUM (DISSOLVED)	ND	U	2.7	50	µg/L	3.6	

DL - Instrument Detection Limit

RL - Reporting Limit

ND - Non Detect

UJ - Non detect at RL, estimated value

U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW6010B	ZINC (DISSOLVED)	25.5		2.9	20	µg/L	1100	
P-464	DP-464-02	10/10/2006	4617251.01	369339.27	97.5	107.5	SW7471A	MERCURY (DISSOLVED)	ND	U	0.1	0.2	µg/L	1.1	
BA-4 Monitoring Wells															
W-469	MW-469M1	10/6/2006	4617250.86	369432.76	129.5	139.5	SW6010B	LEAD	ND	U	3	10	µg/L		
W-478	MW-478S	12/15/2006	4617243.99	369334.19	95.37	105.37	SW6010B	LEAD	ND	U	3	10	µg/L		
W-478	MW-478S	12/15/2006	4617243.99	369334.19	95.37	105.37	SW6010B	LEAD	ND	U	3	10	µg/L		
W-478	MW-478S	2/7/2007	4617243.99	369334.19	95.37	105.37	SW6010B	LEAD (FILTERED)	ND	U	1.7	10	µg/L		
W-478	MW-478S	2/7/2007	4617243.99	369334.19	95.37	105.37	SW6010B	LEAD (TOTAL)	ND	U	1.7	10	µg/L		
W-469	MW-469M1	2/7/2007	4617250.86	369432.76	129.5	139.5	SW6010B	LEAD	ND	U	1.7	10	µg/L		
W-469	MW-469M1	2/7/2007	4617250.86	369432.76	129.5	139.5	SW6010B	LEAD	ND	U	1.7	10	µg/L		
W-469	MW-469M1	6/13/2007	4617243.99	369334.19	129.5	139.5	SW6010B	LEAD (DISSOLVED)	ND	U	1.6	10	µg/L		
W-469	MW-469M1	6/13/2007	4617243.99	369334.19	129.5	139.5	SW6010B	LEAD (TOTAL)	ND	U	1.6	10	µg/L		
W-478	MW-478S	6/13/2007	4617250.86	369432.76	95.37	105.37	SW6010B	LEAD (DISSOLVED)	ND	U	1.6	10	µg/L		
W-478	MW-478S	6/13/2007	4617250.86	369432.76	95.37	105.37	SW6010B	LEAD (TOTAL)	ND	U	1.6	10	µg/L		
Far Field Monitoring Wells															
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	CL200.7	BARIUM	6	J	5.6	5.6	µg/L	2600	
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	CL200.7	BORON	7.8		2.7	2.7	µg/L	7300	
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	CL200.7	CALCIUM	2050		124	124	µg/L		
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	CL200.7	MAGNESIUM	1580		134	134	µg/L		
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	CL200.7	MANGANESE	7.1		0.4	0.4	µg/L	88	
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	CL200.7	POTASSIUM	544		261	261	µg/L		
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	CL200.7	SODIUM	5880		442.1	444	µg/L		
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	CL200.7	Non Detect on all other metals	ND	U			µg/L		
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	CL335.2	CYANIDE	ND	U	7.6	10	µg/L	73	
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	CL245.1	MERCURY	ND	U	0.1	0.1	µg/L	1.1	
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	CPEST	Non Detect on all 28 pesticides	ND	U			µg/L		
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	CSVOL	Non detect on all 78 SVOCs	ND	U			µg/L		
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	CVOL	CHLOROFORM	2		0.14	1	µg/L	0.17	X

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	CVOL	Non Detect on 43 other VOCs	ND	U			µg/L		
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	E300	CHLORIDE (AS CL)	8.9				mg/L		
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	E300	SULFATE (AS SO4)	5.8				mg/L		
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	E350.2	NITROGEN, AMMONIA (AS N)	ND	UJ	0.02	0.02	mg/L		
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	E353.2	NITROGEN, NITRATE-NITRITE	0.21		0.01	0.01	mg/L	100000	
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	E365.2	PHOSPHORUS (AS PO4)	ND	U	0.01	0.01	mg/L		
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	E504	1,2-DIBROMOETHANE	ND	U	0.005	0.01	µg/L	0.0056	
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	SW8021	tert-BUTYL METHYL ETHER	ND	U	0.076	0.5	µg/L	11	
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	SW8151A	Non Detect on all 17 herbicides	ND	U			µg/L		
W-84	MW-84M2	11/9/1999	4617371.48	368205.79	104	114	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	CL200.7	BORON	8.4	J	3.2	3.2	µg/L	7300	
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	CL200.7	CALCIUM	2050		299	299	µg/L		
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	CL200.7	MAGNESIUM	1620		270	270	µg/L		
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	CL200.7	MANGANESE	4.3		0.9	1	µg/L	88	
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	CL200.7	POTASSIUM	852		303	303	µg/L		
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	CL200.7	SODIUM	6040		409	409	µg/L		
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	CL200.7	Non Detect on all other metals	ND	U			µg/L		
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	CL245.1	MERCURY	ND	UJ	0.1	0.1	µg/L	1.1	
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	CL335.2	CYANIDE	ND	U	7.6	10	µg/L	73	
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	CPEST	Non Detect on all 28 pesticides	ND	U			µg/L		
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	CSVOL	Non detect on all 78 SVOCs	ND	U			µg/L		
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	CVOL	CHLOROFORM	2		0.14	1	µg/L	0.17	X
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	CVOL	Non Detect on 43 other VOCs	ND	U			µg/L		
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	E300	CHLORIDE (AS CL)	10.3				mg/L		
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	E300	SULFATE (AS SO4)	6.5				mg/L		
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	E350.2	NITROGEN, AMMONIA (AS N)	ND	UJ	0.02	0.02	mg/L		
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	E353.2	NITROGEN, NITRATE-NITRITE	0.25		0.01	0.01	mg/L	100000	
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	E365.2	PHOSPHORUS (AS PO4)	ND	U	0.01	0.01	mg/L		
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	E504	1,2-DIBROMOETHANE	ND	U	0.007	0.009	µg/L	0.0056	
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	SW8021	tert-BUTYL METHYL ETHER	ND	U	0.076	0.5	µg/L	11	

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	SW8151A	Non Detect on all 17 herbicides	ND	U			µg/L		
W-84	MW-84M2	3/2/2000	4617371.48	368205.79	104	114	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	CL200.7	ARSENIC	6.1	J	2.6	5.3	µg/L	0.045	X
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	CL200.7	CALCIUM	2190		323.1	327.9	µg/L		
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	CL200.7	MAGNESIUM	1710		319.1	347.8	µg/L		
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	CL200.7	MANGANESE	2.2	J	0.5	0.5	µg/L	88	
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	CL200.7	POTASSIUM	796		279.3	279.3	µg/L		
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	CL200.7	SODIUM	5280		442.1	590.5	µg/L		
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	CL200.7	Non Detect on all other metals	ND	U			µg/L		
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	CL245.1	MERCURY	ND	U	0.1	0.1	µg/L	1.1	
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	CL335.2	CYANIDE	ND	U	7.6	10	µg/L	73	
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	CPEST	Non Detect on all 28 pesticides	ND	U			µg/L		
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	CSVOL	Non detect on all 78 SVOCs	ND	U			µg/L		
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	CVOL	CHLOROFORM	2		0.14	1	µg/L	0.17	X
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	CVOL	Non Detect on 43 other VOCs	ND	U			µg/L		
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	E300	CHLORIDE (AS CL)	9				mg/L		
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	E300	SULFATE (AS SO4)	5.9				mg/L		
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	E350.2	NITROGEN, AMMONIA (AS N)	ND	UJ	0.02	0.02	mg/L		
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	E353.2	NITROGEN, NITRATE-NITRITE	0.19		0.01	0.01	mg/L	100000	
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	E365.2	PHOSPHORUS (AS PO4)	ND	U	0.01	0.01	mg/L		
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	E504	1,2-DIBROMOETHANE	ND	U	0.007	0.010	µg/L	0.0056	
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	SW8021	tert-BUTYL METHYL ETHER	ND	U	0.076	0.5	µg/L	11	
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	SW8151A	Non Detect on all 17 herbicides	ND	U			µg/L		
W-84	MW-84M2	7/7/2000	4617371.48	368205.79	104	114	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	CL200.7	CALCIUM	2000		163.3	163.3	µg/L		
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	CL200.7	IRON	104	J	14.5	26.1	µg/L	1100	
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	CL200.7	MAGNESIUM	1570		319.1	347.8	µg/L		
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	CL200.7	MANGANESE	3.4		0.5	0.5	µg/L	88	
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	CL200.7	POTASSIUM	707	J	542.6	586.4	µg/L		

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	CL200.7	SODIUM	5840		442.1	493.2	µg/L		
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	CL200.7	Non Detect on all other metals	ND	U			µg/L		
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	CL245.1	MERCURY	ND	U	0.1	0.1	µg/L	1.1	
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	CL335.2	CYANIDE	ND	U	7.6	10	µg/L	73	
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	CPEST	Non Detect on all 28 pesticides	ND	U			µg/L		
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	CSVOL	Non detect on all 78 SVOCs	ND	U			µg/L		
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	CVOL	CHLOROFORM	2		0.14	1	µg/L	0.17	X
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	CVOL	Non Detect on 43 other VOCs	ND	U			µg/L		
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	E300	CHLORIDE (AS CL)	9.4				mg/L		
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	E300	SULFATE (AS SO4)	6				mg/L		
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	E314.0	PERCHLORATE	ND	UJ	1.5	5	µg/L	0.36	
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	E350.2	NITROGEN, AMMONIA (AS N)	0.06	J	0.02	0.02	mg/L		
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	E353.2	NITROGEN, NITRATE-NITRITE	0.16		0.01	0.01	mg/L	100000	
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	E365.2	PHOSPHORUS (AS PO4)	0.01		0.01	0.01	mg/L		
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	E504	1,2-DIBROMOETHANE	ND	U	0.007	0.009	µg/L	0.0056	
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	SW8021	tert-BUTYL METHYL ETHER	ND	U	0.076	0.5	µg/L	11	
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	SW8151A	Non Detect on all 17 herbicides	ND	U			µg/L		
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	SW8270	Non Detect on all 78 SVOCs	ND	U			µg/L		
W-84	MW-84M2	8/25/2000	4617371.48	368205.79	104	114	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M2	8/27/2001	4617371.48	368205.79	104	114	CL200.7	BARIUM	4.6	J	2.8	2.8	µg/L	2600	
W-84	MW-84M2	8/27/2001	4617371.48	368205.79	104	114	CL200.7	BORON	8		3.1	3.1	µg/L	7300	
W-84	MW-84M2	8/27/2001	4617371.48	368205.79	104	114	CL200.7	CALCIUM	2310		119	119	µg/L		
W-84	MW-84M2	8/27/2001	4617371.48	368205.79	104	114	CL200.7	MAGNESIUM	1740		106	106	µg/L		
W-84	MW-84M2	8/27/2001	4617371.48	368205.79	104	114	CL200.7	MANGANESE	1.4	J	1	1	µg/L	88	
W-84	MW-84M2	8/27/2001	4617371.48	368205.79	104	114	CL200.7	POTASSIUM	766		165	165	µg/L		
W-84	MW-84M2	8/27/2001	4617371.48	368205.79	104	114	CL200.7	SODIUM	7000		302	302	µg/L		
W-84	MW-84M2	8/27/2001	4617371.48	368205.79	104	114	CL200.7	Non Detect on all other metals	ND	U			µg/L		
W-84	MW-84M2	8/27/2001	4617371.48	368205.79	104	114	CL245.1	MERCURY	ND	U	0.646	0.1	µg/L	1.1	
W-84	MW-84M2	8/27/2001	4617371.48	368205.79	104	114	CPEST	Non Detect on all 28 pesticides	ND	U			µg/L		
W-84	MW-84M2	8/27/2001	4617371.48	368205.79	104	114	CVOL	CHLOROFORM	2		0.0474	1	µg/L	0.17	X

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
W-84	MW-84M2	8/27/2001	4617371.48	368205.79	104	114	CVOL	Non Detect on 43 other VOCs	ND	U			µg/L		
W-84	MW-84M2	8/27/2001	4617371.48	368205.79	104	114	E314.0	PERCHLORATE	ND	U	1.5	5	µg/L	0.36	
W-84	MW-84M2	8/27/2001	4617371.48	368205.79	104	114	SW8151A	Non Detect on all 17 herbicides	ND	U			µg/L		
W-84	MW-84M2	8/27/2001	4617371.48	368205.79	104	114	SW8270	Non Detect on all 78 SVOCs	ND	U			µg/L		
W-84	MW-84M2	8/27/2001	4617371.48	368205.79	104	114	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M2	6/7/2002	4617371.48	368205.79	104	114	SW8270	Non Detect on all 78 SVOCs	ND	U			µg/L		
W-84	MW-84M2	6/7/2002	4617371.48	368205.79	104	114	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M2	8/15/2002	4617371.48	368205.79	104	114	CL200.7	CALCIUM	2310		179	179	µg/L		
W-84	MW-84M2	8/15/2002	4617371.48	368205.79	104	114	CL200.7	MAGNESIUM	1710		260	260	µg/L		
W-84	MW-84M2	8/15/2002	4617371.48	368205.79	104	114	CL200.7	MANGANESE	1.1		0.5	0.5	µg/L	88	
W-84	MW-84M2	8/15/2002	4617371.48	368205.79	104	114	CL200.7	POTASSIUM	881		194	194	µg/L		
W-84	MW-84M2	8/15/2002	4617371.48	368205.79	104	114	CL200.7	SODIUM	6230		548.6	654	µg/L		
W-84	MW-84M2	8/15/2002	4617371.48	368205.79	104	114	CL200.7	Non Detect on all other metals	ND	U			µg/L		
W-84	MW-84M2	8/15/2002	4617371.48	368205.79	104	114	CL245.1	MERCURY	ND	U	0.0383	0.1	µg/L	1.1	
W-84	MW-84M2	8/15/2002	4617371.48	368205.79	104	114	CVOL	CHLOROFORM	2		0.278	1	µg/L	0.17	X
W-84	MW-84M2	8/15/2002	4617371.48	368205.79	104	114	CVOL	Non Detect on 43 other VOCs	ND	U			µg/L		
W-84	MW-84M2	8/15/2002	4617371.48	368205.79	104	114	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M2	8/15/2002	4617371.48	368205.79	104	114	SW8151A	Non Detect on all 17 herbicides	ND	U			µg/L		
W-84	MW-84M2	8/15/2002	4617371.48	368205.79	104	114	SW8270	Non Detect on all 78 SVOCs	ND	U			µg/L		
W-84	MW-84M2	8/15/2002	4617371.48	368205.79	104	114	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M2	1/9/2003	4617371.48	368205.79	104	114	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M2 FD	1/9/2003	4617371.48	368205.79	104	114	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M2	1/9/2003	4617371.48	368205.79	104	114	SW8270	Non Detect on all 78 SVOCs	ND	U			µg/L		
W-84	MW-84M2 FD	1/9/2003	4617371.48	368205.79	104	114	SW8270	Non Detect on all 78 SVOCs	ND	U			µg/L		
W-84	MW-84M2	1/9/2003	4617371.48	368205.79	104	114	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M2 FD	1/9/2003	4617371.48	368205.79	104	114	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M2	6/4/2003	4617371.48	368205.79	104	114	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
W-84	MW-84M2	11/24/2003	4617371.48	368205.79	104	114	C200.7	BORON	7	J	3.6	6	µg/L	7300	
W-84	MW-84M2	11/24/2003	4617371.48	368205.79	104	114	C200.7	CALCIUM	2240		325	325	µg/L		
W-84	MW-84M2	11/24/2003	4617371.48	368205.79	104	114	C200.7	MAGNESIUM	1650		167	167	µg/L		
W-84	MW-84M2	11/24/2003	4617371.48	368205.79	104	114	C200.7	POTASSIUM	718	J	638	638	µg/L		
W-84	MW-84M2	11/24/2003	4617371.48	368205.79	104	114	C200.7	SODIUM	6320		502	502	µg/L		
W-84	MW-84M2	11/24/2003	4617371.48	368205.79	104	114	C200.7	Non Detect on all other metals	ND	U			µg/L		
W-84	MW-84M2	11/24/2003	4617371.48	368205.79	104	114	CSVOL	Non Detect on all SVOC	ND	U			µg/L		
W-84	MW-84M2	11/24/2003	4617371.48	368205.79	104	114	CVOL	CHLOROFORM	2		0.0456	1	µg/L	0.17	X
W-84	MW-84M2	11/24/2003	4617371.48	368205.79	104	114	CVOL	Non Detect on 43 other VOCs	ND	U			µg/L		
W-84	MW-84M2	11/24/2003	4617371.48	368205.79	104	114	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M2	11/24/2003	4617371.48	368205.79	104	114	SW6020	ANTIMONY	ND	UJ	0.3	2	µg/L	1.5	
W-84	MW-84M2	11/24/2003	4617371.48	368205.79	104	114	SW6020	THALLIUM	ND	U	0.1	0.1	µg/L	0.24	
W-84	MW-84M2	11/24/2003	4617371.48	368205.79	104	114	SW7470	MERCURY	ND	U	0.059	0.1	µg/L	1.1	
W-84	MW-84M2	11/24/2003	4617371.48	368205.79	104	114	SW8151A	Non Detect on all 17 herbicides	ND	U			µg/L		
W-84	MW-84M2	11/24/2003	4617371.48	368205.79	104	114	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M2	1/29/2004	4617371.48	368205.79	104	114	CSVOL	Non detect on all 78 SVOCs	ND	U			µg/L		
W-84	MW-84M2	1/29/2004	4617371.48	368205.79	104	114	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M2	1/29/2004	4617371.48	368205.79	104	114	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M2	5/10/2004	4617371.48	368205.79	104	114	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M2 FD	5/10/2004	4617371.48	368205.79	104	114	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M2	10/6/2004	4617371.48	368205.79	104	114	CL200.7	BORON	8.3	J	6.9	7	µg/L	7300	
W-84	MW-84M2	10/6/2004	4617371.48	368205.79	104	114	CL200.7	CALCIUM	2060		233	233	µg/L		
W-84	MW-84M2	10/6/2004	4617371.48	368205.79	104	114	CL200.7	MAGNESIUM	1510		242	242	µg/L		
W-84	MW-84M2	10/6/2004	4617371.48	368205.79	104	114	CL200.7	POTASSIUM	716	J	484	484	µg/L		
W-84	MW-84M2	10/6/2004	4617371.48	368205.79	104	114	CL200.7	SODIUM	6060		358	358	µg/L		
W-84	MW-84M2	10/6/2004	4617371.48	368205.79	104	114	CL200.7	Non Detect on all other metals	ND	U			µg/L		
W-84	MW-84M2	10/6/2004	4617371.48	368205.79	104	114	CL245.1	MERCURY	ND	U	0.1	0.1	µg/L	1.1	

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
W-84	MW-84M2	10/6/2004	4617371.48	368205.79	104	114	CVOL	CHLOROFORM	2		0.0456	1	µg/L	0.17	X
W-84	MW-84M2	10/6/2004	4617371.48	368205.79	104	114	CVOL	Non Detect on 43 other VOCs	ND	U			µg/L		
W-84	MW-84M2	10/6/2004	4617371.48	368205.79	104	114	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M2	10/6/2004	4617371.48	368205.79	104	114	SW6020	ANTIMONY	ND	UJ	0.3	1.2	µg/L	1.5	
W-84	MW-84M2	10/6/2004	4617371.48	368205.79	104	114	SW6020	THALLIUM	ND	U	0.1	0.1	µg/L	0.24	
W-84	MW-84M2	10/6/2004	4617371.48	368205.79	104	114	SW8270C	Non Detect on all 78 SVOCs	ND	U			µg/L		
W-84	MW-84M2	10/6/2004	4617371.48	368205.79	104	114	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M2	1/19/2005	4617371.48	368205.79	104	114	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M2	5/27/2005	4617371.48	368205.79	104	114	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M2	8/25/2005	4617371.48	368205.79	104	114	CL200.7	MAGNESIUM	1640	J	189	189	µg/L		
W-84	MW-84M2	8/25/2005	4617371.48	368205.79	104	114	CL200.7	SODIUM	6360		640	640	µg/L		
W-84	MW-84M2	8/25/2005	4617371.48	368205.79	104	114	CL200.7	Non Detect on all other metals	ND	U			µg/L		
W-84	MW-84M2	8/25/2005	4617371.48	368205.79	104	114	CL245.1	MERCURY	ND	UJ	0.1	0.1	µg/L	1.1	
W-84	MW-84M2	8/25/2005	4617371.48	368205.79	104	114	CVOL	CHLOROFORM	2		0.0456	1	µg/L	0.17	X
W-84	MW-84M2	8/25/2005	4617371.48	368205.79	104	114	CVOL	Non Detect on 43 other VOCs	ND	U			µg/L		
W-84	MW-84M2	8/25/2005	4617371.48	368205.79	104	114	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M2	8/25/2005	4617371.48	368205.79	104	114	SW6020	ANTIMONY	ND	U	0.3	0.3	µg/L	1.5	
W-84	MW-84M2	8/25/2005	4617371.48	368205.79	104	114	SW6020	THALLIUM	ND	U	0.1	0.1	µg/L	0.24	
W-84	MW-84M2	8/25/2005	4617371.48	368205.79	104	114	SW8270C	BENZOIC ACID	0.34	J	0.33	13	µg/L	15000	
W-84	MW-84M2	8/25/2005	4617371.48	368205.79	104	114	SW8270C	Non Detect on 77 other SVOCs	ND	U			µg/L		
W-84	MW-84M2	8/25/2005	4617371.48	368205.79	104	114	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M2	12/21/2005	4617371.48	368205.79	104	114	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M2 FD	12/21/2005	4617371.48	368205.79	104	114	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	CL200.7	BARIUM	7.2	J	5.6	5.6	µg/L	2600	
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	CL200.7	BORON	9.1		2.7	2.7	µg/L	7300	
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	CL200.7	CALCIUM	2430		124	124	µg/L		

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	CL200.7	MAGNESIUM	1590		134	134	µg/L		
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	CL200.7	MANGANESE	174		0.4	0.4	µg/L	88	
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	CL200.7	NICKEL	2.2	J	1.7	1.7	µg/L	73	
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	CL200.7	POTASSIUM	978		261	261	µg/L		
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	CL200.7	SODIUM	5530		442.1	444	µg/L		
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	CL200.7	Non Detect on all other metals	ND	U			µg/L		
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	CL245.1	MERCURY	ND	UJ	0.1	0.1	µg/L	1.1	
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	CL335.2	CYANIDE	ND	U	7.6	10	µg/L	73	
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	CPEST	Non Detect on all 28 pesticides	ND	U			µg/L		
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	CSVOL	Non detect on all 78 SVOCs	ND	U			µg/L		
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	CVOL	CHLOROFORM	2		0.0456	1	µg/L	0.17	X
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	CVOL	Non Detect on 43 other VOCs	ND	U			µg/L		
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	E300	CHLORIDE (AS CL)	7.5				mg/L		
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	E300	SULFATE (AS SO4)	5.8				mg/L		
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	E350.2	NITROGEN, AMMONIA (AS N)	ND	U	0.02	0.02	mg/L		
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	E353.2	NITROGEN, NITRATE-NITRITE	0.24		0.01	0.01	mg/L	100000	
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	E365.2	PHOSPHORUS (AS PO4)	ND	U	0.01	0.01	mg/L		
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	E504	1,2-DIBROMOETHANE	ND	U	0.005	0.010	µg/L	0.0056	
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	SW8021	tert-BUTYL METHYL ETHER	ND	U	0.076	0.5	µg/L	11	
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	SW8151A	Non Detect on all 17 herbicides	ND	U			µg/L		
W-84	MW-84M3	11/9/1999	4617370.53	368204.76	79	89	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	CL200.7	BORON	9.2	J	3.2	3.2	µg/L	7300	
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	CL200.7	CALCIUM	2110		299	299	µg/L		
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	CL200.7	IRON	25.3	J	14.5	24.9	µg/L	1100	
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	CL200.7	MAGNESIUM	1610		270	270	µg/L		
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	CL200.7	MANGANESE	55.8		0.9	1	µg/L	88	
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	CL200.7	POTASSIUM	990		303	303	µg/L		
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	CL200.7	SODIUM	5660		409	409	µg/L		
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	CL200.7	Non Detect on all other metals	ND	U			µg/L		
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	CL245.1	MERCURY	ND	U	0.1	0.1	µg/L	1.1	

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	CL335.2	CYANIDE	ND	U	7.6	10	µg/L	73	
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	CPEST	Non Detect on all 28 pesticides	ND	U			µg/L		
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	CSVOL	Non detect on all 78 SVOCs	ND	U			µg/L		
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	CVOL	CHLOROFORM	1		0.14	1	µg/L	0.17	X
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	CVOL	Non Detect on 43 other VOCs	ND	U			µg/L		
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	E300	CHLORIDE (AS CL)	8				mg/L		
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	E300	SULFATE (AS SO4)	6.6				mg/L		
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	E350.2	NITROGEN, AMMONIA (AS N)	0.05	J	0.02	0.02	mg/L		
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	E353.2	NITROGEN, NITRATE-NITRITE	0.27		0.01	0.01	mg/L	100000	
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	E365.2	PHOSPHORUS (AS PO4)	ND	U	0.01	0.01	mg/L		
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	E504	1,2-DIBROMOETHANE	ND	U	0.007	0.010	µg/L	0.0056	
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	SW8021	tert-BUTYL METHYL ETHER	ND	U	0.076	0.5	µg/L	11	
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	SW8151A	Non Detect on all 17 herbicides	ND	U			µg/L		
W-84	MW-84M3	3/3/2000	4617370.53	368204.76	79	89	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	CL200.7	CALCIUM	2080		323.1	327.9	µg/L		
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	CL200.7	MAGNESIUM	1600		319.1	347.8	µg/L		
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	CL200.7	MANGANESE	24.6	J	0.5	0.5	µg/L	88	
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	CL200.7	POTASSIUM	806		279.3	279.3	µg/L		
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	CL200.7	SODIUM	4840		442.1	590.5	µg/L		
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	CL200.7	Non Detect on all other metals	ND	U			µg/L		
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	CL245.1	MERCURY	ND	U	0.1	0.1	µg/L	1.1	
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	CL335.2	CYANIDE	ND	U	7.6	10	µg/L	73	
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	CPEST	Non Detect on all 28 pesticides	ND	U			µg/L		
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	CSVOL	Non detect on all 78 SVOCs	ND	U			µg/L		
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	CVOL	CHLOROFORM	1		0.14	1	µg/L	0.17	X
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	CVOL	Non Detect on 43 other VOCs	ND	U			µg/L		
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	E300	CHLORIDE (AS CL)	7.2				mg/L		
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	E300	SULFATE (AS SO4)	6.1				mg/L		
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	E350.2	NITROGEN, AMMONIA (AS N)	ND	UJ	0.02	0.02	mg/L		
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	E353.2	NITROGEN, NITRATE-NITRITE	0.23		0.01	0.01	mg/L	100000	

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	E365.2	PHOSPHORUS (AS PO4)	ND	U	0.01	0.01	mg/L		
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	E504	1,2-DIBROMOETHANE	ND	U	0.007	0.010	µg/L	0.0056	
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	SW8021	tert-BUTYL METHYL ETHER	ND	U	0.076	0.5	µg/L	11	
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	SW8151A	Non Detect on all 17 herbicides	ND	U			µg/L		
W-84	MW-84M3	7/6/2000	4617370.53	368204.76	79	89	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	CL200.7	CALCIUM	1890		163.3	163.3	µg/L		
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	CL200.7	MAGNESIUM	1500		319.1	347.8	µg/L		
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	CL200.7	MANGANESE	21.1		0.5	0.5	µg/L	88	
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	CL200.7	POTASSIUM	692	J	542.6	586.4	µg/L		
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	CL200.7	SODIUM	5100		442.1	493.2	µg/L		
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	CL200.7	Non Detect on all other metals	ND	U			µg/L		
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	CL245.1	MERCURY	ND	U	0.1	0.1	µg/L	1.1	
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	CL335.2	CYANIDE	ND	U	7.6	10	µg/L	73	
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	CPEST	Non Detect on all 28 pesticides	ND	U			µg/L		
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	CSVOL	Non detect on all 78 SVOCs	ND	U			µg/L		
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	CVOL	CHLOROFORM	1		0.14	1	µg/L	0.17	X
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	CVOL	Non Detect on 43 other VOCs	ND	U			µg/L		
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	E300	CHLORIDE (AS CL)	7.4				mg/L		
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	E300	SULFATE (AS SO4)	6				mg/L		
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	E314.0	PERCHLORATE	ND	UJ	1.5	5	µg/L	0.36	
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	E350.2	NITROGEN, AMMONIA (AS N)	0.03	J	0.02	0.02	mg/L		
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	E353.2	NITROGEN, NITRATE-NITRITE	0.2	J	0.01	0.01	mg/L	100000	
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	E365.2	PHOSPHORUS (AS PO4)	ND	U	0.01	0.01	mg/L		
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	E504	1,2-DIBROMOETHANE	ND	U	0.007	0.009	µg/L	0.0056	
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	SW8021	tert-BUTYL METHYL ETHER	ND	U	0.076	0.5	µg/L	11	
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	SW8151A	Non Detect on all 17 herbicides	ND	U			µg/L		
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	SW8270	bis(2-ETHYLHEXYL) PHTHALATE	0.42	J	0.42	5	µg/L	4.8	
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	SW8270	Non Detect on 77 other SVOCs	ND	U			µg/L		
W-84	MW-84M3	8/25/2000	4617370.53	368204.76	79	89	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
W-84	MW-84M3	8/27/2001	4617370.53	368204.76	79	89	CL200.7	BARIUM	3.9	J	2.8	2.8	µg/L	2600	
W-84	MW-84M3	8/27/2001	4617370.53	368204.76	79	89	CL200.7	BORON	7		3.1	3.1	µg/L	7300	
W-84	MW-84M3	8/27/2001	4617370.53	368204.76	79	89	CL200.7	CALCIUM	2010		119	119	µg/L		
W-84	MW-84M3	8/27/2001	4617370.53	368204.76	79	89	CL200.7	MAGNESIUM	1510		106	106	µg/L		
W-84	MW-84M3	8/27/2001	4617370.53	368204.76	79	89	CL200.7	MANGANESE	8.1		1	1	µg/L	88	
W-84	MW-84M3	8/27/2001	4617370.53	368204.76	79	89	CL200.7	POTASSIUM	728		165	165	µg/L		
W-84	MW-84M3	8/27/2001	4617370.53	368204.76	79	89	CL200.7	SELENIUM	2.3	J	2.3	2.3	µg/L	18	
W-84	MW-84M3	8/27/2001	4617370.53	368204.76	79	89	CL200.7	SODIUM	5360		302	302	µg/L		
W-84	MW-84M3	8/27/2001	4617370.53	368204.76	79	89	CL200.7	THALLIUM	5	J	2.9	2.9	µg/L	0.24	X
W-84	MW-84M3	8/27/2001	4617370.53	368204.76	79	89	CL200.7	Non Detect on all other metals	ND	U			µg/L		
W-84	MW-84M3	8/27/2001	4617370.53	368204.76	79	89	CL245.1	MERCURY	ND	U	0.0646	0.1	µg/L	1.1	
W-84	MW-84M3	8/27/2001	4617370.53	368204.76	79	89	CPEST	Non Detect on all 28 pesticides	ND	U			µg/L		
W-84	MW-84M3	8/27/2001	4617370.53	368204.76	79	89	CVOL	CHLOROFORM	2		0.0474	1	µg/L	0.17	X
W-84	MW-84M3	8/27/2001	4617370.53	368204.76	79	89	CVOL	Non Detect on 43 other VOCs	ND	U			µg/L		
W-84	MW-84M3	8/27/2001	4617370.53	368204.76	79	89	E314.0	PERCHLORATE	ND	U	1.5	5	µg/L	3.6	
W-84	MW-84M3	8/27/2001	4617370.53	368204.76	79	89	SW8151A	Non Detect on all 17 herbicides	ND	U			µg/L		
W-84	MW-84M3	8/27/2001	4617370.53	368204.76	79	89	SW8270	Non Detect on all 78 SVOCs	ND	U			µg/L		
W-84	MW-84M3	8/27/2001	4617370.53	368204.76	79	89	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M3	8/14/2002	4617370.53	368204.76	79	89	CL200.7	CALCIUM	1960		179	179	µg/L		
W-84	MW-84M3	8/14/2002	4617370.53	368204.76	79	89	CL200.7	MAGNESIUM	1440		260	260	µg/L		
W-84	MW-84M3	8/14/2002	4617370.53	368204.76	79	89	CL200.7	MANGANESE	4.2		0.5	0.5	µg/L	88	
W-84	MW-84M3	8/14/2002	4617370.53	368204.76	79	89	CL200.7	POTASSIUM	813		194	194	µg/L		
W-84	MW-84M3	8/14/2002	4617370.53	368204.76	79	89	CL200.7	SODIUM	5240		548.6	654	µg/L		
W-84	MW-84M3	8/14/2002	4617370.53	368204.76	79	89	CL200.7	ZINC	0.94	J	0.9	0.9	µg/L	1100	
W-84	MW-84M3	8/14/2002	4617370.53	368204.76	79	89	CL200.7	Non Detect on all other metals	ND	U			µg/L		
W-84	MW-84M3	8/14/2002	4617370.53	368204.76	79	89	CL245.1	MERCURY	ND	U	0.0383	0.1	µg/L	1.1	
W-84	MW-84M3	8/14/2002	4617370.53	368204.76	79	89	CVOL	CHLOROFORM	1		0.278	1	µg/L	0.17	X
W-84	MW-84M3	8/14/2002	4617370.53	368204.76	79	89	CVOL	Non Detect on 43 other VOCs	ND	U			µg/L		
W-84	MW-84M3	8/14/2002	4617370.53	368204.76	79	89	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M3	8/14/2002	4617370.53	368204.76	79	89	SW8151A	Non Detect on all 17 herbicides	ND	U			µg/L		

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
W-84	MW-84M3	8/14/2002	4617370.53	368204.76	79	89	SW8270	Non Detect on all 78 SVOCs	ND	U			µg/L		
W-84	MW-84M3	8/14/2002	4617370.53	368204.76	79	89	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M3	1/9/2003	4617370.53	368204.76	79	89	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M3	6/4/2003	4617370.53	368204.76	79	89	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M3	11/24/2003	4617370.53	368204.76	79	89	CL200.7	BORON	7	J	3.6	6.4	µg/L	7300	
W-84	MW-84M3	11/24/2003	4617370.53	368204.76	79	89	CL200.7	CALCIUM	2020		137	137	µg/L		
W-84	MW-84M3	11/24/2003	4617370.53	368204.76	79	89	CL200.7	MAGNESIUM	1510		167	167	µg/L		
W-84	MW-84M3	11/24/2003	4617370.53	368204.76	79	89	CL200.7	MANGANESE	2.1		1	1	µg/L	88	
W-84	MW-84M3	11/24/2003	4617370.53	368204.76	79	89	CL200.7	POTASSIUM	643	J	638	638	µg/L		
W-84	MW-84M3	11/24/2003	4617370.53	368204.76	79	89	CL200.7	SODIUM	5180		502	502	µg/L		
W-84	MW-84M3	11/24/2003	4617370.53	368204.76	79	89	CL200.7	ZINC	2.5	J	1.9	1.9	µg/L	1100	
W-84	MW-84M3	11/24/2003	4617370.53	368204.76	79	89	CL200.7	Non Detect on all other metals	ND	U			µg/L		
W-84	MW-84M3	11/24/2003	4617370.53	368204.76	79	89	CSVOL	Non detect on all 78 SVOCs	ND	U			µg/L		
W-84	MW-84M3	11/24/2003	4617370.53	368204.76	79	89	CVOL	CHLOROFORM	2		0.0456	1	µg/L	0.17	X
W-84	MW-84M3	11/24/2003	4617370.53	368204.76	79	89	CVOL	Non Detect on 43 other VOCs	ND	U			µg/L		
W-84	MW-84M3	11/24/2003	4617370.53	368204.76	79	89	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M3	11/24/2003	4617370.53	368204.76	79	89	SW6020	ANTIMONY	ND	UJ	0.3	1	µg/L	1.5	
W-84	MW-84M3	11/24/2003	4617370.53	368204.76	79	89	SW6020	THALLIUM	ND	U	0.1	0.1	µg/L	0.24	
W-84	MW-84M3	11/24/2003	4617370.53	368204.76	79	89	SW7470	MERCURY	ND	U	0.059	0.1	µg/L	1.1	
W-84	MW-84M3	11/24/2003	4617370.53	368204.76	79	89	SW8151A	Non Detect on all 17 herbicides	ND	U			µg/L		
W-84	MW-84M3	11/24/2003	4617370.53	368204.76	79	89	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M3	1/29/2004	4617370.53	368204.76	79	89	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M3	5/10/2004	4617370.53	368204.76	79	89	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M3	10/8/2004	4617370.53	368204.76	79	89	CL200.7	CALCIUM	2160		360	360	µg/L		
W-84	MW-84M3	10/8/2004	4617370.53	368204.76	79	89	CL200.7	MAGNESIUM	1610		242	242	µg/L		

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

Table 3-5
ASP Groundwater Analytical Results

Location	Sample ID	Date	Northing Coordinate on Surface (N83UTM m)	Easting Coordinate on Surface (N83UTM m)	Depth to Screen top (ft bgl)	Depth to Screen bot (ft bgl)	Test	Analyte	Result	Qual	DL	RL	Units	PRG	> PRG
W-84	MW-84M3	10/8/2004	4617370.53	368204.76	79	89	CL200.7	MANGANESE	1.4	J	1	1	µg/L	88	
W-84	MW-84M3	10/8/2004	4617370.53	368204.76	79	89	CL200.7	SODIUM	5360		358	358	µg/L		
W-84	MW-84M3	10/8/2004	4617370.53	368204.76	79	89	CL200.7	ZINC	2	J	1.9	1.9	µg/L	1100	
W-84	MW-84M3	10/8/2004	4617370.53	368204.76	79	89	CL200.7	Non Detect on all other metals	ND	U			µg/L		
W-84	MW-84M3	10/8/2004	4617370.53	368204.76	79	89	CL245.1	MERCURY	ND	U	0.1	0.1	µg/L	1.1	
W-84	MW-84M3	10/8/2004	4617370.53	368204.76	79	89	CVOL	CHLOROFORM	2		0.0456	1	µg/L	0.17	X
W-84	MW-84M3	10/8/2004	4617370.53	368204.76	79	89	CVOL	Non Detect on 43 other VOCs	ND	U			µg/L		
W-84	MW-84M3	10/8/2004	4617370.53	368204.76	79	89	E314.0	PERCHLORATE	ND	UJ	0.35	1	µg/L	0.36	
W-84	MW-84M3	10/8/2004	4617370.53	368204.76	79	89	SW6020	ANTIMONY	ND	UJ	0.3	1	µg/L	1.5	
W-84	MW-84M3	10/8/2004	4617370.53	368204.76	79	89	SW6020	THALLIUM	ND	U	0.1	0.1	µg/L	0.24	
W-84	MW-84M3	10/8/2004	4617370.53	368204.76	79	89	SW8270C	Non Detect on all 78 SVOCs	ND	U			µg/L		
W-84	MW-84M3	10/8/2004	4617370.53	368204.76	79	89	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M3	1/19/2005	4617370.53	368204.76	79	89	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M3	5/27/2005	4617370.53	368204.76	79	89	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	
W-84	MW-84M3	8/25/2005	4617370.53	368204.76	79	89	CL200.7	MAGNESIUM	1620	J	189	189	µg/L		
W-84	MW-84M3	8/25/2005	4617370.53	368204.76	79	89	CL200.7	SODIUM	5090		640	640	µg/L		
W-84	MW-84M3	8/25/2005	4617370.53	368204.76	79	89	CL200.7	Non Detect on all other metals	ND	U			µg/L		
W-84	MW-84M3	8/25/2005	4617370.53	368204.76	79	89	CL245.1	MERCURY	ND	UJ	0.1	0.1	µg/L	1.1	
W-84	MW-84M3	8/25/2005	4617370.53	368204.76	79	89	CVOL	CHLOROFORM	2		0.16	1	µg/L	0.17	X
W-84	MW-84M3	8/25/2005	4617370.53	368204.76	79	89	CVOL	Non Detect on 43 other VOCs	ND	U			µg/L		
W-84	MW-84M3	8/25/2005	4617370.53	368204.76	79	89	E314.0	PERCHLORATE	ND	UJ	0.35	1	µg/L	0.36	
W-84	MW-84M3	8/25/2005	4617370.53	368204.76	79	89	SW6020	ANTIMONY	ND	UJ	0.3	0.3	µg/L	1.5	
W-84	MW-84M3	8/25/2005	4617370.53	368204.76	79	89	SW6020	THALLIUM	ND	U	0.1	0.1	µg/L	0.24	
W-84	MW-84M3	8/25/2005	4617370.53	368204.76	79	89	SW8270C	BENZOIC ACID	0.3	J	0.29	13	µg/L	15000	
W-84	MW-84M3	8/25/2005	4617370.53	368204.76	79	89	SW8270C	Non Detect on 77 other SVOCs	ND	U			µg/L		
W-84	MW-84M3	8/25/2005	4617370.53	368204.76	79	89	SW8330	Non detect on all 19 explosive compounds	ND	U			µg/L		
W-84	MW-84M3	12/21/2005	4617370.53	368204.76	79	89	E314.0	PERCHLORATE	ND	U	0.35	1	µg/L	0.36	

DL - Instrument Detection Limit
 RL - Reporting Limit
 ND - Non Detect
 UJ - Non detect at RL, estimated value
 U - Non detect at RL

(This page left intentionally blank)

APPENDIX A

Photographs of the BA-4 Disposal Area

(This page left intentionally blank)



Photograph 1
Facing north toward Area A

August 3, 2001



Photograph 2
Facing south into Area B

August 3, 2001



Photograph 3
Facing north into Area C

August 3, 2001



Photograph 4
Facing south along the fence at western edge of Area D

August 3, 2001



Photograph 5
Facing north into Area E

August 3, 2001



Photograph 6
MXU-4/A jet engine starter cartridges recovered in Area A (Item ASP.4.00014)

September 1, 2001



Photograph 7
September 1, 2001
MXU-4/A jet engine starter cartridge igniter assembly recovered in Area A
(Item ASP.4.00014), with propellant grain removed



Photograph 8
September 1, 2001
312 expended MXU-4/A jet engine starter cartridges recovered in Area A (Item ASP.4.00014)



Photograph 9
Crushed drum filled with ash, burn residue, catapult pistons, scrap metal, and other debris recovered in Area E (Item ASP.3.00001.O)

September 1, 2001



Photograph 10
Example of miscellaneous metal debris recovered from MSP3 anomaly investigation

August 30, 2006



Photograph 11
Example of machine parts recovered from MSP3 anomaly investigation

August 30, 2006



Photograph 12
RRA of contaminated soil at Area A

August 29, 2006



Photograph 13
Additional jet engine starter cartridges recovered from Area A

August 29, 2006



Photograph 14
RRA of contaminated soil at Area E

May 3, 2007



Photograph 15
Contaminated soil from RRA at Area E

May 3, 2007



Photograph 16
Jet engine starter cartridges recovered from Area E

May 3, 2007

APPENDIX B

Agency Comments and Responses

(This page left intentionally blank)