APPENDIX A

GEOPHYSICAL SURVEY REPORT

Final

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GEOPHYSICAL SURVEY REPORT
FORMER WASTE CHEMICAL STORAGE AREA SITE
PARCELS 87(7), 10(7), AND 135(7)

Fort McClellan, Alabama

April 1999

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List of Acronyms

CD	compact disk
E-W	east to west
EBS	Environmental Baseline Study
EM	electromagnetic induction
EM31	Geonics Limited EM31 Terrain Conductivity Meter
EM61	Geonics Limited EM61 High-Resolution Metal Detector
ESE	Environmental Science and Engineering, Inc.
G-856	Geometrics, Inc. G-856 magnetometer
G-858G	Geometrics, Inc. G-858G magnetic gradiometer
GPR	ground penetrating radar
GPS	global positioning system
GSSI	Geophysical Survey Systems Inc.
IT	IT Corporation
MHz	megahertz
mS/m	millisiemens per meter
mV	millivolts
N-S	north to south
ns	nanoseconds
nT	nanoteslas
ppt	parts per thousand
RTK	real-time kinematic
TERC	Total Environmental Restoration Contract
USACE	U.S. Army Corps of Engineers
UST	underground storage tank
WCS	Waste Chemical Storage Area Site

A.1.0 Introduction

IT Corporation (IT) conducted a surface geophysical survey at the Former Waste Chemical Storage Area Site (WCS), [Parcels 87(7), 10(7) and 135(7)], at Fort McClellan (FTMC) in Calhoun County, Alabama, from August 17 through 19, 1998, and February 22 through March 5, 1999, for the U.S. Army Corps of Engineers (USACE)-Mobile District, under Total Environmental Restoration Contract No. DACA21-96-D-0018, Delivery Order CK05. The geophysical survey objectives were to locate buried metal potentially representing underground storage tanks (UST), previous UST excavations, and buried utilities in the area of proposed removal work. The area surveyed was approximately 48,400 square feet (1.1 acres). The vicinity map (Figure A-1) shows the approximate location of the survey area.

To accomplish the objectives of the investigation, an initial site-screening survey was conducted using magnetic and electromagnetic (EM) methods. Ground penetrating radar (GPR) was subsequently used in an effort to discriminate between magnetic and EM anomalies caused by the target USTs and those caused by other subsurface features, such as utility vaults, or pits containing significant metallic debris. All geophysical data were processed and color-enhanced to aid in interpreting subtle anomalies. Following geophysics fieldwork, a survey-grade global positioning system (GPS) was used to document the location of the WCS.

The site has relatively flat topography and is covered primarily by asphalt, with some grass and concrete patches, as shown on the site map with geophysical interpretation (Figure A-2). A chainlink fence and Second Avenue bound the site to the north and east, respectively. Thick brush and woods bound the site on the south and west.

Field procedures used during the investigation are described in Chapter A.2.0. The data processing methods used during the investigation are presented in Chapter A.3.0. Data interpretation and the techniques used to rank geophysical anomalies as to their potential to be caused by tanks is presented in Chapter A.4.0. Conclusions and recommendations derived from the geophysical surveys are presented in Chapter A.5.0. A description of the equipment and a theoretical discussion of the geophysical methods are presented in the Attachment.

A.2.0 Field Procedures

This chapter describes the field procedures and instruments used to conduct the investigation, including survey control, data acquisition, and field verification of geophysical anomalies.

A.2.1 Survey Control

The geophysical survey area was identified in the site specific work plan based on historical site information compiled by IT and the 1998 Environmental Baseline Study by Environmental Science and Engineering, Inc. The geophysics crew established a base grid on 100-foot centers throughout the site. Using the base grid as a reference, the crew marked control points on 10-foot centers with surveyor's paint to provide the spatial control required of the investigation. Due to the uncertainty of true field positions inherent when establishing a survey area using 300-foot fiberglass tapes in the presence of wind and surface obstructions (e.g., trees, vehicles, and structures), the lateral precision for the survey areas and anomalies is believed to be within plus/minus 1 foot. Following geophysics field work, a GPS survey was conducted at the site referencing the U.S. State Plane Coordinate System (Alabama East Zone, North American Datum 1983). The GPS survey was performed in the real-time kinematic (RTK) mode, which provided nominal subcentimeter resolution in XY coordinates for the site.

A detailed, hand-sketched site map was drawn in the field. The map included any surface cultural features within the survey area, or near its perimeter, that could potentially affect the geophysical data (e.g., vehicles, overhead utilities, manhole covers). The map also shows reference features, such as buildings, fences, asphalt patches, or survey monuments that could later aid in reconstructing the site boundaries. All pertinent reference information documented on the hand-sketched site map was transferred to the site interpretation map. Also included on the site map are GPS coordinates at the corners to help in relocating the survey area.

A.2.2 Geophysical Survey

The magnetic instruments used during the investigation consisted of a Geometrics, Inc. G-858G magnetic gradiometer (G-858G) for collecting survey data and a Geometrics, Inc. G-856 magnetometer (G-856) used as a magnetic base station. Time-domain EM induction equipment consisted of a Geonics EM61 High-Resolution Metal Detector (EM61) coupled to an Omnidata DL720 digital data logger. Frequency-domain EM induction equipment consisted of a Geonics EM31 Terrain Conductivity Meter (EM31) coupled to an Omnidata DL720 digital data logger. GPR equipment consisted of a Geophysical Survey Systems, Inc. (GSSI) Model SIR-2P unit coupled to 200- and/or 400-megahertz (MHz) antennae and a DPU-5400 thermal gray-scale

printer. Where required, a Metrotech 9860-BRL EM utility locator was used to verify that linear anomalies seen in the EM31/EM61 data were caused by subsurface pipelines or utilities. A Trimble 4000SSI total station GPS was used to conduct the civil survey work.

All geophysical data were collected using the following IT standard operating procedures:

- ITGP-001 Surface Magnetic Surveys
- ITGP-002 Surface Frequency-Domain Electromagnetic Surveys
- ITGP-003 Ground Penetrating Radar Surveys
- ITGP-004 Surface Time-Domain Electromagnetic Surveys
- ITGP-005 Global Positioning System Surveys
- ITGP-012 Geophysical Data Management.

The three geophysical techniques of magnetics, time-domain EM, and frequency-domain EM were used initially to screen the survey area for large buried metal objects the size of a UST. These combined methods offer the technical approach most likely to succeed in locating and delineating large metal objects. Following magnetic and EM data processing and interpretation, GPR was used to aid with interpreting the source objects responsible for observed magnetic and EM anomalies. The GPR survey was focused only on those anomalies potentially caused by a tank. Due to strong magnetic and EM signal interference caused by reinforced concrete pads, GPR was also used to screen these areas for the possible presence of USTs.

A.2.2.1 Magnetic Survey

Prior to collecting magnetic survey data, the G-856 base station magnetometer was time-synchronized with the G-858G field survey instrument and programmed to record the Earth's background magnetic field at 10-second intervals during magnetic survey. The magnetic base station data were later used to "drift correct" G-858G field data for the Earth's magnetic field variations. The magnetic base station was established in an open area determined to be clear of surface or subsurface cultural interference (e.g., surface or subsurface metallic debris, fences, utilities or pipelines). The magnetic base station was located in a field of small pine trees on the south side of Sixth Avenue (near Parcel 151).

A field instrument base station was established at a fixed location at the site that was determined to be clear of surface or subsurface cultural interference. Approximately 60 total magnetic field and vertical magnetic gradient measurements were recorded with the G-858G at the field instrument base station at the start of the survey session to verify the instrument was operating properly and to provide a quantitative record of instrument variation or drift during the survey period. The spacing between sensors on the G-858G was 2.5 feet (0.76 meters) during the

investigation, with the lower sensor at 2.0 feet and the upper sensor at 4.5 feet above the ground surface, respectively. Magnetic survey data were collected at 0.5-second intervals (approximately 2.0- to 2.5-foot intervals) along north-to-south (N-S) oriented survey lines spaced 10 feet apart, for a total of approximately 5,100 linear feet of survey coverage.

The magnetic data were stored in the internal memory of the G-858G, along with corresponding line and station numbers and the time of acquisition. Following the survey session, the field instrument base station was reoccupied, and an additional 60 magnetic gradiometer field measurements were recorded. The closing magnetic base station data were compared with the initial base station data to determine if instrument error had occurred during the survey period. Evaluation of the magnetic base station data indicated the G-858G response was within acceptable limits during the survey.

Magnetic survey data were screened in the field to assess data quality prior to completing the investigation. All magnetic survey and base station data were downloaded to a personal computer, backed up on IOMEGA® compatible zip disks, and are retained in project files.

A.2.2.2 Time-Domain EM Survey

Prior to conducting the EM61 survey, the instrument was zeroed and 20 measurements of potential difference representing subsurface current flow were recorded at the field instrument base station and stored in the digital data logger. These data provided a quantitative record of instrument drift during the survey period.

Following the initial base station measurements, potential difference data representing subsurface conduction were collected with the standard coil configuration EM61, operated in the wheeled mode. The data were collected at 2.5-foot intervals along N-S and east-to-west (E-W) oriented survey lines spaced 5 feet apart, for a total of approximately 20,700 linear feet of survey coverage. The EM61 data were acquired along perpendicular survey lines to allow better definition of anomalies potentially caused by subsurface utilities, thereby improving the geophysical interpretation of EM61 anomalies as they relate to possible USTs.

The EM61 data were stored in the digital data logger programmed with appropriate line and station numbers. After completing each EM61 survey session, the field instrument base station was reoccupied, and 20 additional EM61 readings were collected and compared with the initial base station data set to determine if instrument drift had occurred during the survey period. Evaluation of EM61 base station data indicated the instrument response was within acceptable limits during the survey.

EM61 line profiles were reviewed in the field using the DAT61® program to verify data quality prior to completing the survey. All EM61 survey and base station data were then downloaded to a personal computer, backed up on IOMEGA compatible zip disks, and are retained in project files.

A.2.2.3 Frequency-Domain EM Survey

Prior to conducting the EM31 survey, the instrument was calibrated, the in-phase component was zeroed, and 20 readings of conductivity and in-phase component were recorded at the field instrument base station at the site and stored in the digital data logger. These data provided a quantitative record of instrument drift during the survey period and in-phase component baseline for the site.

Following the initial base station measurements, conductivity and in-phase component data were collected with the EM31 using the vertical dipole orientation. The data were collected at 5-foot intervals along N-S and E-W oriented survey lines spaced 10 feet apart, for a total of approximately 10,300 linear feet of survey coverage. The EM31 data were acquired along perpendicular survey lines to allow better definition of anomalies potentially caused by subsurface utilities, thereby improving the geophysical interpretation of EM31 anomalies as they relate to possible USTs.

The EM31 data were stored in the digital data logger programmed with appropriate line and station numbers. After completing each EM31 survey session, the field instrument base station was reoccupied, and 20 additional readings of conductivity and in-phase component were collected and compared with the initial base station data set to determine if instrument drift had occurred during the survey period. Evaluation of EM31 base station data indicated the instrument response was within acceptable limits during the survey.

EM31 line profiles were reviewed in the field using the DAT31® program to verify data quality prior to completing the survey. All EM31 survey and base station data were then downloaded to a personal computer, backed up on IOMEGA compatible zip disks, and are retained in project files.

A.2.2.4 Anomaly Verification and GPR Survey

Preliminary color-contour maps of the magnetic, EM61, and EM31 data were generated and field-checked following the survey to differentiate between anomalies caused by surface and subsurface sources. Geophysical anomalies verified as being caused by surface features were

labeled as such on the field data maps. Geophysical anomalies thought to be caused by underground utilities were verified with an EM utility locator, and the locations placed on the field maps. Anomalies caused by buried metallic objects potentially representing a UST were carefully located in the field and marked on the site map for further characterization with GPR.

GPR was used to discriminate between EM and magnetic anomalies potentially caused by USTs and those caused by significant buried metallic debris, metal reinforced utility vaults and junction boxes, and localized concentrations of metal along or very near utilities. The GPR survey included acquisition of 14,000 linear feet of data using the 200- and 400-MHz antennae. The digital GPR data were recorded semicontinuously (32 scans per second) as the antenna was hand-towed across the survey lines. Control points were marked on the GPR records using a marker switch located on the antenna unit. The GPR data were field-reviewed in real time on a color monitor, stored in the internal memory of the instrument, and later downloaded to a personal computer. The GPR data were printed in the field as the survey progressed using a high-resolution thermal gray-scale printer. All GPR survey data were backed up on compact discs (CD), and are retained in project files.

A.3.0 Data Processing

Contour maps of magnetic, EM61, and EM31 data were generated using the OASIS Montaj® geophysical mapping system from Geosoft, Inc. These maps were color-enhanced to aid with interpreting subtle anomalies. Select contour maps from this site are presented as Figures A-3 through A-9.

A series of data processing steps were required to generate the contour maps. Initially, field magnetic gradiometer data and magnetic base station data were entered into the Geometrics, Inc. MAGMAP® program to remove the effects of diurnal variations in the 's magnetic field on the field survey data. The ASCII-format, drift-corrected magnetic data were then reviewed so that line and station ranges and overall data quality could be assessed. Field data file names and corresponding base station data files were recorded on the data file tracking form. Magnetic base station (Figure A-15) and field instrument base station data were screened for data spikes caused by variations in the 's magnetic field and/or potential instrument problems. Data screening results were then recorded on the base station summary form. Following data quality assessment, geometry corrections to field data files were made, if necessary, using a text editor and recorded on the geophysical data editing form.

Preliminary EM61 and EM31 data processing included assessing the ASCII-format data files for correct line and station ranges and overall data quality. Data file names, including corresponding base station data files, were recorded on the data file tracking form. Base station data were reviewed, and the quantitative instrument response for each file was recorded on the base station summary form. Following data quality assessment, geometry corrections to field data files were made, if necessary, using a text editor and recorded on the geophysical data editing form.

Final, corrected magnetic and EM data files containing local geophysical station coordinates (X,Y) and the geophysical measurement (Z) were converted to OASIS Montaj.XYZ format and imported into the geophysical mapping software. The data were then gridded and shaded using the OASIS Montaj bi-directional gridding module with an Akima spline. The grid cell size for the magnetic, EM61, and EM31 data was chosen to be 2.0, 2.5, and 5.0 feet, respectively. The data were then optionally filtered and color-contoured for analysis. The names of the files generated and processing parameters used were recorded on data processing forms. Final processed map names were also recorded in the data processing box found in the lower left corner of each contour map presented. All completed forms of magnetic and EM data collected during the investigation are retained in project files.

Select GPR data were processed using the Gradix® data processing and interpretation system from Interpex Limited. The GPR data were trace-balanced and gained using an automatic gain control function. A color amplitude function was then chosen to enhance features of interest. Following GPR processing, the data were imported to OASIS Montaj to produce color printouts and are presented as Figures A-10 through A-14.

A.4.0 Interpretation of Geophysical Data

This chapter describes the interpreted results of the geophysical survey conducted at the WCS. Figure A-2 presents the site map with geophysical interpretation. Contour maps of magnetic, EM61, and EM31 data from the WCS are included as Figures A-3 through A-9. Select GPR profile data are presented as Figures A-10 through A-14. The theoretical background section (Attachment) describes the factors influencing the observed geophysical response for the various methods used.

The interpreted contour map of total magnetic field for the upper sensor is presented as Figure A-3. Interpreted contour maps of EM61 bottom coil data acquired along N-S and E-W survey lines are presented as Figures A-4 and A-5, respectively. Interpreted contour maps of EM31 conductivity and in-phase component data collected along N-S survey lines are presented as Figures A-6 and A-7, respectively. Interpreted contour maps of EM31 conductivity and in-phase component data collected along E-W survey lines are presented as Figures A-8 and A-9, respectively. Nine GPR profiles deemed most useful in further characterizing anomalies identified in the EM and magnetic data are presented as Figures A-10 through A-14. The locations of these GPR profiles are shown on Figure A-2.

In addition to the geophysical interpretation, the site map (Figure A-2) contains detailed information on reference features (e.g., asphalt and concrete pavement, fire hydrants, and fences), so that the survey area and geophysical anomaly locations recommended for excavation can be relocated in the future. The anomalies shown on the site interpretation map correspond to those shown in the magnetic and EM data contour maps and/or GPR data profiles. The surface reference features presented on the site interpretation map were transferred from the hand-sketched site map generated in the field.

Anomalies shown on the magnetic and EM contour maps range from high to low values and from negative to positive, depending on the type of data displayed. The observed anomalies in the contour map of total magnetic field for the upper sensor have values above and below the average magnetic field intensity of 50,800 nanoteslas (nT) for Anniston, Alabama. The typical magnetic data response to near-surface ferrous metallic debris is an asymmetric south high/north low signature. The upper sensor magnetic data are more useful than the lower sensor data for locating large buried objects, which represent the targets of this survey. The lower sensor magnetic data are more sensitive to small near-surface objects; hence the upper sensor magnetic

data are presented. The characteristic EM61 response over a buried metal object shows a high-amplitude signal, with signal strength dependent upon the size of the object, distance from the transmitter/receiver coils, and the type of material. Data from the top and bottom transmitter/ receiver coils is processed to distinguish between anomalies caused by surface or near surface objects, and those from deeper sources. This data is termed EM61 differential. Although all EM61 data were evaluated during interpretation, the bottom coil of the EM61 is the most sensitive to buried metal objects; therefore, only this data are presented in the report. The characteristic EM31 anomaly over near-surface metallic conductors consists of a narrow zone having strong negative amplitude centered over the target and a broader lobe of weaker, positive amplitude on either side of the target. As the depth of the target feature increases, the characteristic EM31 response changes to a positive amplitude centered over the target.

Anomalies present on the contour maps of magnetic, EM61, and EM31 data were first field-checked and correlated with known metallic surface objects and other cultural surface features so that anomalies caused by subsurface sources could be determined. Many of the high-amplitude anomalies seen in the contour maps of the magnetic, EM61, and EM31 data (Figures A-3 through A-9) are caused by cultural features, including fences, reinforced concrete, underground utilities, and metallic debris. These anomalies, as well as anomalies identified to be caused by source objects the size of a UST, have been identified on each of the contour maps and are discussed in the following text. Several anomalies that are interpreted to be caused by discrete, buried metal objects smaller than a UST are not discussed in the text.

Each anomaly potentially caused by a UST is indicated by red shading and designated by an alphanumeric symbol with a number in parentheses on the geophysical interpretation map, magnetic and EM data maps, and GPR profiles. The number shown in parentheses indicates the anomaly type and potential for the source object to be a UST. The geophysical anomalies most likely to be caused by USTs are designated with a (1) in parentheses. Geophysical anomalies with a ranking of (2) are more uncertain and may be interpreted as a metallic source object other than a UST, although there is potential for the anomaly to be caused by a UST. Site anomalies with a ranking of (3) are highly uncertain and generally interpreted to be caused by a source object other than a UST, although the possibility exists that the source object could be a UST.

The qualitative numerical ranking of anomalies is based on the combined geophysical response from the methods used to conduct the surveys and is highly weighted on the GPR system response. Rank (1) anomalies most often occur at open sites away from surface and subsurface cultural interference, and at very small sites where a geophysical survey is conducted to confirm

the existence of a tank in a specified area. Typically in open areas, such as the WCS, a rank (1) geophysical anomaly shows the following characteristics in the data:

- Good signal strength in two or more of the site-screening methods (magnetic, EM61, and EM31 data),
- Location in an area that cannot be linked to another possible source object (e.g., buried utility, structures, and fences),
- Source geometry seen in the GPR reflection data is consistent with a UST.

Clearly, in the portions of the WCS near surface cultural interference, it is highly unlikely for a geophysical anomaly to be ranked (1), even though the source object seen in the data could be a tank. Most rank (2) anomalies have the potential to be a UST but often lack conclusive GPR data over the source object. Rank (2) anomalies typically show favorable magnitude and signal characteristics in the magnetic and EM data; however, since the dimensions and geometry of the source object cannot be resolved and mapped, the feature is not ranked (1). Rank (3) anomalies usually occur in one or two data sets and the result lacks conclusive GPR data over the source object. Rank (3) anomalies are interpreted to be caused by a source object other than a UST.

According to the SSFSP criteria, anomalies that are found of typical size and in logical areas for USTs (e.g., adjacent to typical FTMC gas station foundations) will be identified and labeled as USTs. Anomalies that are typical sizes but not in logical locations will be labeled as potential USTs.

Anomaly A-1(2). Anomaly A-1(2) is seen in two of the three site-screening methods of investigation and GPR profile data. The anomaly is centered at approximate coordinates 250E, 100N. The geophysical signature of the anomaly includes a moderate-amplitude magnetic dipole response of approximately 1,000nT (Figure A-3) and a moderate EM31 in-phase component response exceeding 5 parts per thousand (ppt) (Figures A-7 and A-9). Amplitudes of the magnetic and EM31 responses, combined with the geometry of the EM31 anomaly, are typical of a UST. The subtle EM61 and EM31 conductivity anomalies across the area are interpreted to be caused by excavation backfill materials. Additionally, GPR data collected over anomaly A-1(2) (Figures A-10 and A-11) show strong reflections from a metallic object(s) and geometry somewhat consistent with a UST. Based on GPR data, the source location of anomaly A-1(2) is confirmed to be within the large excavation. This excavation extends from approximate coordinates 245 to 265E and from 90 to 130N as shown in Figures A-12 and A-13. Although

interpreted to be caused by a UST, the source for anomaly A-1(2) could also be a large metal object(s) placed in the excavation during past removal actions.

Anomaly A-2(3). Centered at approximate coordinates 205E, 132N, anomaly A-2(3) appears exclusively in the GPR data. This indicates that either the source object is nonmetallic, or the concrete pad near the source objects is interfering with signals from the site-screening methods that detect metal. The GPR data (Figure A-14) show strong reflections over the area typical of a buried metal object; however, without other supporting site-screening data, the interpretation stands as a GPR anomaly possibly caused by a tank.

GPR data were also acquired over the two concrete pads located at (215 to 225E, 95 to 130N) and (90 to 180E, 180 to 230N), as well as a suspect surface feature located between 225 to 245E and 95 to 103N, to screen these areas for USTs.

GPR data were acquired over the southern concrete pad to investigate the possibility that there was a tank beneath former Building 594, which was thought to possibly contain a hollow foundation (as reported in Environmental Science and Engineering's 1998 *Final Environmental Baseline Survey*). The GPR data show no indication of tanks underneath either of the pads. There does, however, appear to be a pipe running underneath the southern concrete pad (west of anomaly A-1[2]), as shown in Figure A-2.

The suspect surface feature is located on the southeast side of the southern concrete pad. It appears that the asphalt in this area has been removed, suggesting the possibility that a tank may have been excavated. The GPR data showed no evidence of a tank in this area (Figure A-12, Line 95N).

A.5.0 Conclusions and Recommendations

A surface geophysical survey using magnetic, EM, and GPR methods was conducted during periods from August 17 through 19, 1998, and February 22 through March 5, 1999, at the Former WCS. The objectives of the survey were to locate existing USTs, areas where USTs may have been excavated, and any associated underground piping.

Two geophysical anomalies potentially caused by USTs were identified in the data and are recommended for intrusive investigation and/or sampling. The most significant site anomaly caused by buried source materials occurs at approximate coordinates (250E, 110N). This anomaly (Anomaly A-1[2]) shows characteristics in the magnetic, EM31, and GPR data that are consistent with a source object the size of a UST. The other site anomaly (A-2[3]), located at approximately (205E, 132N), occurs only in the GPR data. Although this feature has a geometry consistent with that of a tank, magnetic and EM data could not further support this interpretation, due to signal interference from a nearby concrete pad.

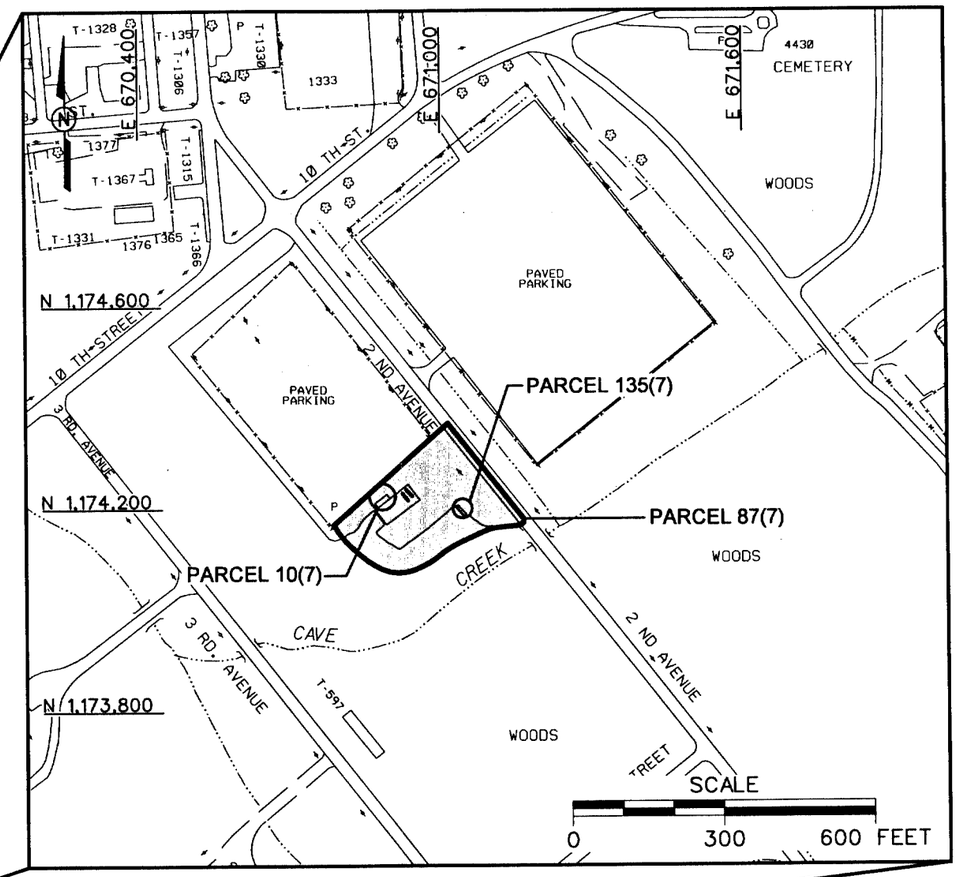
A large excavation pit is located between the approximate coordinates 245 to 265E and 90 to 130N. Anomaly A-1(2) is located within the western part of the excavated area. Another possible excavation area is located at 225 to 245E and 95 to 103N, adjacent to the southern concrete pad. It appears that the asphalt in this area has been removed, suggesting that a tank may have been excavated. The site interpretation map (Figure A-2) shows the locations of these anomalies.

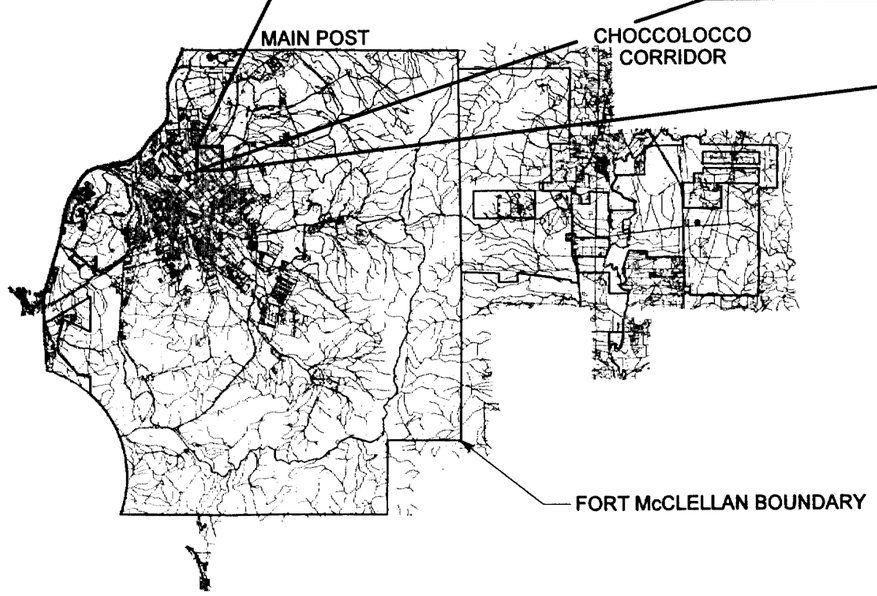
A strong effort was made in the field to map and document on a hand sketch all permanent site reference features to provide a basis for future reconstruction of the survey area. Due to the uncertainty of true field positions inherent when establishing survey areas using 300-foot fiberglass tapes in the presence of wind and surface obstructions (e.g., structures, fences, vehicles), the lateral precision for the survey areas and anomalies is believed to be within plus/minus 1 foot.

Pipelines are indicated on the site interpretation map where evident in the geophysical data. However, the utilities shown on the map should not be used to preclude proper geophysical clearance work at those exploratory trenching locations where buried utilities are suspect. Proper geophysical clearance work typically involves obtaining available utility maps and conducting "point" clearances with an EM utility locator and GPR.

To relocate the survey area and anomalies, IT recommends using the detailed information contained on the site interpretation map (Figure A-2) in conjunction with the vicinity map (Figure A-1).

Figures





LEGEND

- UNIMPROVED ROADS AND PARKING
- PAVED ROADS AND PARKING
- BUILDING
- PARCEL BOUNDARY
- SURFACE DRAINAGE / CREEK
- FENCE
- UTILITY POLE

FIGURE A-1
VICINITY MAP
FORMER WASTE CHEMICAL STORAGE AREA
PARCELS 87(7), 10(7), AND 135(7)

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

IT CORPORATION
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STARTING DATE: 03/15/99	DATE LAST REV.:	DRAFT. CHCK. BY:	INITIATOR: M. MAKI
DRAWN BY: D. BILLINGSLEY	DRAWN BY:	ENGR. CHCK. BY: M. MAKI	PROJ. MGR.: J. YACOUB
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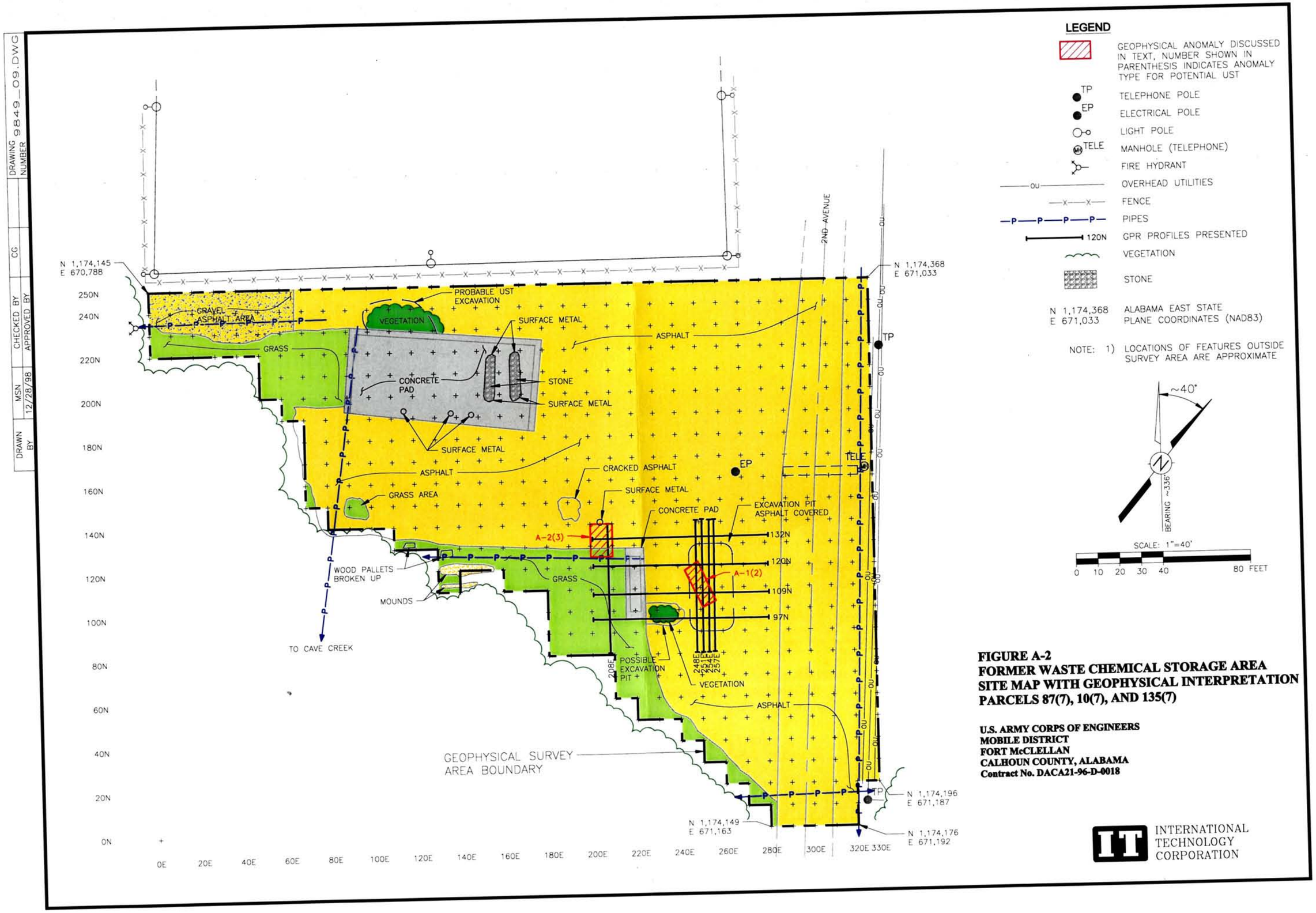

FIGURE A-2
FORMER WASTE CHEMICAL STORAGE AREA
SITE MAP WITH GEOPHYSICAL INTERPRETATION
PARCELS 87(7), 10(7), AND 135(7)

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

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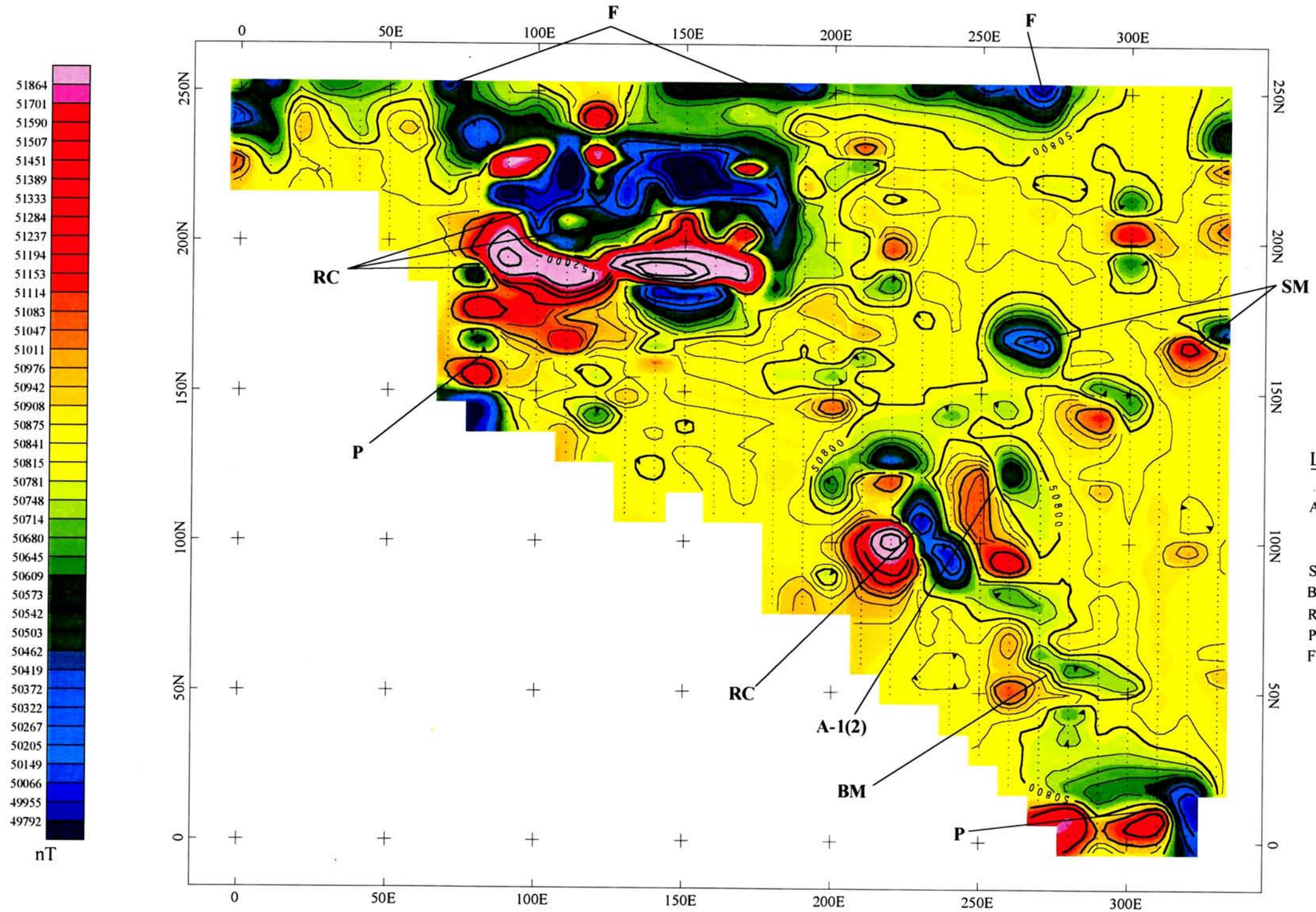

LEGEND:

....	GEOPHYSICAL SURVEY LINES
A-1(2)	GEOPHYSICAL ANOMALY DISCUSSED IN TEXT NUMBER SHOWN IN PARENTHESIS INDICATES ANOMALY TYPE FOR POTENTIAL UST
SM	ANOMALY CAUSED BY SURFACE METAL
BM	ANOMALY CAUSED BY BURIED METAL
RC	ANOMALY CAUSED BY REINFORCED CONCRETE
P	ANOMALY CAUSED BY BURIED PIPES OR UTILITY
F	ANOMALY CAUSED BY FENCE

Scale 1:480

25 0.0 25 50 75

feet

CONTOUR INTERVAL: 100 nanoTeslas

NAME: Micki Maki	DATE: March 23, 1999
PROJECT NUMBER: 774645	LOCATION: C:\Projects\Fort McClellan\FCS\MAG\Upper.map

FIGURE A-3

FORMER WASTE CHEMICAL STORAGE AREA
PARCEL 87(7)
FORT McCLELLAN

G-858G TOTAL MAGNETIC FIELD
UPPER SENSOR (4.5 FT ABOVE GROUND SURFACE)
NORTH-SOUTH SURVEY LINES

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MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

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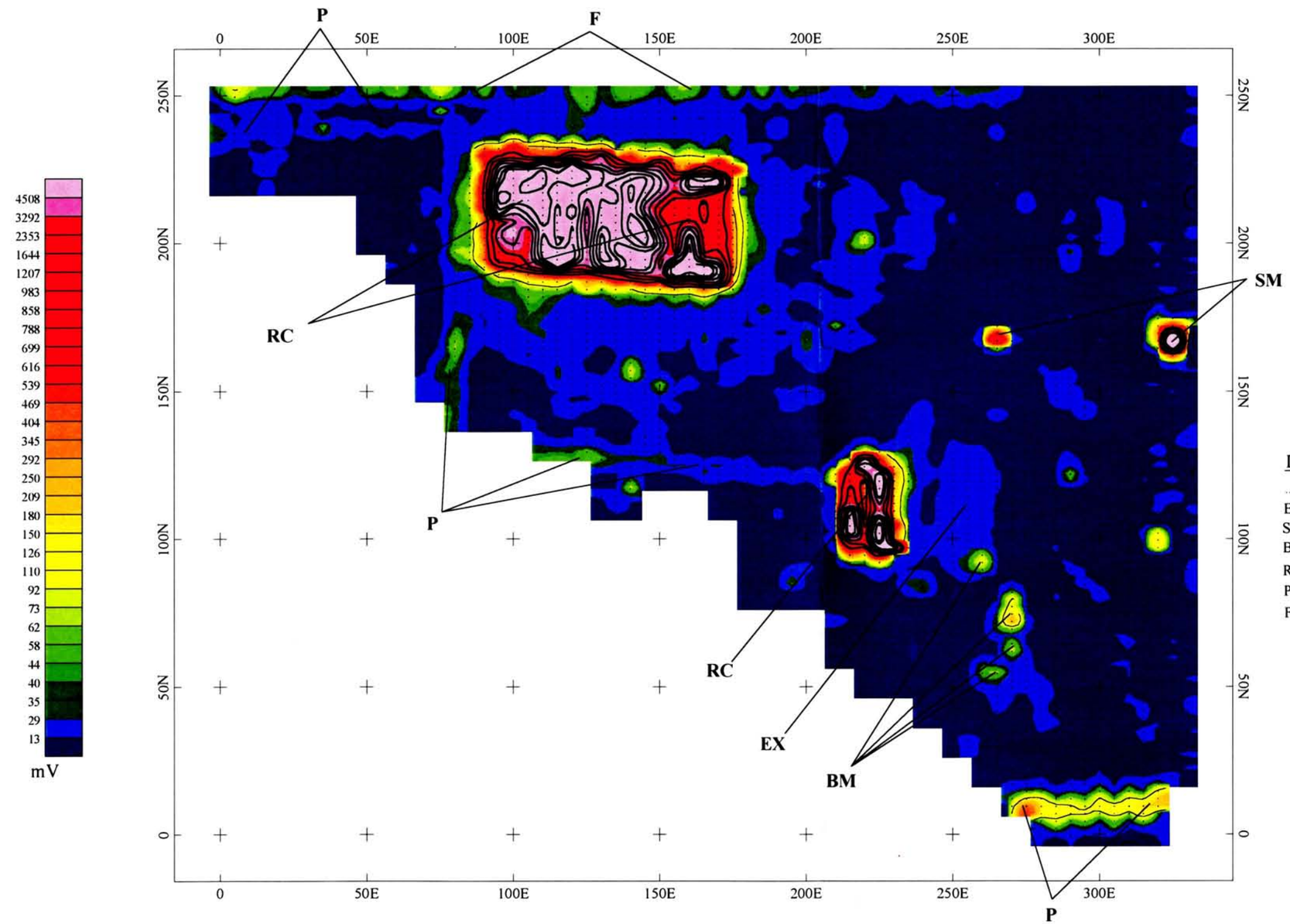

LEGEND:

....	GEOPHYSICAL SURVEY LINES
EX	ANOMALY CAUSED BY EXCAVATION
SM	ANOMALY CAUSED BY SURFACE METAL
BM	ANOMALY CAUSED BY BURIED METAL
RC	ANOMALY CAUSED BY REINFORCED CONCRETE
P	ANOMALY CAUSED BY BURIED PIPES OR UTILITY
F	ANOMALY CAUSED BY FENCE

Scale 1:480

25 0.0 25 50 75

feet

CONTOUR INTERVAL: 100 milliVolts

NAME: Micki Maki	DATE: March 23, 1999
PROJECT NUMBER: 774645	LOCATION: C:\Projects\Fort McClellan\FCS\EM61\Fcsnb.map

FIGURE A-4

FORMER WASTE CHEMICAL STORAGE AREA
PARCEL 87(7)
FORT McCLELLAN

EM61 POTENTIAL DIFFERENCE
BOTTOM COIL (1.5 FT ABOVE GROUND SURFACE)
NORTH-SOUTH SURVEY LINES

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MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

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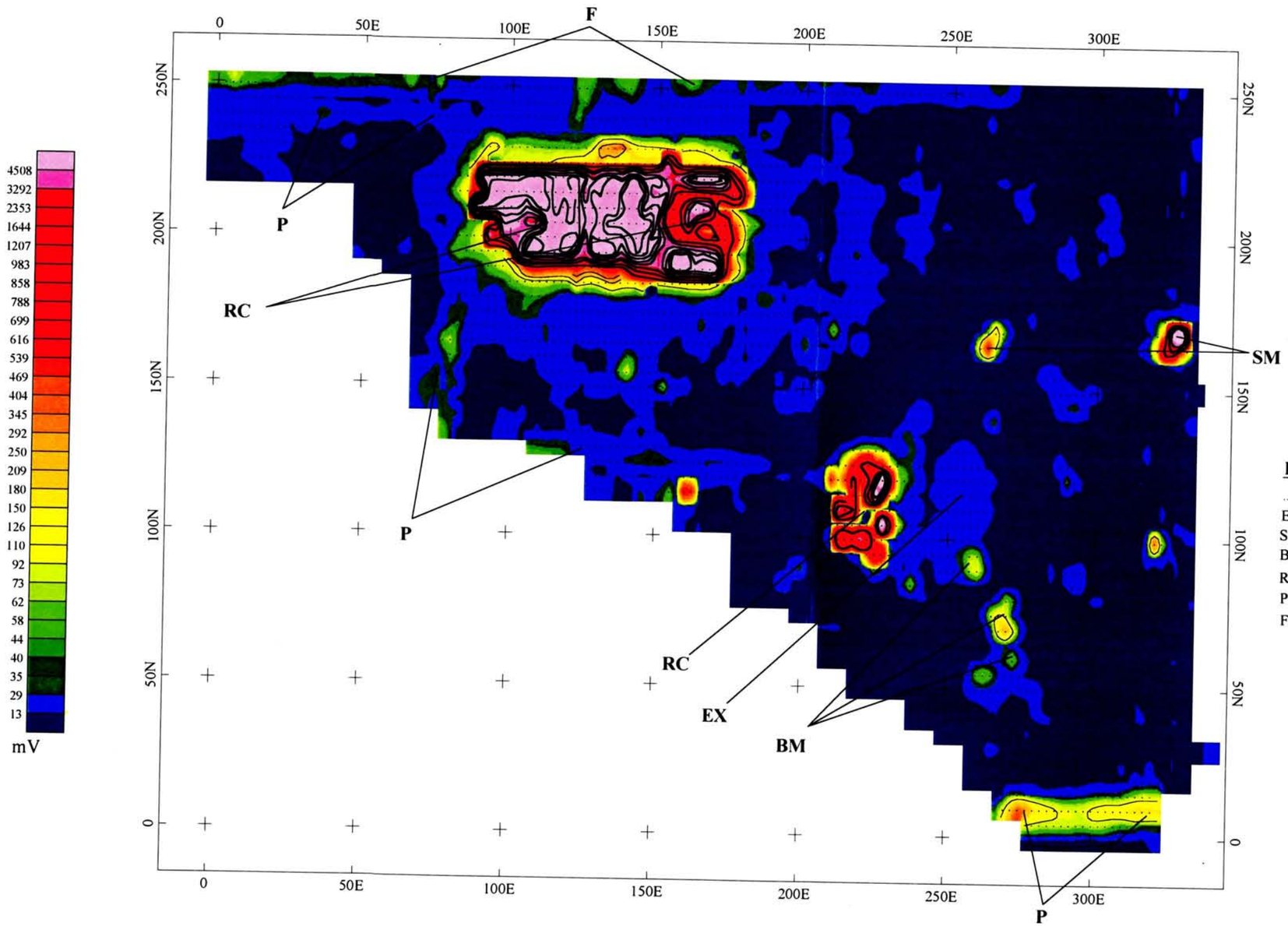

LEGEND:

....	GEOPHYSICAL SURVEY LINES
EX	ANOMALY CAUSED BY EXCAVATION
SM	ANOMALY CAUSED BY SURFACE METAL
BM	ANOMALY CAUSED BY BURIED METAL
RC	ANOMALY CAUSED BY REINFORCED CONCRETE
P	ANOMALY CAUSED BY BURIED PIPES OR UTILITY
F	ANOMALY CAUSED BY FENCE

Scale 1:480

25 0.0 25 50 75

feet

CONTOUR INTERVAL: 100 milli Volts

NAME: Micki Maki	DATE: March 23, 1999
PROJECT NUMBER: 774645	LOCATION: C:Projects\Fort McClellan\FCS\EM61\Fcseb.map

FIGURE A-5

FORMER WASTE CHEMICAL STORAGE AREA
PARCEL 87(7)
FORT McCLELLAN

EM61 POTENTIAL DIFFERENCE
BOTTOM COIL (1.5 FT ABOVE GROUND SURFACE)
EAST-WEST SURVEY LINES

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

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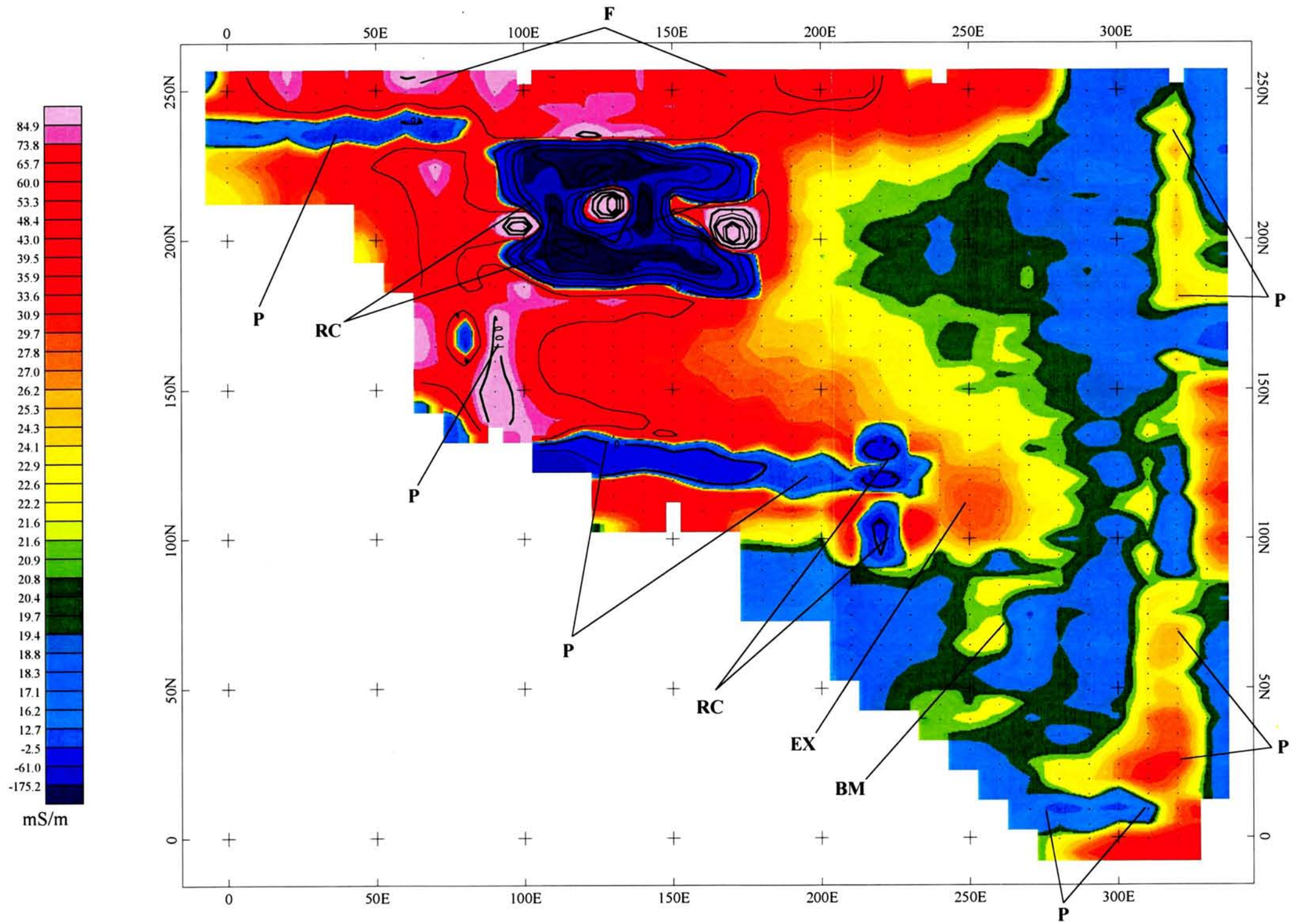

LEGEND:

....	GEOPHYSICAL SURVEY LINES
EX	ANOMALY CAUSED BY EXCAVATION
SM	ANOMALY CAUSED BY SURFACE METAL
BM	ANOMALY CAUSED BY BURIED METAL
RC	ANOMALY CAUSED BY REINFORCED CONCRETE
P	ANOMALY CAUSED BY BURIED PIPES OR UTILITY
F	ANOMALY CAUSED BY FENCE

Scale 1:480

25 0.0 25 50 75

feet

CONTOUR INTERVAL: 50 milliSiemens per meter

NAME: Micki Maki	DATE: March 23, 1999
PROJECT NUMBER: 774645	LOCATION: C:Projects\Fort McClellan\FCS\EM31\Fcsnc.map

FIGURE A-6

FORMER WASTE CHEMICAL STORAGE AREA
PARCEL 87(7)
FORT McCLELLAN

EM31 CONDUCTIVITY
VERTICAL DIPOLE (3.0 FT ABOVE GROUND SURFACE)
NORTH-SOUTH SURVEY LINES

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

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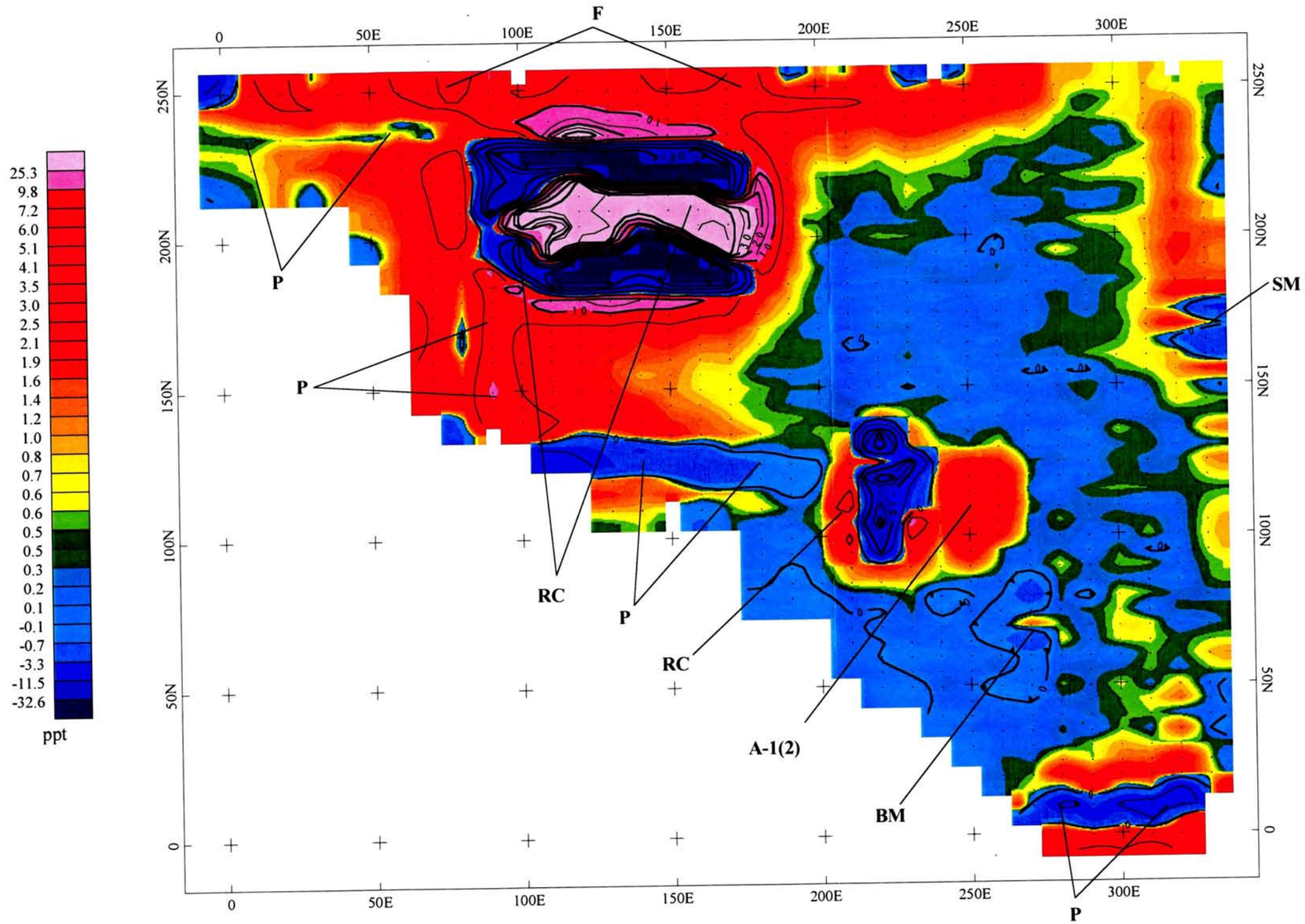

LEGEND:

....	GEOPHYSICAL SURVEY LINES
A-1(2)	GEOPHYSICAL ANOMALY DISCUSSED IN TEXT NUMBER SHOWN IN PARENTHESIS INDICATES ANOMALY TYPE FOR POTENTIAL UST
SM	ANOMALY CAUSED BY SURFACE METAL
BM	ANOMALY CAUSED BY BURIED METAL
RC	ANOMALY CAUSED BY REINFORCED CONCRETE
F	ANOMALY CAUSED BY FENCE
P	ANOMALY CAUSED BY BURIED PIPES OR UTILITY

Scale 1:480

25 0 0 25 50 75

feet

CONTOUR INTERVAL: 5 ppt Secondary to Primary Field

FIGURE A-7

FORMER WASTE CHEMICAL STORAGE ARE
PARCEL 87(7)
FORT McCLELLAN

EM31 IN-PHASE COMPONENT
VERTICAL DIPOLE (3.0 FT ABOVE GROUND SURFACE)
NORTH-SOUTH SURVEY LINES

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

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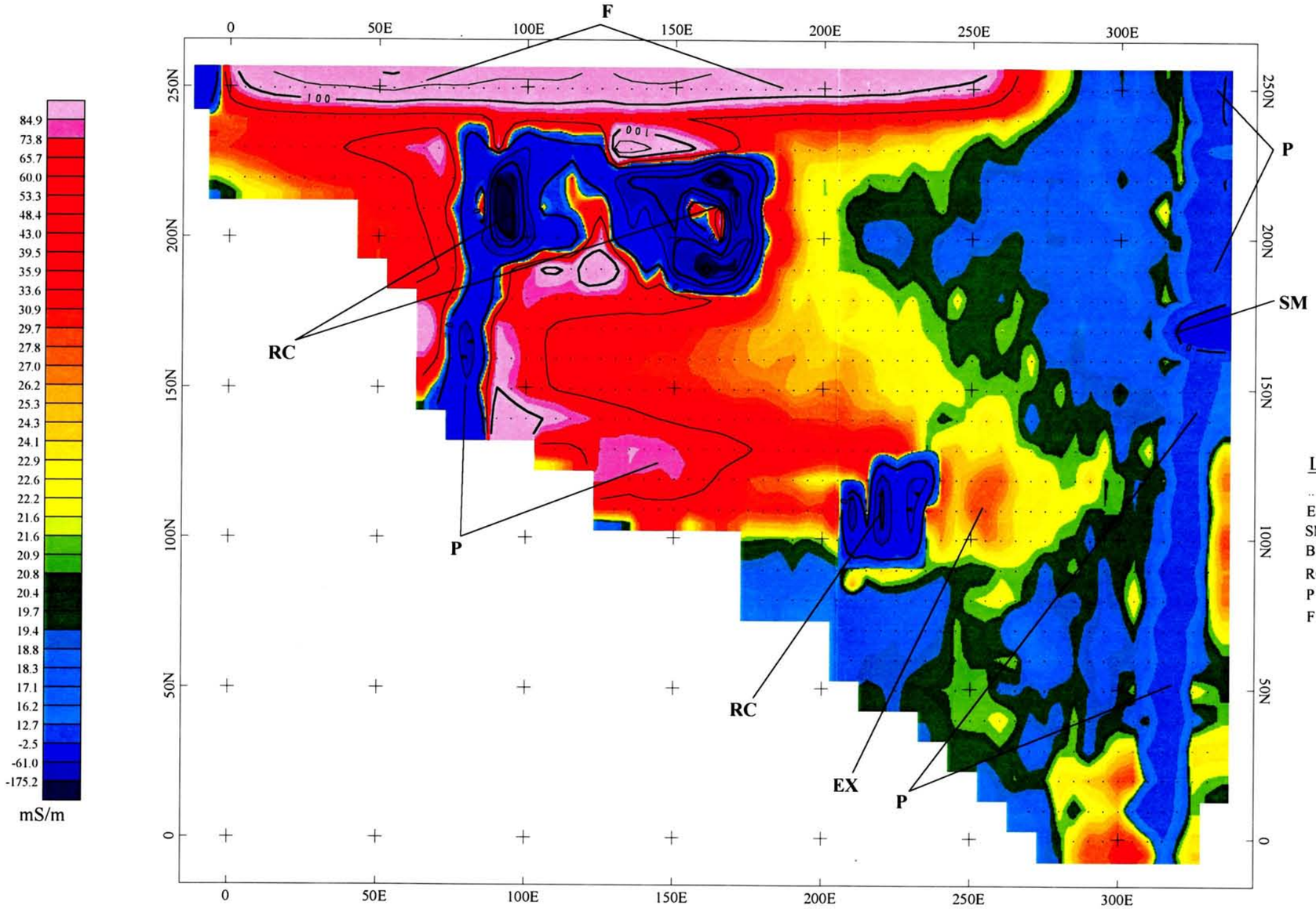
NAME: Micki Maki	DATE: March 23, 1999
PROJECT NUMBER: 774645	LOCATION: C:Projects\Fort McClellan\FCS\EM31\Fcsni.map



LEGEND:

....	GEOPHYSICAL SURVEY LINES
EX	ANOMALY CAUSED BY EXCAVATION
SM	ANOMALY CAUSED BY SURFACE METAL
BM	ANOMALY CAUSED BY BURIED METAL
RC	ANOMALY CAUSED BY REINFORCED CONCRETE
P	ANOMALY CAUSED BY BURIED PIPES OR UTILITY
F	ANOMALY CAUSED BY FENCE

Scale 1:480

25 0.0 25 50 75

feet

CONTOUR INTERVAL: 50 milliSiemens per meter

NAME:	DATE:
Micki Maki	March 24,1999
PROJECT NUMBER: 774645	LOCATION: C:Projects\Fort McClellan\FCS\EM31\Fcsec.map

FIGURE A-8

FORMER WASTE CHEMICAL STORAGE AREA
PARCEL 87(7)
FORT McCLELLAN

EM31 CONDUCTIVITY
VERTICAL DIPOLE (3.0 FT ABOVE GROUND SURFACE)
EAST-WEST SURVEY LINES

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MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

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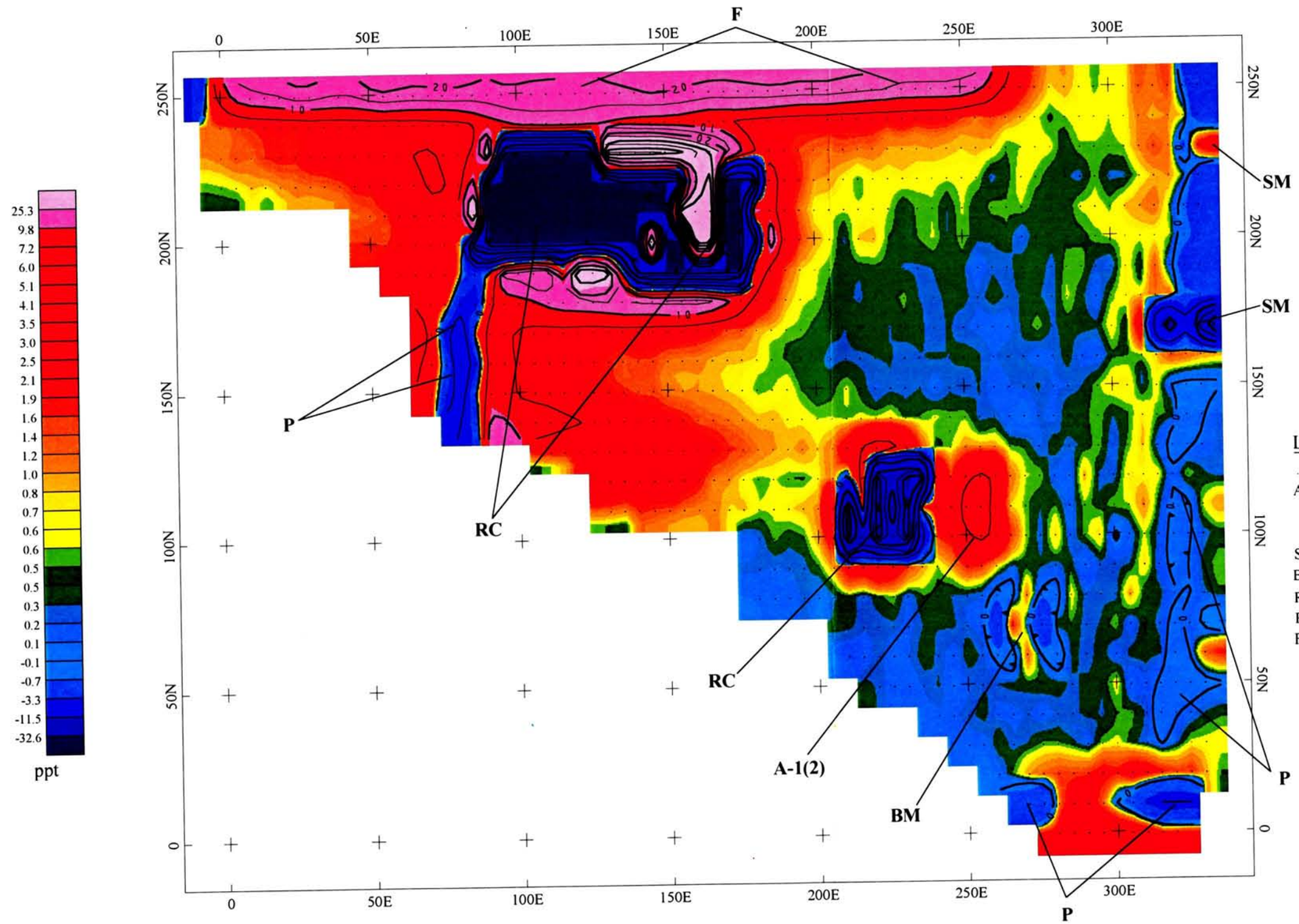

LEGEND:

....	GEOPHYSICAL SURVEY LINES
A-1(2)	GEOPHYSICAL ANOMALY DISCUSSED IN TEXT NUMBER SHOWN IN PARENTHESIS INDICATES ANOMALY TYPE FOR POTENTIAL UST
SM	ANOMALY CAUSED BY SURFACE METAL
BM	ANOMALY CAUSED BY BURIED METAL
RC	ANOMALY CAUSED BY REINFORCED CONCRETE
P	ANOMALY CAUSED BY BURIED PIPES OR UTILITY
F	ANOMALY CAUSED BY FENCE

Scale 1:480

25 0.0 25 50 75

feet

CONTOUR INTERVAL: 5 ppt Secondary to Primary Field

FIGURE A-9

FORMER WASTE CHEMICAL STORAGE AREA
PARCEL 87(7)
FORT McCLELLAN

EM31 IN-PHASE COMPONENT
VERTICAL DIPOLE (3.0 FT ABOVE GROUND SURFACE)
EAST-WEST SURVEY LINES

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

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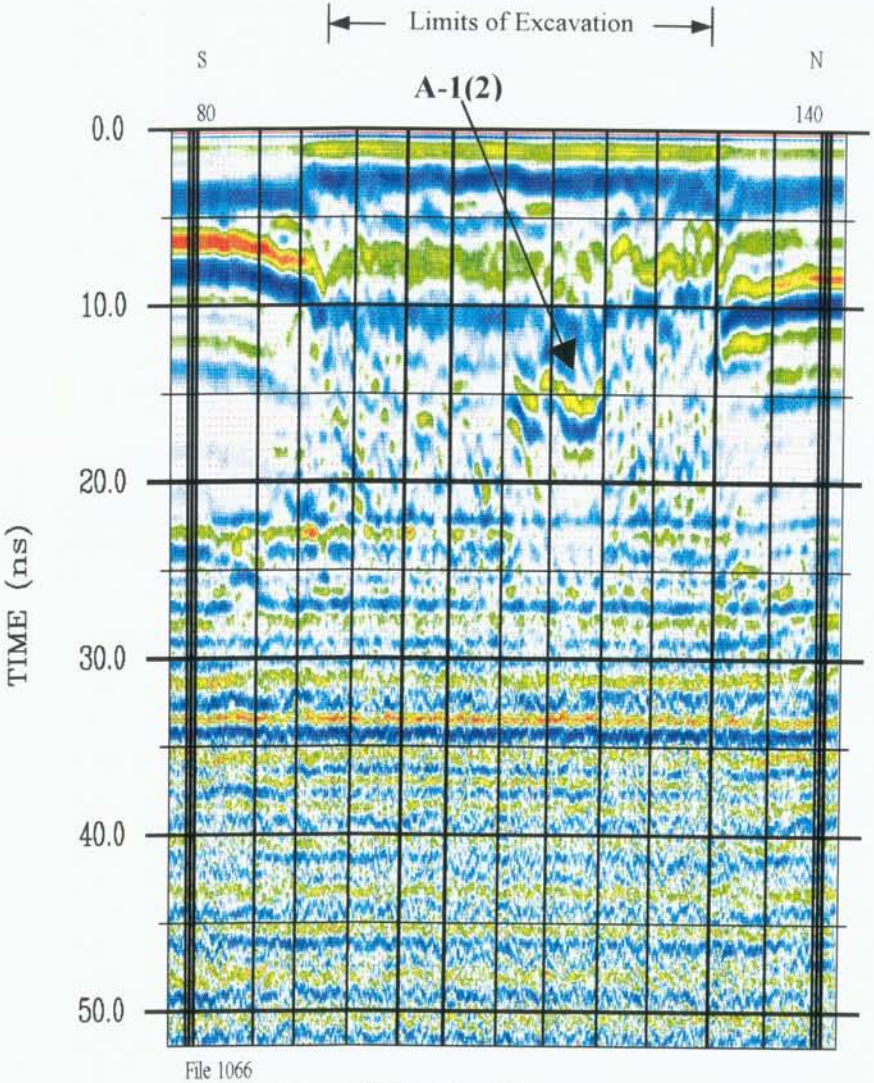
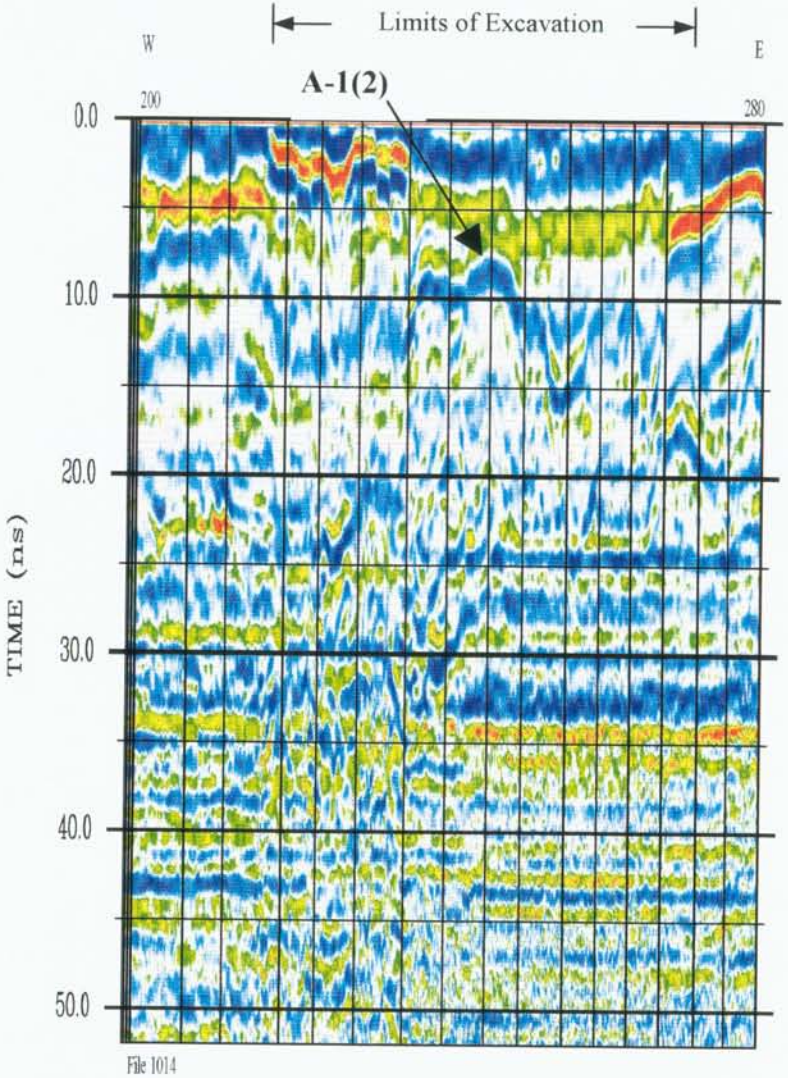
NAME: Micki Maki	DATE: March 23, 1999
PROJECT NUMBER: 774645	LOCATION: C:\Projects\Fort McClellan\FCS\EM31\Fcsci.map

Figure A-10
Former Waste Chemical Storage Area Site
Fort McClellan, Alabama
Project No. 774645



Line 247.5E, 200 MHz Antenna



Line 107.5 N, 200MHz Antenna

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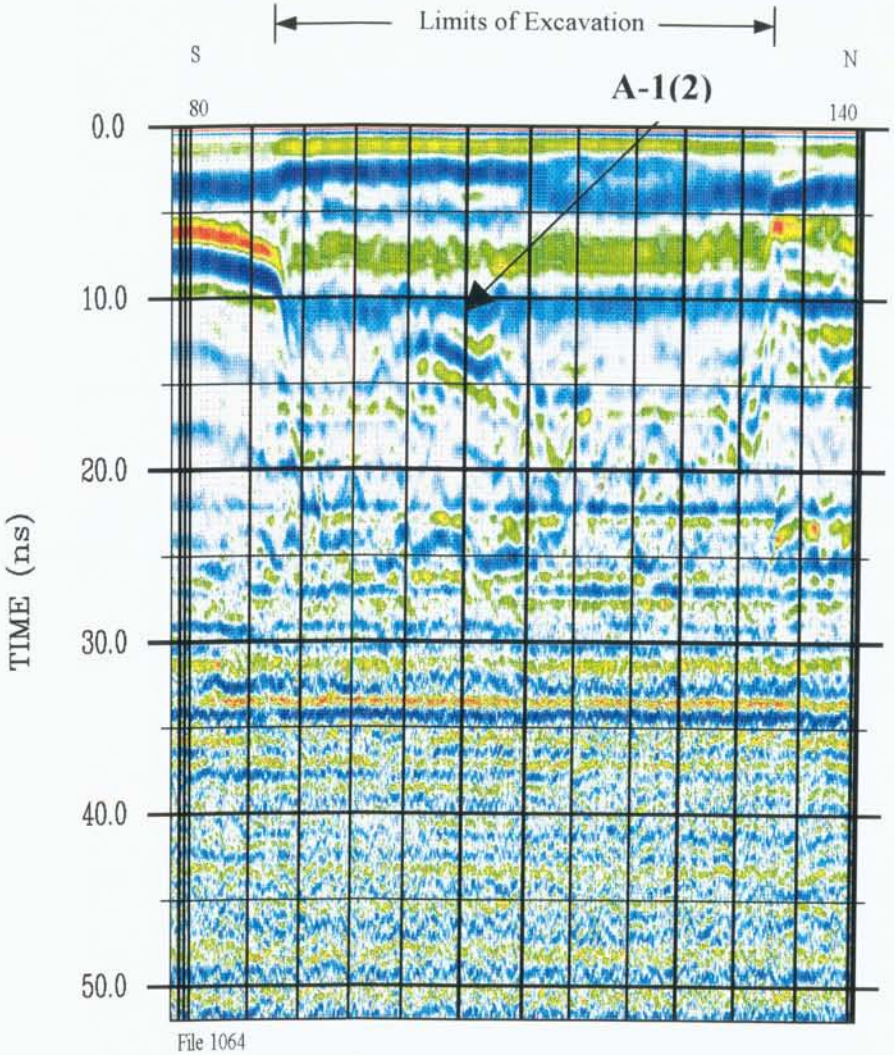
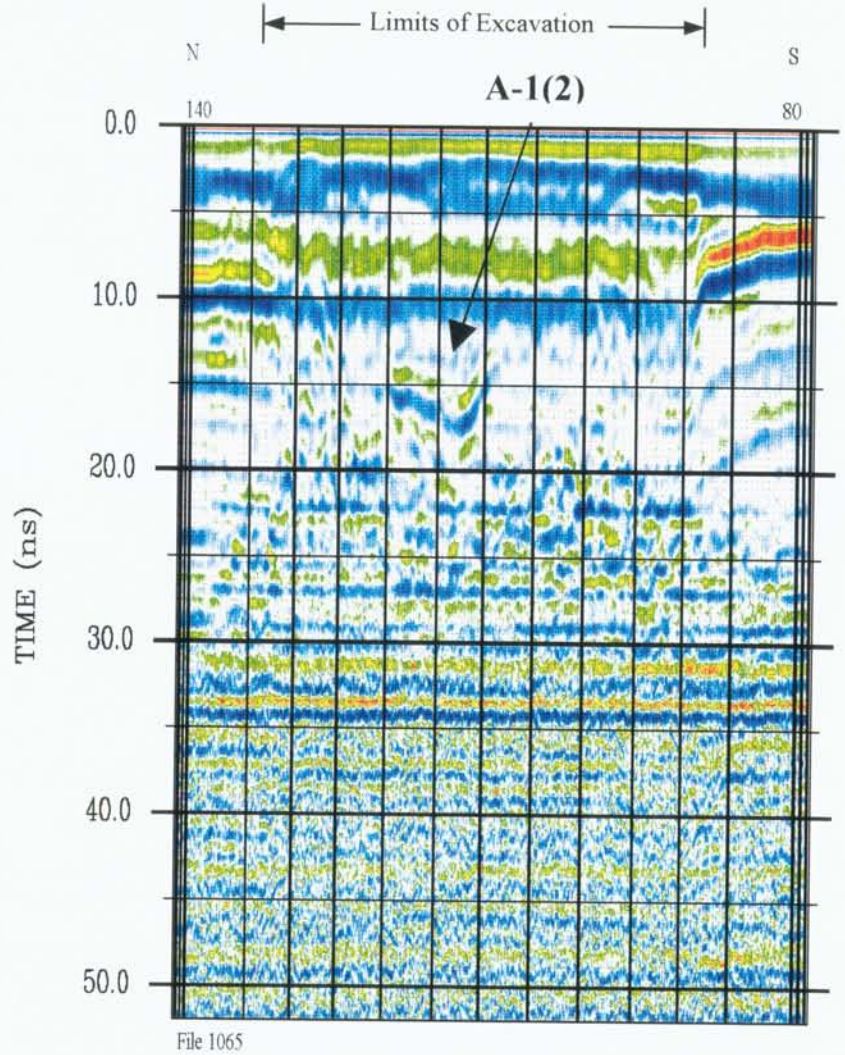
Figure A-11
Former Waste Chemical Storage Area Site
Fort McClellan, Alabama
Project No. 774645



Line 252.5E, 200 MHz Antenna



Line 250E, 200MHz Antenna

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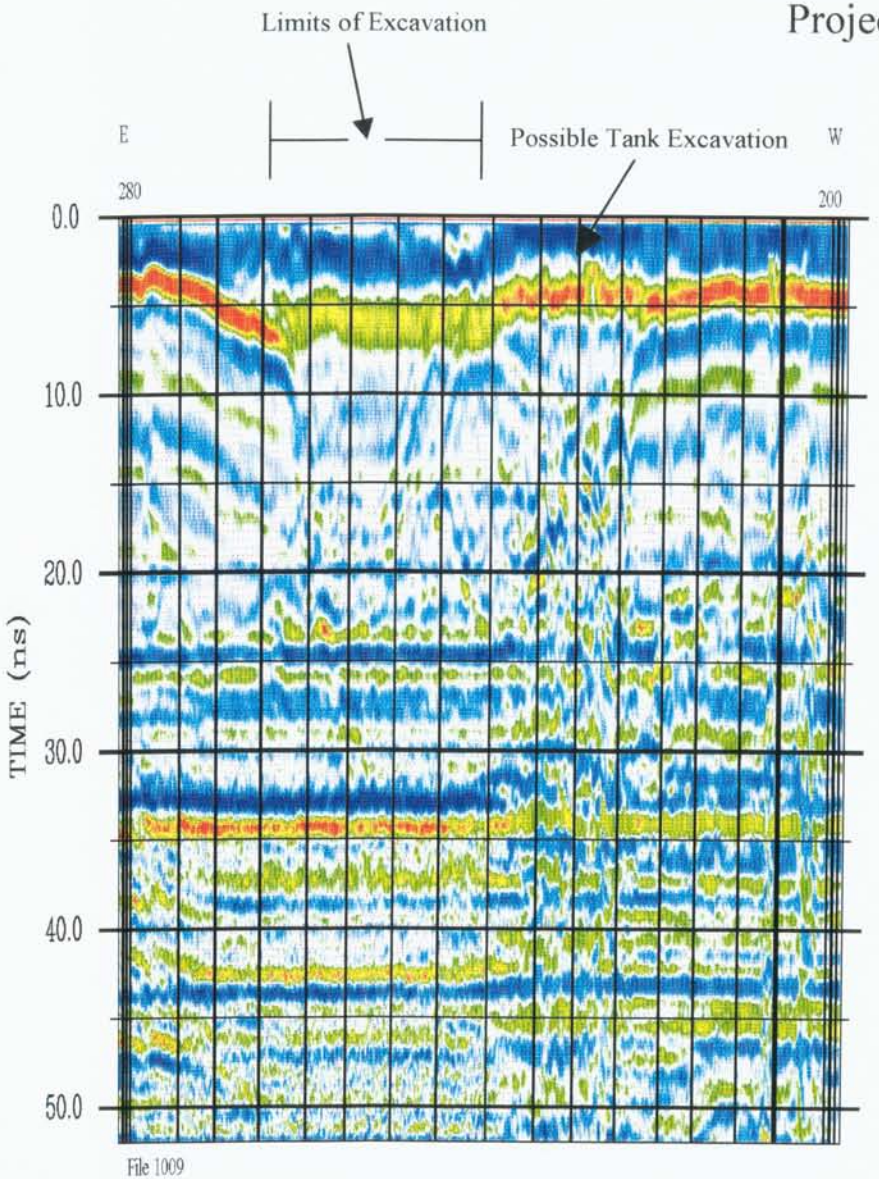
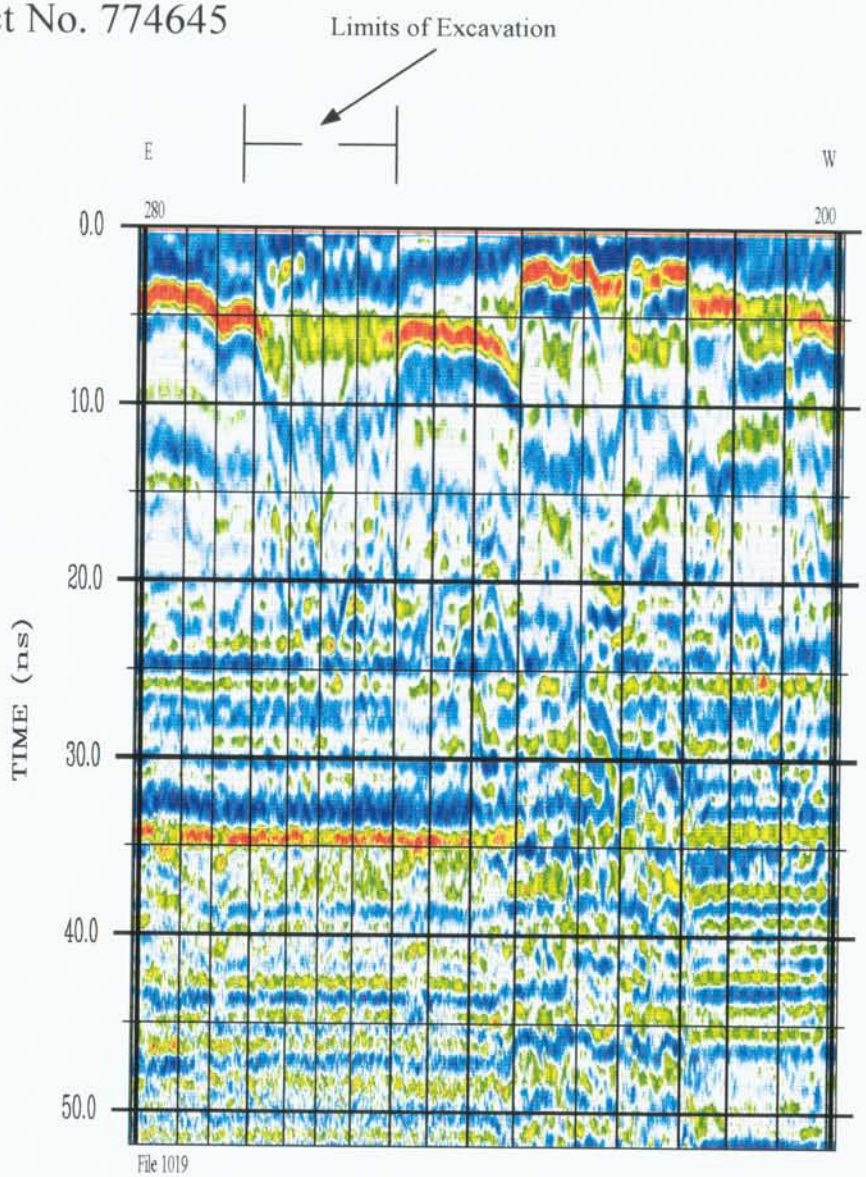
Figure A-12
Former Waste Chemical Storage Area Site
Fort McClellan, Alabama
Project No. 774645



Line 95N, 200 MHz Antenna



Line 120N, 200MHz Antenna

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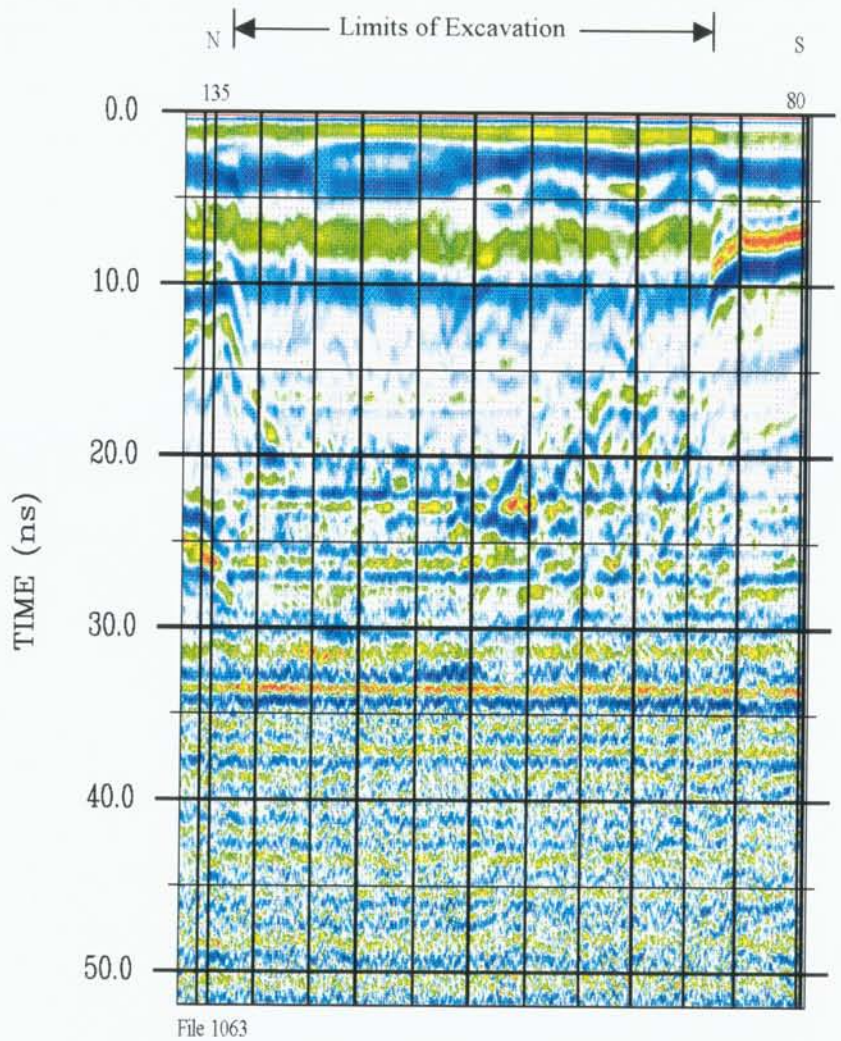
Figure A-13
Former Waste Chemical Storage Area Site
Fort McClellan, Alabama
Project No. 774645



Line 255E, 200 mHz Antenna

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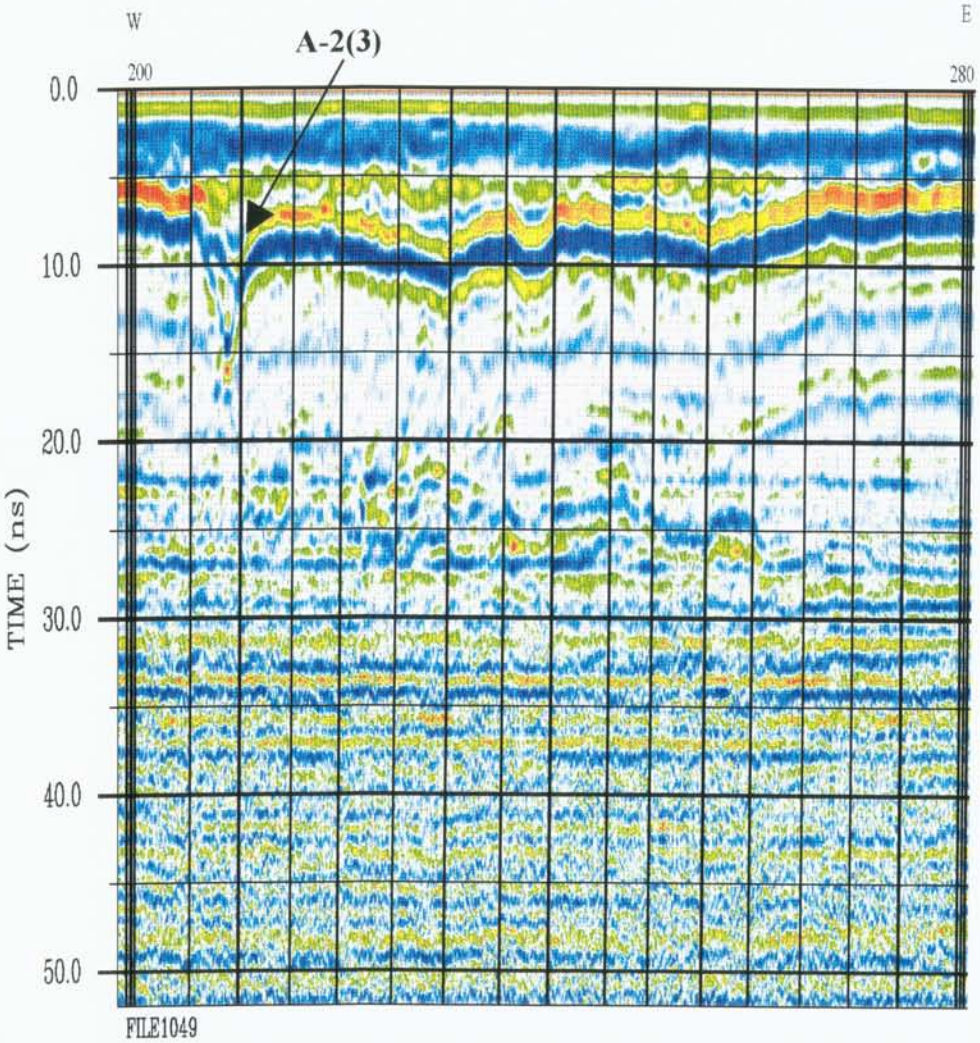
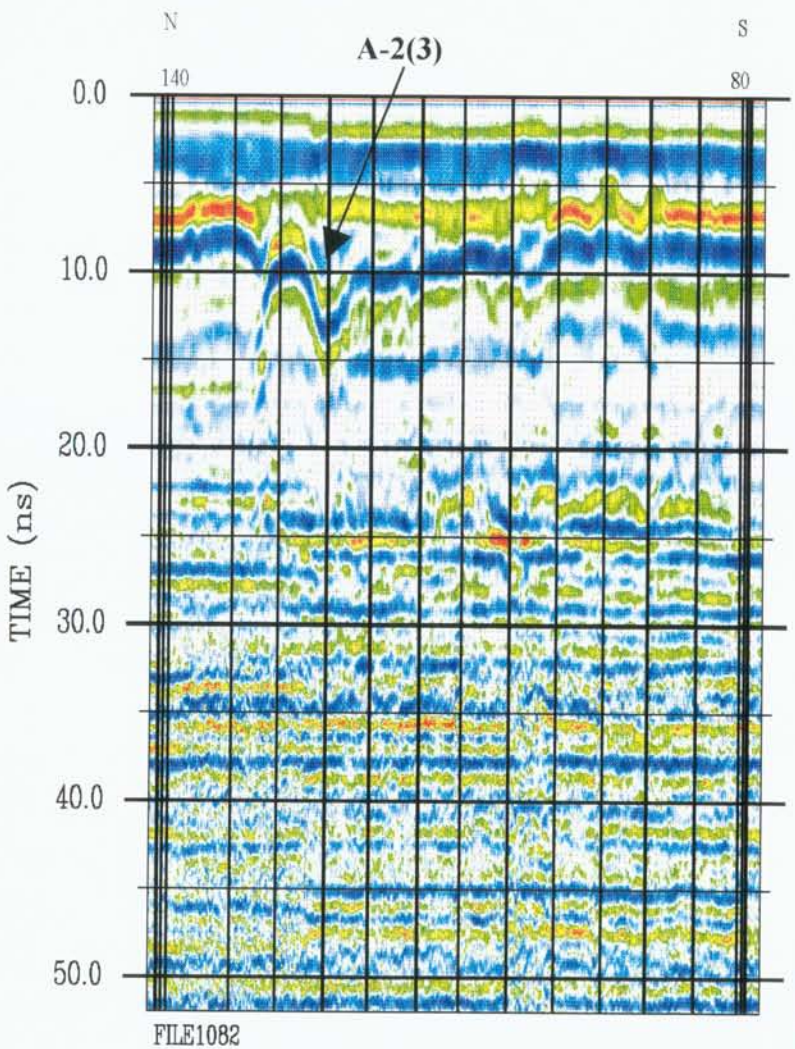
Figure A-14
Former Waste Chemical Storage Area Site
Fort McClellan, Alabama
Project No. 774645



Line 132.5N, 200 MHz Antenna



Line 207.5E, 200MHz Antenna

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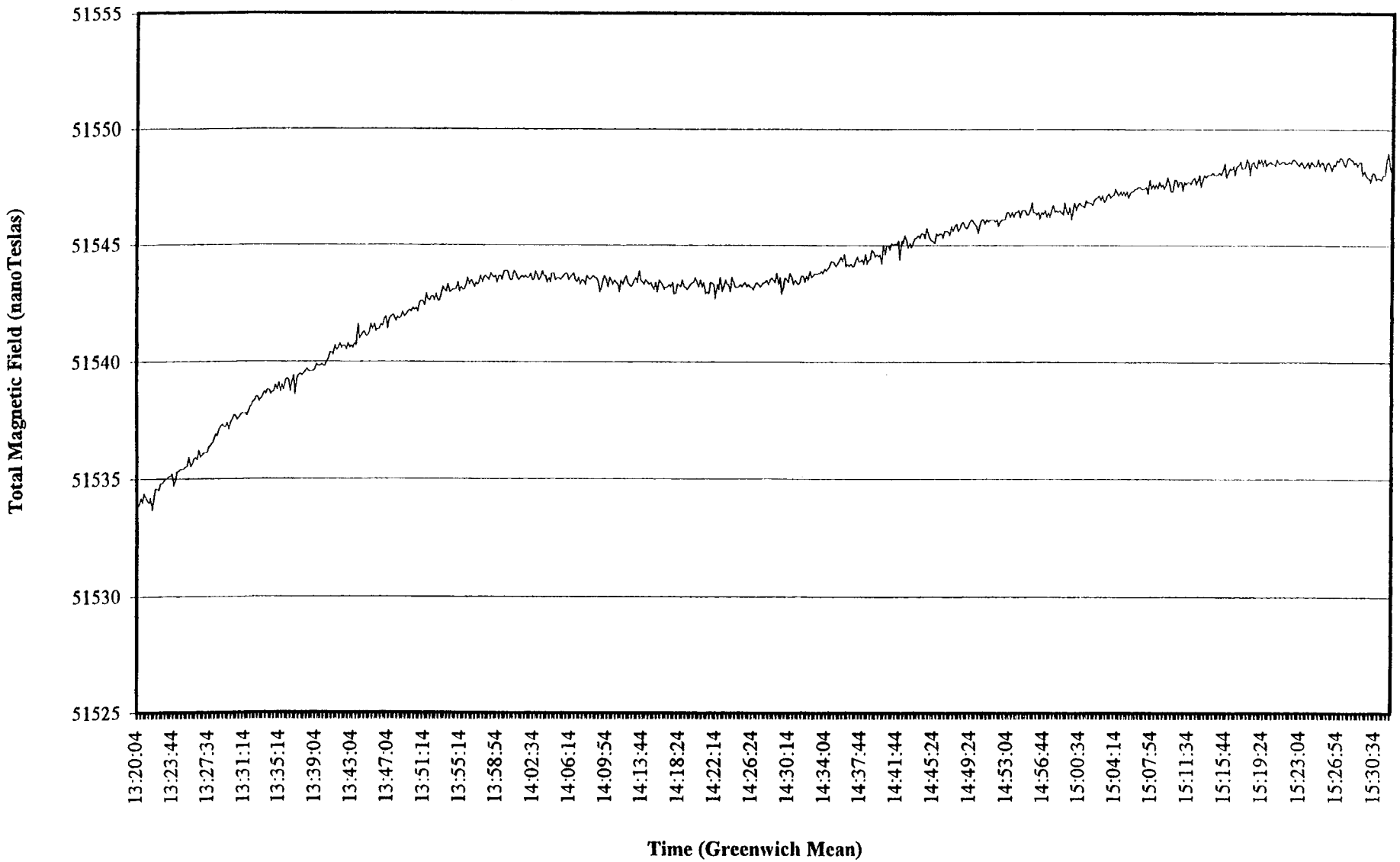
Figure A-15
Magnetic(G-856) Base Station
August 18,1998
Fort McClellan, Alabama
Project No. 774645



ATTACHMENT

THEORETICAL BACKGROUND

Table of Contents

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1.0 Magnetic Method 1
2.0 Frequency-domain EM Method 2
3.0 Time-domain EM Method 4
4.0 Ground-Penetrating Radar Method 5
5.0 References 7

List of Acronyms

EM	electromagnetic induction
EM31	Geonics Limited EM31 Terrain Conductivity Meter
EM61	Geonics Limited EM61 High-Resolution Metal Detector
G-856	Geometrics Inc. G-856 Magnetometer
G-858G	Geometrics Inc. G-858G Magnetic Gradiometer
GPR	Ground Penetrating Radar
GSSI	Geophysical Survey Systems Inc.
9860-BRL	Metrotech Inc. 9860-BRL EM utility locator
mV	millivolts
mS/m	millisiemens/meter
MHz	megahertz
nT	nanoteslas
nT/m	nanoteslas/meter
ppt	parts per thousand
RF	radiofrequency
UXO	unexploded ordnance

1.0 Magnetic Method

The magnetic instruments used during the Fort McClellan surface geophysical surveys were a Geometrics, Inc. G-858G "walking mode" magnetic gradiometer (G-858G) for acquiring survey data and a Geometrics Inc. G-856 for collecting magnetic base station data.

The G-858G, which is an optically-pumped cesium vapor instrument, measures the intensity of the Earth's magnetic field in nanoteslas (nT) and the vertical gradient of the magnetic field in nanoteslas per meter (nT/m). The vertical gradient is measured by simultaneously recording the magnetic field with two sensors at different heights. To determine the vertical magnetic gradient, the upper sensor reading is subtracted from the lower sensor reading, and the result is then divided by the distance between the sensors. The distance between sensors for this investigation was 2.5 feet (0.76 meters). The vertical magnetic gradient measurement allows for better definition of shallow anomalies.

During operation of the G-858G magnetic gradiometer, a direct current is used to generate a polarized monochromatic light. Absorption of the light occurs within the naturally precessing cesium atoms found in the instrument's two vapor cells or sensors. When absorption is complete, the precessing atoms become a transfer mechanism between light and a transverse radio-frequency (RF) field at a specific frequency of light known as the Larmor frequency. The light intensity is used to monitor the precession and adjusts the RF, allowing for the determination of the magnetic field intensity (Sheriff, 1991).

The Earth's magnetic field is believed to originate in currents in the Earth's liquid outer core. The magnetic field varies in intensity from approximately 25,000 nT near the equator, where it is parallel to the Earth's surface, to approximately 70,000 nT near the poles, where it is perpendicular to the Earth's surface. In Alabama, the intensity of the Earth's magnetic field varies from 50,000 nT to 51,000 nT and has an associated inclination of approximately 54 degrees

Anomalies in the Earth's magnetic field are caused by induced or remnant magnetism. Remnant magnetism is caused by naturally occurring magnetic materials. Induced magnetic anomalies result from the induction of a secondary magnetic field in a ferromagnetic material (e.g., pipelines, drums, tanks, or well casings) by the Earth's magnetic field. The shape and amplitude of an induced magnetic anomaly over a ferromagnetic object depend on the geometry, size,

depth, and magnetic susceptibility of the object and on the magnitude and inclination of the Earth's magnetic field in the study area (Dobrin, 1976; Telford, et al., 1976). Induced magnetic anomalies over buried objects such as drums, pipes, tanks, and buried metallic debris generally exhibit an asymmetrical, south high/north low signature (maximum amplitude on the south side and minimum on the north). Magnetic anomalies due to buried metallic objects have dimensions much greater than the dimensions of the objects themselves. As an extreme example, a magnetometer may begin to sense a buried oil well casing at a distance of greater than 50 feet.

The magnetic method is not effective in areas having ferromagnetic material at the surface because the signal from the surface material obscures the signal from any buried objects. Because of the high precision required in the measurement of the frequency at which the protons precess, the presence of an alternating-current electrical power source can render the signal unmeasurable (Breiner, 1973). Also, the precession signal is sharply degraded in the presence of large magnetic gradients exceeding approximately 600 nT/m.

The Earth's magnetic field undergoes low-frequency diurnal variations associated with the Earth's rotation, generally referred to as magnetic drift. The source of these variations is mainly in the ionosphere and of a magnitude large enough that it can introduce artificial trends in field data. The G-856 base station magnetometer was used to monitor this drift, which was later removed from the G-858G field data during processing. Magnetic base station data are presented in Figure A-15 of this report.

Applications of the magnetic method include delineating old waste sites and mapping unexploded ordnance (UXO), oil wells, drums, tanks, pipes, abandoned oil wells, and buried metallic debris. The method also is useful in searching for magnetic ore bodies, delineating basement rock, and mapping subsurface geology characterized by volcanic or mafic rocks.

2.0 Frequency-Domain EM Method

Frequency-domain electromagnetic induction equipment used during this investigation consisted of a Geonics EM31 terrain conductivity meter (EM31) coupled to an Omnidata DL720 digital data logger. The EM31 has a transmitter coil mounted at one end and a receiver coil at the other end of a 12-foot-long plastic boom. An audio frequency alternating current is applied to the transmitter coil, causing the coil to radiate a primary EM field. As described by Faraday's law of

induction, this time-varying magnetic field generates eddy currents in conductive subsurface materials. These eddy currents have an associated secondary magnetic field with a strength and phase shift (relative to the primary field) that are dependent on the conductivity of the medium. The receiver coil measures the resultant effect of both primary and secondary fields. By comparing the signal at the receiver to that at the transmitter, the instrument records the component of the secondary field in-phase (in-phase) and 90 degrees out-of-phase (quadrature) with the primary field. Most geologic materials are poor conductors. The flow of current through the material takes place in the pore fluids (Keller and Frischknecht, 1966); consequently, conductivity is predominantly a function of soil type, porosity, permeability, pore fluid ion content, and degree of saturation. The EM31 is calibrated so that the out-of-phase component is converted to electrical conductivity in units of millisiemens per meter (mS/m) (McNeill, 1980). The in-phase component is read in parts per thousand (ppt) of the primary EM field and is generally adjusted in the field to read zero response over background materials.

The depth of penetration for EM induction instruments depends on the transmitter/receiver separation and coil orientation (McNeill, 1980). The EM31 has an effective exploration depth of approximately 18 feet when operating in the vertical dipole mode (horizontal coils). In this mode, the maximum instrument response results from materials at a depth of approximately two-fifths the coil spacing (approximately 2 feet below ground surface with the instrument at the normal operating height of approximately 3 feet), providing that no large metallic features such as tanks, drums, pipes, and reinforced concrete are present. A single buried drum typically can be located to depths of approximately 5 feet, whereas clusters of drums can be located to significantly greater depths if background noise is limited or negligible. The EM31 has an effective exploration depth of approximately 9 feet when operating in the horizontal dipole mode (vertical coils) and is most sensitive to materials immediately beneath the ground surface.

The EM31 generally must pass over or very near a buried metallic object to detect it. Both the out-of-phase and in-phase components exhibit a characteristic anomaly over near-surface metallic conductors. This anomaly consists of a narrow zone having strong negative amplitude centered over the target and a broader lobe of weaker, positive amplitude on either side of the target. For long, linear conductors such as pipelines, the characteristic anomaly is as described when the axis of the coil (instrument boom) is at an angle to the conductor. However, when the instrument boom is oriented parallel to the conductor, a positive amplitude anomaly is obtained.

The application of frequency-domain EM techniques includes mapping conductive groundwater contaminant plumes in very shallow aquifers and delineating oil brine pits; landfill boundaries; buried pipes, cables, drums, and tanks; and pits and trenches containing buried metallic and nonmetallic debris.

3.0 Time-Domain EM Method

Time-domain electromagnetic induction equipment used during this investigation consisted of a Geonics EM61 high-resolution metal detector (EM61) coupled to an Omnidata DL720 digital data logger. The EM61 consists of two one-meter diameter transmitter/receiver coils separated by 0.5 meters, which allows for discrimination between shallow and deeply buried metal objects. The transmitter generates a pulsed primary magnetic field, which induces eddy currents in nearby metallic conductors, as described by Faraday's law of induction. The internal electronics of the EM61 are designed such that the receiver measures the induced currents in a very narrow time gate following transmitter turn-off. These eddy currents are detected in the receiver coil as time-dependent decaying voltages. The measurement of these currents in the absence of the primary allows for the high-sensitivity measurements obtained with the system. Since the current ring diffuses down and outward, readings taken immediately after current shut-off are most affected by near-surface conditions, and the later readings by the electrical properties of the deeper subsurface.

The EM61 is generally adjusted in the field to have a zero millivolts (mV) response over background conditions.

The EM61 depth of penetration depends primarily on the size of the target, and to a lesser degree on the type of metal (Geonics, 1997). The EM61 has an effective exploration depth in excess of 10 feet for locating large conductive features, such as tanks.

The EM61 generally must pass over or very near a buried metallic object to detect it. The EM61 characteristic anomaly consists of readings elevated 10 to 20 mV above background for small conductors and up to several thousand mV for large conductors, such as tanks. For mapping long, linear conductors, the EM61 data is most useful when measurements are taken perpendicular to the orientation of the conductor.

The application of near-surface time-domain EM techniques with instruments such as the EM61 includes mapping most types of metals, buried pipes, cables, drums, and tanks; mapping landfill boundaries, and pits and trenches containing buried metallic.

4.0 Ground-Penetrating Radar Method

Ground-penetrating radar (GPR) equipment used during this investigation consisted of a Geophysical Survey Systems, Inc. (GSSI) Model SIR-2P equipped with 200- and 400-megahertz (MHz) monostatic antennas and a DPU-5400 high-resolution thermal gray-scale printer.

When conducting a GPR survey, an antenna containing both a transmitter and a receiver is pulled along the ground surface. The transmitter radiates into the ground short pulses of high-frequency EM energy (center frequencies in the range of 200 to 400 MHz). The EM wave propagates into the subsurface at a velocity determined by the relative dielectric constant of the medium through which the wave travels. When the wave encounters the interface of two materials having different propagation velocities or some other electrical heterogeneity (e.g., soil and an underground storage tank [UST]), a portion of the energy is reflected back to the surface. The contrast in velocity between the two media can be quantified by a reflection coefficient at the media interface. The magnitude of the reflection coefficient increases as the contrast in velocities increases; the coefficient sign is positive when the velocity increases at the interface and negative when it decreases. The reflected signal is detected at a receiver antenna, often as a characteristic triplet that is the result of the receiving antenna response and of multiples generated along the propagation path. The signal is transmitted to a control unit, displayed on a color monitor, and saved on digital tape.

As predicted by Maxwell's equations for a propagating EM wave, two kinds of charge flow are generated by the associated alternating electric and magnetic fields (Ulriksen, 1982). The charge flows are conduction and displacement currents. The conduction current term is predominant at lower frequencies, and conduction currents are used in the EM induction method. At the higher frequencies used in the GPR method, the displacement current term becomes predominant because the high frequencies will set bound charges in motion, causing polarization.

The physical properties that describe the movement of charges by conduction and displacement currents are the conductivity and the dielectric constant of the medium, respectively. Conductivity is a measure of the ease with which charges and charged particles move freely through the medium when subjected to an external electric field. The dielectric constant (or its value normalized by the dielectric constant of free space, called the relative dielectric constant) is a measure of how easily a medium polarizes to accommodate the EM fields of a propagating wave (Keller and Frischknecht, 1966).

Although conductivity has a smaller effect on the transmission of EM waves emitted from a GPR unit, it has an important effect on the attenuation of the waves (Ulriksen, 1982). Highly conductive media will attenuate the EM signal rapidly and restrict depth penetration to the first several feet. Highly resistive (poorly conductive) media allow deeper penetration. The frequency of the transmitted waves also affects the depth of penetration. Lower frequencies penetrate deeper but have lower resolution, whereas higher frequencies can resolve smaller objects and soil layers at the expense of depth penetration.

In unconsolidated materials, conduction occurs predominantly through pore fluids (Keller and Frischknecht, 1966). Therefore, changes in pore fluid content, porosity, permeability, and degree of saturation will affect reflected and refracted EM signals. Backfilled trenches, in which there may be different compaction densities relative to the surrounding area, can be identified in this manner. When the target of a GPR survey is a metallic conductor such as metal pipes and cables, drums, tanks, or ammunition shells, the characteristic response is somewhat different, because an EM wave is completely reflected upon reaching the metallic conductor. Thus, the property of total reflection makes metallic targets well suited for detection within the range of the GPR unit. No reflections will occur from below the metallic conductor, although multiples are common. The edges of the metallic reflector will exhibit diffraction patterns as a result of the transmitting and the receiving antennae being unfocused but emitting and receiving from a 45-degree cone. The cone allows the radar to detect objects that are ahead of it, placing them deeper in time. As the radar approaches the object, the reflection becomes shallower, with the shallowest reflection taking place when the radar is immediately above the object. An identical pattern occurs as the antenna moves away from the object.

Applications of GPR include delineation of pits and trenches containing metallic and nonmetallic debris; location of buried pipes, drums, and USTs; and mapping of landfill boundaries and

near-surface geology. Near-surface metallic objects such as pipes and USTs exhibit a characteristic high-amplitude hyperbolic anomaly and generally are relatively easy to recognize.

5.0 References

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APPENDIX B

SAMPLE COLLECTION LOGS AND ANALYSIS REQUEST/CHAIN-OF-CUSTODY RECORDS

SAMPLE COLLECTION LOGS

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number:

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP01
Sample Number: GA0001
Sample Name: WCS-87-GP01-SS-GA0001-REG
Sampling Method: HA

Collection Date: 101598
Collection Time: 1520

Start Depth: 0
End Depth: 1

Sample Team: McDuff
Peterman

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES 3	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
CYANIDE	N	B	1	8	oz	CWM
METALS-S	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM

Comments: COMPOSITED w/ SS N.A
NO ASPHALT

Sketch Location:

Logged BY / Date: _____ *Reviewed BY / Date:* _____

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan

Manager: Jeanie Yacoub

RFA / COC Number: _____

Site: **Waste Chemical Storage Area (Parcel 87, 10,**

Location Code: **WCS-87-GP01**

Sample Number: **GA0001-MS**

Sample Name: **WCS-87-GP01-SS-GA0001-MS**

Sampling Method: **DP**

Collection Date: 10/5/98

Collection Time: 1520

Start Depth: 0

End Depth: 1

Sample Team: McDuff
Petersman

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES 5	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
METALS 8	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM
CYANIDE	N	D	1	8	oz	CWM
~~HR DIOXINS~~	~~N~~	~~B~~	~~1~~	~~8~~	~~oz~~	~~CWM~~

NOT COLLECTED. (NOT SCOPED) -

Comments:

Sketch Location:

Logged BY / Date: _____ *Reviewed BY / Date:* _____

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number: _____

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP01
Sample Number: GA0001-MSD
Sample Name: WCS-87-GP01-SS-GA0001-MSD
Sampling Method: DP

Collection Date: 101598
Collection Time: 1520
Start Depth: 0
End Depth: 1

Sample Team: McDonnell
Peterman

Analytical Suite	Flt	Frtn	Containers Qty	Size	Units	Type
VOLATILES 3	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
METALS-S	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM
CYANIDE	N	D	1	8	oz	CWM
HR DIOXINS	N	D	1	8	oz	CWM

NOT COLLECTED (NOT SCOPED)

Comments:

Sketch Location:

Logged BY / Date: _____ *Reviewed BY / Date:* _____

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number: _____

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP02
Sample Number: GA0003
Sample Name: WCS-87-GP02-SS-GA0003-REG
Sampling Method: HA

Collection Date: 101598
Collection Time: 1440

Start Depth: 0
End Depth: 1

Sample Team: M Stumpe
Petersman

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES 3	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
CYANIDE	N	B	1	8	oz	CWM
METALS-5	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM

Comments: COLLECTED w/ SS H.A.
NO ASPHALT

Sketch Location: COLLECTED DEEP SOIL:

(GA 0004, 10-15-98 @ 1500 DEPTH 4-8')
NO LABELS OR LOG

Logged BY / Date: _____ *Reviewed BY / Date:* _____

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan

Manager: Jeanie Yacoub

RFA / COC Number: _____

Site: **Waste Chemical Storage Area (Parcel 87, 10,**

Location Code: **WCS-87-GP02**

Sample Number: **GA0012**

Sample Name: **WCS-87-GP02-SS-GA0012-FD**

Sampling Method: **DP**

Collection Date: 101598

Collection Time: 1440

Start Depth: 0

End Depth: 1

Sample Team: MS/MOS PETERMAN

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
METALS-S	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM
CYANIDE	N	D	1	8	oz	CWM
~~HR DIOXINS~~	~~N~~	~~D~~	~~1~~	~~8~~	~~oz~~	~~CWM~~

NOT COLLECTED, (NOT IN SCOPE)

Comments: COLLECTED ~~AND~~ FOR ALL PARAMETERS (EXCEPT DIOXIN)

Sketch Location:

Logged BY / Date: _____ *Reviewed BY / Date:* _____

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number: _____

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP02
Sample Number: GA0013
Sample Name: WCS-87-GP02-SS-GA0013-FS
Sampling Method: DP

Collection Date: 101598
Collection Time: 1440

Start Depth: 0
End Depth: 1

Sample Team: McDonoe
Peterman

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	8	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
METALS-8	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM
CYANIDE	N	D	1	8	oz	CWM
~~HR DIOXINS~~	~~N~~	~~D~~	~~1~~	~~8~~	~~oz~~	~~CWM~~

NOT COLLECTED (NOT SCOPED)

Comments: COLLECTED ALL PARAMETERS (EXCEPT DIOXIN)

Sketch Location:

Logged BY / Date: _____ *Reviewed BY / Date:* _____

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number:

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP03
Sample Number: GA0005
Sample Name: WCS-87-GP03-SS-GA0005-REG
Sampling Method: DP

Collection Date: 100298
Collection Time: 1240
Start Depth: 0
End Depth: 1

Sample Team: McAnnis
Peterman

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES 3	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
METALS-S	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM
CYANIDE	N	D	1	8	oz	CWM
HR DIOXINS	N	D	1	8	oz	CWM

Comments: COLLECTED UNDER CONCRETE. CONCRETE CUTTER'S DRILLING FLUID POSSIBLY ADDED WATER TO SAMPLE. COLLECTED W/ SS HAND AUGER. LOW PID READING BUT DEFINITE PESTICIDE ODOR.

Sketch Location:

Logged BY / Date: _____ *Reviewed BY / Date:* _____

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number: _____

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP04
Sample Number: GA0007
Sample Name: WCS-87-GP04-SS-GA0007-REG
Sampling Method: DP

Collection Date: 100298
Collection Time: 1200
Start Depth: 0
End Depth: 1

Sample Team: MS Amos, Poorman

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES 3	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
METALS-S	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM
CYANIDE	N	D	1	8	oz	CWM
HR DIOXINS	N	D	1	8	oz	CWM

Comments: COLLECTED UNDER CONCRETE ; W/SS HAND AUGER

Sketch Location:

Logged BY / Date: _____ *Reviewed BY / Date:* _____

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number: ~~60-011199-SAD1~~ 87-092398-GS

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP05
Sample Number: GA0009
Sample Name: WCS-87-GP05-SS-GA0009-REG
Sampling Method: DP

Collection Date: 9/23/98
Collection Time: ~~11:40~~ 1500

Start Depth: 0
End Depth: 1

Sample Team: C. Short
R. McBride

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
METALS-S	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES_	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM
CYANIDE	N	D	1	8	oz	CWM
HR DIOXINS	N	D	1	8	oz	CWM

Comments:

Sketch Location:

Logged BY / Date: Regenerated by C. Short 11/27/99

Reviewed BY / Date:

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number: 87-092398-0

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP06
Sample Number: GA0011
Sample Name: WCS-87-GP06-SS-GA0011-REG
Sampling Method: DP

Collection Date: 9/23/98
Collection Time: 1240

Start Depth: 0
End Depth: 1

Sample Team: C. Short
R. McBride

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
METALS-S	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES_	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM
CYANIDE	N	D	1	8	oz	CWM
HR DIOXINS	N	D	1	8	oz	CWM

Comments:

Sketch Location:

Regenerated by

Logged BY / Date: C. Short

Reviewed BY / Date:

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number: 87-092399-Q

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP07
Sample Number: GA0015
Sample Name: WCS-87-GP07-SS-GA0015-REG
Sampling Method: DP

Collection Date: 9/23/98
Collection Time: 1420

Start Depth: 0
End Depth: 1

Sample Team: C Short
R McBride

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
METALS-S	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES_	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM
CYANIDE	N	D	1	8	oz	CWM
HR DIOXINS	N	D	1	8	oz	CWM

Comments:

Sketch Location:

Logged BY / Date: Regenerated by C Short

Reviewed BY / Date:

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number: 87-092398-QS

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP08
Sample Number: GA0019
Sample Name: WCS-87-GP08-SS-GA0019-REG
Sampling Method: DP

Collection Date: 9/23/98
Collection Time: 1320

Start Depth: 0
End Depth: 1

Sample Team: C Short
R McBride

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
METALS-S	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES_	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM
CYANIDE	N	D	1	8	oz	CWM
HR DIOXINS	N	D	1	8	oz	CWM

Comments:

Sketch Location:

Logged BY / Date: Regenerated by C Short

Reviewed BY / Date:

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number: 87-092398-QS

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP09
Sample Number: GA0021
Sample Name: WCS-87-GP09-SS-GA0021-REG
Sampling Method: DP

Collection Date: 9/23/98
Collection Time: 1530

Start Depth: 0
End Depth: 1

Sample Team: C Short
R McBride

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
METALS-S	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES_	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM
CYANIDE	N	D	1	8	oz	CWM
HR DIOXINS	N	D	1	8	oz	CWM

Comments:

Sketch Location:

Logged BY / Date: Regenerated by C Short

Reviewed BY / Date:

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number:

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP01
Sample Number: GA0002
Sample Name: WCS-87-GP01-DS-GA0002-REG
Sampling Method: DP

Collection Date: 101598
Collection Time: 1545

Start Depth: 4 5
End Depth: 8

Sample Team: MSDuns
Petersman

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
CYANIDE	N	B	1	8	oz	CWM
METALS-S	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES_	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM

Comments:

Sketch Location:

Logged BY / Date: _____ *Reviewed BY / Date:* _____

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan

Manager: Jeanie Yacoub

RFA / COC Number: _____

Site: **Waste Chemical Storage Area (Parcel 87, 10,**

Location Code: **WCS-87-GP02**

Sample Number: **GA0004**

Sample Name: **WCS-87-GP02-DS-GA0004-REG**

Sampling Method: **DP**

Collection Date: 101598

Collection Time: 1500

Start Depth: 4

End Depth: 8

Sample Team: McBride
Peterman

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES 3	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
CYANIDE	N	B	1	8	oz	CWM
METALS-S	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM

Comments: _____

Sketch Location:

Logged BY / Date: _____ *Reviewed BY / Date:* _____

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number:

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP03
Sample Number: GA0006
Sample Name: WCS-87-GP03-DS-GA0006-REG
Sampling Method: DP

Collection Date: 100298
Collection Time: 1255

Start Depth: 9
End Depth: 12

Sample Team: McBride
Peterman

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES 3	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
METALS-S	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM
CYANIDE	N	D	1	8	oz	CWM
HR DIOXINS	N	D	1	8	oz	CWM

Comments:

Sketch Location:

ADDED GA00~~05~~22-FD
FIELD DUPLICATE TO THIS
SAMPLE LOCATION FOR VOCs ONLY

Logged BY / Date: _____ *Reviewed BY / Date:* _____

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number: _____

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP04
Sample Number: GA0008
Sample Name: WCS-87-GP04-DS-GA0008-REG
Sampling Method: DP

Collection Date: 100298
Collection Time: 1220

Start Depth: 1
End Depth: 5

Sample Team: McSuns
Peterman

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
METALS-S	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM
CYANIDE	N	D	1	8	oz	CWM
HR DIOXINS	N	D	1	8	oz	CWM

Comments: PID READING = 212 ppm

Sketch Location:

Logged BY / Date: _____ *Reviewed BY / Date:* _____

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number: 87-092398-QS

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP05
Sample Number: GA0010
Sample Name: WCS-87-GP05-DS-GA0010-REG
Sampling Method: DP

Collection Date: 9/23/98
Collection Time: 1510

Start Depth: 9'
End Depth: 12'

Sample Team: C Short
R McBride

Analytical Suite	Containers Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
METALS-S	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES_	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM
CYANIDE	N	D	1	8	oz	CWM
HR DIOXINS	N	D	1	8	oz	CWM

Comments:

Sketch Location:

Logged BY / Date: Regenerated by C. Short

Reviewed BY / Date:

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan

Manager: Jeanie Yacoub

RFA / COC Number: 87-092398-Q

Site: Waste Chemical Storage Area (Parcel 87, 10,

Location Code: WCS-87-GP06

Sample Number: GA0014

Sample Name: WCS-87-GP06-DS-GA0014-REG

Sampling Method: DP

Collection Date: 9/23/98

Collection Time: 1250

Start Depth: 1'

End Depth: 5'

Sample Team: C Short
R McBride

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
METALS-S	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES_	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM
CYANIDE	N	D	1	8	oz	CWM
HR DIOXINS	N	D	1	8	oz	CWM

Comments:

Sketch Location:

Logged BY / Date: Regenerated by C Short

Reviewed BY / Date:

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number: 87-092398-0S

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP07
Sample Number: GA0016
Sample Name: WCS-87-GP07-DS-GA0016-REG
Sampling Method: DP

Collection Date: 9/23/98
Collection Time: 1440

Start Depth: 9
End Depth: 12

Sample Team: C. Short
R. McBride

Analytical Suite	Containers Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
METALS-S	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES_	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM
CYANIDE	N	D	1	8	oz	CWM
HR DIOXINS	N	D	1	8	oz	CWM

Comments:

Sketch Location:

Logged BY / Date: Regenerated by C Short

Reviewed BY / Date:

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number: 87-092398-QS

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP08
Sample Number: GA0020
Sample Name: WCS-87-GP08-DS-GA0020-REG
Sampling Method: DP

Collection Date: 9/23/98
Collection Time: 1335

Start Depth: 9
End Depth: 12

Sample Team: C Short
R McBride

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
METALS-S	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES_	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM
CYANIDE	N	D	1	8	oz	CWM
HR DIOXINS	N	D	1	8	oz	CWM

Comments:

Sketch Location:

Logged BY / Date: Regenerated by C Short

Reviewed BY / Date:

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number: _____

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-DEP01
Sample Number: ~~GA0022~~ GA0024
Sample Name: WCS-87-DEP01-DEP-GA0022-REG
Sampling Method: DP

Collection Date: 11-10-98
Collection Time: 1315

Start Depth: Ø
End Depth: 1

Team: Allen

Analytical Suite	Containers Flt	Frtn	Qty	Size	Units	Type
VOLATILES	N	A	3	5	g	Er
CL PESTICIDES	N	B	1	8	oz	G
CYANIDE	N	B	1	8	oz	CW
METALS-S	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM

Check Sample Name

Comments: _____

Sketch Location:

Logged BY / Date: _____ *Reviewed BY / Date:* _____

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number: 87-061199-CAS

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-DEP01
Sample Number: ~~GA0022~~ GA0024R
Sample Name: WCS-87-DEP01-DEP-~~GA0022~~-REG GA0024R
Sampling Method: ~~DP~~ ~~HA~~ SS. spoon JB 6/11/99

Collection Date: 6/11/99
Collection Time: 0755
Start Depth: Ø
End Depth: 1
Team: J. Jenkins

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
HR Dioxins	N	D	1	8oz		CWM

Comments: Sample collected at Parcel 87, at staked area marked 'DEP01' HJ

Sketch Location:

Logged BY / Date: [signature] 6/11/99

Reviewed BY / Date: [signature] 7/7/99

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: **774645 Fort McClellan**
Manager: Jeanie Yacoub

RFA / COC Number: _____

Site: **Waste Chemical Storage Area (Parcel 87, 10,**
Location Code: **WCS-87-DEP02**
Sample Number: **GA0023**
Sample Name: **WCS-87-DEP02-DEP-GA0023-REG**
Sampling Method: **DP**

Collection Date: 11-10-98
Collection Time: 1350

Start Depth: Ø
End Depth: 1

Sample Team: Allen

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES 3	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
CYANIDE	N	B	1	8	oz	CWM
METALS-8	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM

Comments: _____

Sketch Location:

Logged BY / Date: _____ *Reviewed BY / Date:* _____

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number: 87-061199-CAS

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-DEP02
Sample Number: GA0023R
Sample Name: WCS-87-DEP02-DEP-~~GA0023~~-REG GA0023R
Sampling Method: ~~DP~~ HA SS spoon
JJ 6/11/99

Collection Date: 6/11/99
Collection Time: 0800

Start Depth: Ø
End Depth: 1

Sample Team: J. Jenkins

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
HR Dioxins	N	D	1	8	oz	CWM

Comments: Sample Collected at parcel 87, at stake marked 'DEP02'

Sketch Location:

Logged BY / Date: [signature]

Reviewed BY / Date: [signature] 7/7/99

INTERNATIONAL TECHNOLOGY CORPORATION

ENTERED SSO 3/22/99

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number:

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP01
Sample Number: GA3001
Sample Name: WCS-87-GP01-GW-GA3001-REG
Sampling Method: PP✓

Collection Date: 12/11/98
Collection Time: 0835

Start Depth: NA
End Depth: NA

Sample Team: T. Mullins, J. Brown

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	40	mL	VOA Vial
SEMIVOLATILES_	N	B	1	1	L	Amb. Glass
METALS-W	N	C	1	1	L	HDPE
CL PESTICIDES	N	D	1	1	L	Amb. Glass
PCBs	N	D	1	1	L	Amb. Glass
CYANIDE	N	E	1	1	L	HDPE
CL HERBICIDES	N	F	1	1	L	Amb. Glass
OP PESTICIDES	N	G	1	1	L	Amb. Glass

PURGE RECORD:

Initial	Time(24hr)	DepthtoWater (ft)	Eh (mV)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	DissOxygen (ppm)	Temperature (C)	Purge Volume (gal)
12-11-98	0808	8.1	-14	6.60	424.1	79.6	5.91	16.79	0.5
	0812	8.84	6	6.43	414.7	43.0	4.40	17.2	1.5
	0822	9.92	52	6.44	417.6	15.4	4.56	17.56	3.0
	0824	10.36	60	6.42	420.4	3.4	4.03	17.80	4.0
	0828	10.50	66	6.42	424.9	2.9	4.05	17.84	4.5
	0831	10.76	70	6.43	428.7	4.5	3.93	17.96	5.0
	0832	11.06	69	6.43	432.2	3.6	3.85	17.99	5.5
Sample:									

VOAs and metals preserved to pH<2

Cyanide preserved to pH>12

Logged BY / Date: [illegible] 12-11-98 *Reviewed BY / Date:*

INTERNATIONAL TECHNOLOGY CORPORATION

ENTERED SAM 3/22/99

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number:

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP02
Sample Number: GA3002
Sample Name: WCS-87-GP02-GW-GA3002-REG
Sampling Method: PP

Collection Date: 12-11-98
Collection Time: 0710

Start Depth: NA
End Depth: NA

Sample Team: T. Mullins, J. Brown

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	40	mL	VOA Vial
SEMIVOLATILES_	N	B	1	1	L	Amb. Glass
METALS-W	N	C	1	1	L	HDPE
CL PESTICIDES	N	D	1	1	L	Amb. Glass
PCBs	N	D	1	1	L	Amb. Glass
CYANIDE	N	E	1	1	L	HDPE
CL HERBICIDES	N	F	1	1	L	Amb. Glass
OP PESTICIDES	N	G	1	1	L	Amb. Glass

PURGE RECORD:

Initial	Time(24hr)	DepthtoWater (ft)	Eh (mV)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	DissOxygen (ppm)	Temperature (C)	Purge Volume (gal)
12-10-98	1538	12.97	219	7.44	137.6	—	6.51	14.43	.25
	1548	15.70	75	6.91	662.0	>1000	2.59	19.10	2.25
	1557	18.68	41	6.77	644.9	953.9	1.91	19.65	4.50
	1608	21.08	4	6.98	648.1	221.1	1.46	19.60	6.75
	1619	Dry	—	—	—	—	—	—	8.75
Sample:	0710	7.66	224	7.07	598.5	42.7	3.8	18.44	—

VOAs and metals preserved to pH<2
Cyanide preserved to pH>12
The turbidity @ 1538 read 0.0 but was actually >>1000.

Logged BY / Date: 12-11-98 Reviewed BY / Date:

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3/22/99

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number:

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP03
Sample Number: GA3003
Sample Name: WCS-87-GP03-GW-GA3003-REG
Sampling Method: PP

Collection Date: 12-14-98
Collection Time: 1530

Start Depth: NA
End Depth: NA

Sample Team: T. Mullins
J. Brown

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	40	mL	VOA Vial
SEMIVOLATILES	N	B	1	1	L	Amb. Glass
METALS-W	N	C	1	1	L	HDPE
CL PESTICIDES	N	D	1	1	L	Amb. Glass
PCBs	N	D	1	1	L	Amb. Glass
OP PESTICIDES	N	E	1	1	L	Amb. Glass
CL HERBICIDES	N	F	1	1	L	Amb. Glass
CYANIDE	N	G	1	1	L	HDPE
HR DIOXINS	N	H	1	1	L	Amb. Glass

PURGE RECORD:

Initial	Time(24hr)	DepthtoWater (ft)	Eh (mV)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	DissOxygen (ppm)	Temperature (C)	Purge Volume (gal)
	1430	8.48	65	6.87	323.7	49.8	2.02	21.83	0.25
	1441	9.40	53	6.31	247.6	279.1	1.15	21.77	2.0
	1452	9.61	52	6.44	303.7	141.9	1.49	22.12	4.0
	1503	9.78	51	6.33	299.7	103.8	1.79	22.16	6.0
	1512	9.86	46	6.16	296.7	40.7	0.53	21.83	8.0
	1525	9.60	47	6.14	298.0	27.5	0.65	21.25	10.0
Sample:									

VOAs and Metals preserved to pH<2. Cyanide preserved to pH>12. pH Tested with pH paper.

Logged BY / Date: 12/14/98

Reviewed BY / Date:

INTERNATIONAL TECHNOLOGY CORPORATION

ENTERED

Sample Collection Log

Project: 774645 Fort McClellan

Manager: Jeanie Yacoub

RFA / COC Number: _____

Site: **Waste Chemical Storage Area (Parcel 87, 10,**

Location Code: **WCS-87-GP~~06~~** GP03 TB 12/14/98

Sample Number: **GA3007**

Sample Name: **WCS-87-GP~~06~~-GW-GA3007-FD** 03 TB 12/14/98

Sampling Method: **PP**

Collection Date: 12-14-98

Collection Time: 1530

Start Depth: NA

End Depth: NA

Sample Team: T. Mullins, T. Brown

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES 3	N	A	3	40	mL	VOA Vial
SEMIVOLATILES	N	B	1	1	L	Amb. Glass
METALS-W	N	C	1	1	L	HDPE
CL PESTICIDES	N	D	1	1	L	Amb. Glass
PCBs	N	D	1	1	L	Amb. Glass
OP PESTICIDES	N	E	1	1	L	Amb. Glass
CL HERBICIDES	N	F	1	1	L	Amb. Glass
CYANIDE	N	G	1	1	L	HDPE
HR DIOXINS	N	H	1	1	L	Amb. Glass

PURGE RECORD:

Initial	Time(24hr)	DepthtoWater (ft)	Eh (mV)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	DissOxygen (ppm)	Temperature (C)	Purge Volume (gal)
	See GA3003-REG sample collection log.								
Sample:									

Logged BY / Date: 12/14/98

Reviewed BY / Date: _____

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan

Manager: Jeanie Yacoub

RFA / COC Number: _____

Site: Waste Chemical Storage Area (Parcel 87, 10,

Location Code: WCS-87-~~GP06~~ GP03 12/14/98

Sample Number: GA3008

Sample Name: WCS-87-GP~~06~~ 03-GW-GA3008-FS 12/14/98

Sampling Method: PP

Collection Date: 12-14-98

Collection Time: 1536

Start Depth: NA

End Depth: NA

Sample Team: T. Mullins, T. Brown

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	40	mL	VOA Vial
SEMIVOLATILES	N	B	1	1	L	Amb. Glass
METALS-W	N	C	1	1	L	HDPE
CL PESTICIDES	N	D	1	1	L	Amb. Glass
PCBs	N	D	1	1	L	Amb. Glass
OP PESTICIDES	N	E	1	1	L	Amb. Glass
CL HERBICIDES	N	F	1	1	L	Amb. Glass
CYANIDE	N	G	1	1	L	HDPE
HR DIOXINS	N	H	1	1	L	Amb. Glass

PURGE RECORD:

Initial	Time(24hr)	DepthtoWater (ft)	Eh (mV)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	DissOxygen (ppm)	Temperature (C)	Purge Volume (gal)
	See GA3003-REG Sample Collection log.								
Sample:									

Logged BY / Date: [signature] 12/14/98

Reviewed BY / Date: _____

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SJP
3/22/99

INTERNATIONAL TECHNOLOGY CORPORATION

This collection log is for well WCS-87-GP04.
JB
12/10/98

Sample Collection Log

Project: 774645 Fort McClellan

Manager: Jeanie Yacoub

RFA / COC Number:

Site: Waste Chemical Storage Area (Parcel 87, 10,

Location Code: WCS-87-~~GP05~~ GP04

Sample Number: ~~GA3005~~ GA3004

Sample Name: WCS-87-GP~~05~~04-GW-~~GA3005~~ GA3004-REG

Sampling Method: ~~PP~~ SS

Collection Date: 12/10/98

Collection Time: 1100

Start Depth: NA

End Depth: NA

Sample Team: T. Mullins, J. Brown

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	40	mL	VOA Vial
SEMIVOLATILES_	N	B	1	1	L	Amb. Glass
METALS-W	N	C	1	1	L	HDPE
CL PESTICIDES	N	D	1	1	L	Amb. Glass
PCBs	N	D	1	1	L	Amb. Glass
OP PESTICIDES	N	E	1	1	L	Amb. Glass
CL HERBICIDES	N	F	1	1	L	Amb. Glass
CYANIDE	N	G	1	1	L	HDPE
HR DIOXINS	N	H	1	1	L	Amb. Glass

PURGE RECORD:

Initial	Time(24hr)	DepthtoWater (ft)	Eh (mV)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	DissOxygen (ppm)	Temperature (C)	Purge Volume (gal)
12/10/98	0951	10.36	109	6.28	385	64.4	3.61	18.69	0.25
	0957	10.30	101	6.26	403.4	109.2	3.02	21.01	2.25
	1006	11.47	104	6.24	406.4	47.6	3.99	21.94	4.50
	1019	12.84	102	6.22	420.3	30.1	3.49	22.39	6.75
	1039	13.54	95	6.20	403.4	33.5	3.54	22.28	8.75
	1048	14.40	99	6.34	452.7	254.0	4.59	22.36	11.0
Sample:									

VOAs and metals preserved to pH<2; Cyanide preserved to pH>12. pH checked with pH strips.
Turbidity @ 1048 was 254.0.

Logged BY / Date: 12/10/98

Reviewed BY / Date:

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number: _____

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP~~06~~04
Sample Number: ~~GA3006-MS~~ GA3004-MS
Sample Name: WCS-87-~~GP06~~-GW-GA~~3006~~-MS
Sampling Method: ~~PR~~ SP GP04 3004

Collection Date: 12/10-98
Collection Time: 1100

Start Depth: NA
End Depth: NA

Sample Team: J. Brown
T. Mullins

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	40	mL	VOA Vial
SEMIVOLATILES_	N	B	1	1	L	Amb. Glass
METALS-W	N	C	1	1	L	HDPE
CL PESTICIDES	N	D	1	1	L	Amb. Glass
PCBs	N	D	1	1	L	Amb. Glass
OP PESTICIDES	N	E	1	1	L	Amb. Glass
CL HERBICIDES	N	F	1	1	L	Amb. Glass
CYANIDE	N	G	1	1	L	HDPE
HR DIOXINS	N	H	1	1	L	Amb. Glass

PURGE RECORD:

Initial	Time(24hr)	DepthtoWater (ft)	Eh (mV)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	DissOxygen (ppm)	Temperature (C)	Purge Volume (gal)
	See GA3004-REG Sample Collection Log.								
Sample:									

Logged BY / Date: 12/10/98 *Reviewed BY / Date:* _____

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan

Manager: Jeanie Yacoub

RFA / COC Number:

Site: Waste Chemical Storage Area (Parcel 87, 10,

Location Code: WCS-87-GP~~06~~04

Sample Number: ~~GA3006-MSD~~ GA-3004-MSP

Sample Name: WCS-87-~~GP06~~ GP04-GW-~~GA3006~~ GA3004-MSD

Sampling Method: ~~PP~~ SP

Collection Date: 12-10-98

Collection Time: 1100

Start Depth: NA

End Depth: NA

Sample Team: J. Brown, T. Mullis

Analytical Suite	Flt	Frtn	Containers Qty	Size	Units	Type
VOLATILES_3	N	A	3	40	mL	VOA Vial
SEMIVOLATILES_	N	B	1	1	L	Amb. Glass
METALS-W	N	C	1	1	L	HDPE
CL PESTICIDES	N	D	1	1	L	Amb. Glass
PCBs	N	D	1	1	L	Amb. Glass
OP PESTICIDES	N	E	1	1	L	Amb. Glass
CL HERBICIDES	N	F	1	1	L	Amb. Glass
CYANIDE	N	G	1	1	L	HDPE
HR DIOXINS	N	H	1	1	L	Amb. Glass

PURGE RECORD:

Initial	Time(24hr)	DepthtoWater (ft)	Eh (mV)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	DissOxygen (ppm)	Temperature (C)	Purge Volume (gal)
	See GA3004-RCG log.								
Sample:									

Logged BY / Date: _____ Reviewed BY / Date: _____

INTERNATIONAL TECHNOLOGY CORPORATION

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Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number:

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-~~GP04~~ GP05
Sample Number: ~~GA3004~~ GA3005
Sample Name: WCS-87-~~GP04~~-GW-~~GA3004~~-REG GP05 GA3005
Sampling Method: PP ✓

Collection Date: 12-15-98
Collection Time: 1356
Start Depth: NA
End Depth: NA

Sample Team: T. Mullins, J. Brown

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	40	mL	VOA Vial
SEMIVOLATILES	N	B	1	1	L	Amb. Glass
METALS-W	N	C	1	1	L	HDPE
CL PESTICIDES	N	D	1	1	L	Amb. Glass
PCBs	N	D	1	1	L	Amb. Glass
OP PESTICIDES	N	E	1	1	L	Amb. Glass
CL HERBICIDES	N	F	1	1	L	Amb. Glass
CYANIDE	N	G	1	1	L	HDPE
HR DIOXINS	N	H	1	1	L	Amb. Glass

PURGE RECORD:

Initial	Time(24hr)	DepthtoWater (ft)	Eh (mV)	pH (SU)	Conductivity (~~mS~~ µS/cm)	Turbidity (NTU)	DissOxygen (ppm)	Temperature (C)	Purge Volume (gal)
12-15-98	1252	12.75	7	6.59	420.6	761.9	2.38	22.87	0.25
	1258	13.53	66	6.59	424.1	1000	3.80	22.03	2
	1308	14.77	68	6.57	426.7	1000	5.24	22.75	3.5
	1320	15.90	11	6.56	424.2	867.6	3.99	22.82	4.75
	1329	17.78	20	6.52	420.4	173.2	2.69	22.73	6.0
	1347	16.99	—	—	—	—	—	—	8.0
Sample:									

At 1347 no readings were taken due to instrument malfunction. The pH of the metals and VOAs are <2, cyanide >12. pH was tested with pH paper.

Logged BY / Date: 12-15-98
Reviewed BY / Date:

INTERNATIONAL TECHNOLOGY CORPORATION

ENTERED
ASD
3/22/99

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number:

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP06
Sample Number: GA3006
Sample Name: WCS-87-GP06-GW-GA3006-REG
Sampling Method: ~~PP~~ SP 9B

Collection Date: 12-10-98
Collection Time: 1420

Start Depth: NA
End Depth: NA

Sample Team: J. Brown
T. Mullins

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	40	mL	VOA Vial
SEMIVOLATILES_	N	B	1	1	L	Amb. Glass
METALS-W	N	C	1	1	L	HDPE
CL PESTICIDES	N	D	1	1	L	Amb. Glass
PCBs	N	D	1	1	L	Amb. Glass
OP PESTICIDES	N	E	1	1	L	Amb. Glass
CL HERBICIDES	N	F	1	1	L	Amb. Glass
CYANIDE	N	G	1	1	L	HDPE
HR DIOXINS	N	H	1	1	L	Amb. Glass

PURGE RECORD:

Initial	Time(24hr)	DepthtoWater (ft)	Eh (mV)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	DissOxygen (ppm)	Temperature (C)	Purge Volume (gal)
12-10-98	0747	9.14	197	6.94	305.9	797.1	—	12.97	.75
	0803	10.9	157	6.73	335.0	780.5	5.10	16.81	2.00
	0829	12.5	148	6.64	329.5	364.0	6.57	17.62	3.75
	0838	15.5	137	6.83	338.2	71000	5.70	19.78	6.50
0856	~~0901~~ AB	18.94	130	6.85	371.1	300.8	2.58	19.39	8.35
	0901	Dry @	8.85	gallons					
Sample:	1419	—	204	7.02	323.4	637.5	5.31	18.04	—

VOAs and metals were preserved to pH<2. Cyanide sample preserved to pH>12. Tested with pH strips.

Logged BY / Date: [signature] 12-10-98

Reviewed BY / Date:

ENTERED SSD 3/22/99

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number: _____

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-GP07
Sample Number: GA3009
Sample Name: WCS-87-GP07-GW-GA3009-REG
Sampling Method: ~~PP~~ Fultz pump
QB

Collection Date: 12/09/98
Collection Time: 1325
Start Depth: NA
End Depth: NA

Sample Team: T. Mullins
J. Brown

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES 3	N	A	3	40	mL	VOA Vial
SEMIVOLATILES	N	B	1	1	L	Amb. Glass
METALS-W	N	C	1	1	L	HDPE
CL PESTICIDES	N	D	1	1	L	Amb. Glass
PCBs	N	D	1	1	L	Amb. Glass
OP PESTICIDES	N	E	1	1	L	Amb. Glass
CL HERBICIDES	N	F	1	1	L	Amb. Glass
CYANIDE	N	G	1	1	L	HDPE
HR DIOXINS	N	H	1	1	L	Amb. Glass

PURGE RECORD:

Initial	Time(24hr)	DepthtoWater (ft)	Eh (mV)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	DissOxygen (ppm)	Temperature (C)	Purge Volume (gal)
	1255	7.80	92	6.25	256.7	932.9	3.15	21.41	0.5
	1258	8.12	96	6.13	295.8	366.2	2.48	22.48	1.5
	1303	8.65	68	6.07	279.1	71000	1.27	23.09	3.0
	1309	8.85	52	5.98	262.1	71000	0.57	23.45	4.5
	1316	9.57	42	5.89	244.2	71000	0.30	23.48	6.0
	1320	9.98	42	5.87	237.1	825.6	0.19	23.74	7.5
Sample:									

VOCs, Metals pH<2; tested with pH strips.
Cyanide preserved >12 also tested with pH strip.

Logged BY / Date: [signature] 12-9-98 *Reviewed BY / Date:* _____

INTERNATIONAL TECHNOLOGY CORPORATION

3/22/99

Sample Collection Log

Project: 774645 Fort McClellan

Manager: Jeanie Yacoub

RFA / COC Number:

Site: Waste Chemical Storage Area (Parcel 87, 10,

Location Code: WCS-87-GP08

Sample Number: GA3010

Sample Name: WCS-87-GP08-GW-GA3010-REG

Sampling Method: ~~PP~~ 9B Eultz pump

Collection Date: 12/9/98

Collection Time: 1510

Start Depth: NA

End Depth: NA

Sample Team: T. Mullins, J. Brown

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES_3	N	A	3	40	mL	VOA Vial
SEMIVOLATILES_	N	B	1	1	L	Amb. Glass
METALS-W	N	C	1	1	L	HDPE
CL PESTICIDES	N	D	1	1	L	Amb. Glass
PCBs	N	D	1	1	L	Amb. Glass
OP PESTICIDES	N	E	1	1	L	Amb. Glass
CL HERBICIDES	N	F	1	1	L	Amb. Glass
CYANIDE	N	G	1	1	L	HDPE
HR DIOXINS	N	H	1	1	L	Amb. Glass

PURGE RECORD:

Initial	Time(24hr)	DepthtoWater (ft)	Eh (mV)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	DissOxygen (ppm)	Temperature (C)	Purge Volume (gal)
12/9/98	1436	10.5	78	5.96	234.6	—	2.98	21.42	1.5
	1437	11.40	55	5.95	232.2	—	2.04	22.04	2.5
	1442	10.80	53	5.94	228.9	—	7.90	22.13	3.5
	1447	11.45	33	5.89	233.1	531.5	0.62	22.53	5.5
	1500	10.75	39	5.89	230.1	334.9	0.19	22.39	7.0
	1505	10.75	36	5.94	230.6	~~0.1~~ 192 216.1	0.19	22.40	7.5
Sample:									

VOCs, Metals pH<2, Cyanide preserved >12 ; tested w pH strips. Turbidities at 1436, 1437 and 1442 were not recorded since Hydrolab registered a turbidity of 0.0 but water was >> 1000 NTU.

Logged BY / Date: 12/16/98

Reviewed BY / Date:

ENTERED
3/22/99

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan
Manager: Jeanie Yacoub

RFA / COC Number:

Site: Waste Chemical Storage Area (Parcel 87, 10,
Location Code: WCS-87-SW/SD01
Sample Number: GA2001
Sample Name: WCS-87-SW/SD01-SW-GA2001-REG
Sampling Method: GRAB

Collection Date: 1-25-99
Collection Time: 350 pm
Start Depth:
End Depth:

Sample Team: L. ROSA
A. GONZALEZ

Analytical Suite	Containers Flt	Frtn	Qty	Size	Units	Type
VOLATILES	N	A	3	40	mL	VOA Vial
SEMIVOLATILES	N	B	1	1	L	Amb Glass
METALS-W/S	N	C	1	1	L	HDPE
CL PESTICIDES	N	D	1	1	L	Amb Glass
PCB	N	D	1	1	L	Amb Glass
CYANIDE	N	E	1	1	L	HDPE
CL HERBICIDES	N	F	1	1	L	Amb Glass
OP PESTICIDES	N	G	1	1	L	Amb Glass

Field Measurements	pH	Conductivity	Turbidity	Dissolved Oxygen	Temperature
Surface Water Parameters					
		(mS/cm)	(NTU)	(mg/L)	(°C)

Comments:

Sketch Location:

Logged BY / Date:

Reviewed BY / Date:

INTERNATIONAL TECHNOLOGY CORPORATION

Sample Collection Log

Project: 774645 Fort McClellan

Manager: Jeanie Yacoub

WAD 3 parcels 87, 10

RFA / COC Number:

Site: **Waste Chemical Storage Area (Parcel 87, 10,**

Location Code: **WCS-87-SW/SD01**

Sample Number: **GA1001**

Sample Name: **WCS-87-SW/SD01-SD-GA1001-REG**

Sampling Method: **HA**

Collection Date: 1-25-99

Collection Time: 350 pm

Start Depth: 0 in

End Depth: 12 in

Sample Team: L. Rosa, A. Gonzalez

Containers

Analytical Suite	Flt	Frtn	Qty	Size	Units	Type
VOLATILES	N	A	3	5	g	EnCore
CL PESTICIDES	N	B	1	8	oz	CWM
METALS	N	B	1	8	oz	CWM
PCBs	N	B	1	8	oz	CWM
SEMIVOLATILES	N	B	1	8	oz	CWM
CL HERBICIDES	N	C	1	8	oz	CWM
OP PESTICIDES	N	C	1	8	oz	CWM
GR SIZE	N	D	1	4	oz	CWM
CYANIDE	N	E	1	8	oz	CWM
TOC	N	E	1	8	oz	CWM

Comments:

Sketch Location:

Logged BY / Date:

Reviewed BY / Date:

ANALYSIS REQUEST/CHAIN-OF-CUSTODY RECORDS

WCS Quote # 25476 HSI 240148 87-092398_QSI

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 1 ~~5422~~

Project Name/No. [1] 774645

Sample Team Members [2] RMCDUDE / C SHORT

Profit Center No. [3] —

Project Manager [4] YACOUB

Purchase Order No. [6] —

Required Report Date [11] NORMAL

Samples Shipment Date [7] 09-23-98

Lab Destination [8] QES-KNOX

Lab Contact [9] JOHN REYNOLDS

Project Contact/Phone [12] DUANE NIELSON

Carrier/Waybill No. [13] QUAL EXPRESS COURIER

Bill to: [5] DUANE NIELSON

Report to: [10] DUANE NIELSON

White: To accompany samples

Yellow: Field copy

ONE CONTAINER PER LINE

Sample Number [14]	Sample Description/Type [15]	Date/Time Collected [16]	Container Type [17]	Sample Volume [18]	Pre-servative [19]	Requested Testing Program [20]	Condition on Receipt [21]	Disposal Record No. [22]
GA-0009-REG	WCS-87-GP05-SS	09-23-98 15:00	250 ML GLWM	2x250 ML	COOL 4°C	SVOC; CL PEST, PCB, METALS		
↓	↓	↓	↓	1x250 ML	↓	OP PEST, CL HERB, CYANIDE, DIOXIN/FURAN		
↓	↓	↓	3x5g ENCORE	3x5g	↓	VOCS		
GA0010-REG	WCS-87-GP05-DS	09-23-98 15:10	250 ML GLWM	2x250 ML	↓	SVOC, CL PEST, PCB METALS		
↓	↓	↓	↓	1x250 ML	↓	OP PEST, CL HERB, CYN. DIOXIN/FURAN		
↓	↓	↓	3x5g ENCORE	3x5g	↓	VOCS	Rec'd at 3°C No Custody Seals JW 9-24-98	
(CONTINUED ON PAGE 2)								

Special Instructions: [23]

Possible Hazard Identification: [24] Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☒

Sample Disposal: [25] Return to Client ☐ Disposal by Lab ☒ Archive (mos.)

Turnaround Time Required: [26] Normal ☐ Rush ☐

QC Level: [27] I. ☐ II. ☐ III. ☐ Project Specific (specify): X

1. Relinquished by [28] (Signature/Affiliation)	Date: 9/23/98 Time: 1625	1. Received by [28] (Signature/Affiliation)	Date: 9/23/98 Time: 1625
2. Relinquished by (Signature/Affiliation)	Date: 1825 Time: 17:45	2. Received by (Signature/Affiliation)	9-24-98 Date: 1825 8:00 Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: [29]

*See back of form for special instructions.

MCA 3/15/91

HSI 240148 87_092398_QSI

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] _____

Project Name FTMC

Project No. 774645

Samples Shipment Date 09-23-98

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
GA0011-REG	WCS-87-GP06-SS	09-23-98 12:40	1X250 CLGLWM	1X250	COOL 4°C	SVOC, CLPEST, PCB, METAL		
↓	↓	↓	↓	1X250	↓	OP PEST, CL HERB, CYN DIOXIN/FURAN	FOR LAB USE ONLY	
↓	↓	↓	3X5g ENCORE	3X5g	↓	VOCS		
GA0014-REG	WCS-87-GP06-DS	09-23-98 12:50	1X250 CLGLWM	1X250	COOL 4°C	SVOC, CL PEST, PCB, METALS		
↓	↓	↓	↓	1X250	↓	OP PEST, CL HERB, CYN DIOXIN/FURAN	FOR LAB USE ONLY	
↓	↓	↓	3X5g ENCORE	3X5g	↓	VOCS		
GA0015-REG	WCS-87-GP07-SS	09-23-98 14:20	1X250 CLGLWM	1X250	COOL 4°C	SVOC, CLPEST, PCB METALS		
↓	↓	↓	↓	2X250	↓	OP PEST, CL HERB, CYN PCDD/PCDF	FOR LAB USE ONLY	
↓	↓	↓	3X5g ENCORE	3X5g	↓	VOC		
GA0016-REG	WCS-87-GP07-DS	09-23-98 14:40	1X250 CLGLWM	1X250	↓	SVOC, CLPEST, PCB METALS	FOR LAB USE ONLY	
↓	↓	↓	↓	2X250	↓	OP PEST, CL HERB, CYN PCDD/PCDF		
↓	↓	↓	3X5g ENCORE	3X5g	↓	VOC		
GA0019-REG	WCS-87-GP08-SS	09-23-98 1320	250 CLGLWM	1X250	↓	SVOC, CLPEST, PCB METALS		
↓	↓	↓	↓	1X250	↓	OP PEST, CL HERB, CN PCDD/PCDF		
↓	↓	↓	3X5g ENCORE	3X5g	↓	VOC		
GA0020-REG	WCS-87-GP08-DS	09-23-98 1335	250 CLGLWM	1X250	↓	SVOC, CL PEST, PCB METALS		
↓	↓	↓	↓	1X250	↓	OP PEST, CL HERB, CN PCDD/PCDF	FOR LAB USE ONLY	
↓	↓	↓	3X5g ENCORE	3X5g	↓	VOC		
(CONTINUED ON PAGE 3)								

White: To accompany samples

Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

87_9 398_QS1

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] _____

Page 3 of 3

Project Name FTMC

Project No. 774645

Samples Shipment Date 09-23-98

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
GA0021-REG	WCS-87GP09-SS	09-23-98 1530	250mL CLGLWM	1X250	Cool 4°C	SVOC, CLPEST, PCB METALS		
↓	↓	↓	↓	~~3x5g~~ 2X250	↓	OP PEST, CLHERB, CN PCDD/PCDF	FOR LAB USE ONLY	
↓	↓	↓	3x5g ENCORE	3x5g	↓	VOC		
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	

RMcDonald 09-23-98

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

Quote# 25476

H8J030113

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 87-100298-QSK

Project Number: 774645

Project Name: Fort McClellan

Sample Coordinator: John Andrew

Turnaround Time: Normal

Samples Shipment Date: 02-OCT-98

Lab Destination: Quanterra Environmental Services - Knoxville

Lab Contact: John Reynolds

Project Contact: Randy McBride

Carrier/Waybill No.: Hand Delivered/ R. McBride

Bill To: Duane Nielsen
312 Directors Drive
Knoxville TN 37923

Report To: Duane Nielsen
312 Directors Drive
Knoxville TN 37923

Special Instructions:

Possible Hazard Indentification:
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☒

Sample Disposal:
Return to Client ☐ Disposal by Lab ☒ Archive (mos.)

1. Relinquished By (Signature/Affiliation) ITCorp	Date: 10/2/98 Time: 1630	1. Received By (Signature/Affiliation) Randall L. McBride, ITC	Date: 10-02-98 Time: 1630
2. Relinquished By (Signature/Affiliation) ITCORP	Date: 10-03-98 Time: 1100	2. Received By (Signature/Affiliation) Bryan Blomquist	Date: 10/3/98 Time: 1100
3. Relinquished By (Signature/Affiliation)	Date: Time:	3. Received By (Signature/Affiliation)	Date: Time:

Comments:

Recd at 2°c
No Custody Seals
JW 10-3-98

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Fil	CID	Condition On Receipt
GA0005	WCS-87-GP03-SS-GA0005-REG	02-OCT-98	12:40	5 g EnCore	3	None except cool to 4 C	Volatiles by 8260B	N		
GA0005	WCS-87-GP03-SS-GA0005-REG	02-OCT-98	12:40	8 oz CWM	1	None except cool to 4 C	Cl Pesticides by 8081A, TAL Metals by 6010B/7471A - Soils, PCBs by 8082, Semivolatiles by 8270C	N		
GA0005	WCS-87-GP03-SS-GA0005-REG	02-OCT-98	12:40	8 oz CWM	1	None except cool to 4 C	Cl Herbicides by 8151A, OP Pesticides by 8141A	N		
GA0005	WCS-87-GP03-SS-GA0005-REG	02-OCT-98	12:40	8 oz CWM	1	None except cool to 4 C	CYANIDE BY 9010B, HR Dioxins by 8290	N		
GA0006	WCS-87-GP03-DS-GA0006-REG	02-OCT-98	12:55	5 g EnCore	3	None except cool to 4 C	Volatiles by 8260B	N		
GA0006	WCS-87-GP03-DS-GA0006-REG	02-OCT-98	12:55	8 oz CWM	1	None except cool to 4 C	Cl Pesticides by 8081A, TAL Metals by 6010B/7471A - Soils, PCBs by 8082,	N		

48J030113

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 87-100298-QSK

Sample No	Sample Name	Sample Date	Sample Time	Container		Preservative	Requested Testing Program	Fil	CID	Condition On Receipt
							Semivolatiles by 8270C			
GA0006	WCS-87-GP03-DS-GA0006-REG	02-OCT-98	12:55	8 oz CWM	1	None except cool to 4 C	CYANIDE BY 9010B, HR Dioxins by 8290	N		
GA0006	WCS-87-GP03-DS-GA0006-REG	02-OCT-98	12:55	8 oz CWM	1	None except cool to 4 C	Cl Herbicides by 8151A, OP Pesticides by 8141A	N		
GA0007	WCS-87-GP04-SS-GA0007-REG	02-OCT-98	12:00	8 oz CWM	1	None except cool to 4 C	Cl Pesticides by 8081A, TAL Metals by 6010B/7471A - Soils, PCBs by 8082, Semivolatiles by 8270C	N		
GA0007	WCS-87-GP04-SS-GA0007-REG	02-OCT-98	12:00	5 g EnCore	3	None except cool to 4 C	Volatiles by 8260B	N		
GA0007	WCS-87-GP04-SS-GA0007-REG	02-OCT-98	12:00	8 oz CWM	1	None except cool to 4 C	Cl Herbicides by 8151A, OP Pesticides by 8141A	N		
GA0007	WCS-87-GP04-SS-GA0007-REG	02-OCT-98	12:00	8 oz CWM	1	None except cool to 4 C	CYANIDE BY 9010B, HR Dioxins by 8290	N		
GA0008	WCS-87-GP04-DS-GA0008-REG	02-OCT-98	12:20	5 g EnCore	3	None except cool to 4 C	Volatiles by 8260B	N		
GA0008	WCS-87-GP04-DS-GA0008-REG	02-OCT-98	12:20	8 oz CWM	1	None except cool to 4 C	Cl Pesticides by 8081A, TAL Metals by 6010B/7471A - Soils, PCBs by 8082, Semivolatiles by 8270C	N		
GA0008	WCS-87-GP04-DS-GA0008-REG	02-OCT-98	12:20	8 oz CWM	1	None except cool to 4 C	Cl Herbicides by 8151A, OP Pesticides by 8141A	N		
GA0008	WCS-87-GP04-DS-GA0008-REG	02-OCT-98	12:20	8 oz CWM	1	None except cool to 4 C	CYANIDE BY 9010B, HR Dioxins by 8290	N		
GA0022	WCS-87-GP03-DS-GA0022-FD	02-OCT-98	12:55	5 g EnCore	3	None except cool to 4 C	Volatiles by 8260B	N		

150

1HFS160116

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 87-101598-QSK

Project Number: 774645

Project Name: Fort McClellan

Sample Coordinator: John Andrew

Turnaround Time: Normal

Samples Shipment Date: 15-OCT-98

Lab Destination: Quanterra Environmental Services - Knoxville

Lab Contact: John Reynolds

Project Contact: Randy McBride

Carrier/Waybill No.: Hand Delivered/ Randy McBride

Bill To: Duane Nielsen
312 Directors Drive
Knoxville TN 37923

Report To: Duane Nielsen
312 Directors Drive
Knoxville TN 37923

Special Instructions:

Possible Hazard Indentification:
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☒

Sample Disposal:
Return to Client ☐ Disposal by Lab ☒ Archive (mos.)

1. Relinquished By (Signature/Affiliation)	IT Group	Date: 10/15/98 Time: 1730	1. Received By (Signature/Affiliation)	IT Group	Date: 101598 Time: 1730
2. Relinquished By (Signature/Affiliation)	ITG	Date: 101698 Time: 0815	2. Received By (Signature/Affiliation)		Date: 10-16-98 Time: 8:15
3. Relinquished By (Signature/Affiliation)		Date: Time:	3. Received By (Signature/Affiliation)		Date: Time:

Comments:

Recd at 2°C
Custody Seals Intact
GW 10-16-98

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Fil	CID	Condition On Receipt
GA0001	WCS-87-GP01-SS-GA0001-REG	15-OCT-98	15:20	5 g EnCore	3	None except cool to 4 C	Volatiles by 8260B	N		
GA0001	WCS-87-GP01-SS-GA0001-REG	15-OCT-98	15:20	8 oz CWM	1	None except cool to 4 C	Cl Pesticides by 8081A, CYANIDE BY 9010B, TAL Metals by 6010B/7471A - Soils, PCBs by 8082, Semivolatiles by 8270C	N		
GA0001	WCS-87-GP01-SS-GA0001-REG	15-OCT-98	15:20	8 oz CWM	1	None except cool to 4 C	Cl Herbicides by 8151A, OP Pesticides by 8141A	N		
GA0001-MS	WCS-87-GP01-SS-GA0001-MS-MS	15-OCT-98	15:20	5 g EnCore	3	None except cool to 4 C	Volatiles by 8260B	N		
GA0001-MS	WCS-87-GP01-SS-GA0001-MS-MS	15-OCT-98	15:20	4 oz CWM	1	None except cool to 4 C	Cl Herbicides by 8151A, OP Pesticides by 8141A	N		

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H85160116

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 87-101598-QSK

Sample No	Sample Name	Sample Date	Sample Time	Container		Preservative	Requested Testing Program	Fil	CID	Condition On Receipt
GA0001-MS	WCS-87-GP01-SS-GA0001-MS-MS	15-OCT-98	15:20	8 OZ CWM	1	NONE EXCEPT COOL TO 4	Cl Pesticides by 8081A, CYANIDE BY 9010B, TAL Metals by 6010B/7471A - Soils, PCBs by 8082, Semivolatiles by 8270C	N		
GA0001-MS	WCS-87-GP01-SS-GA0001-MSD-MSD	15-OCT-98	15:20	8 oz CWM	1	None except cool to 4 C	Cl Herbicides by 8151A, Cl Pesticides by 8081A	N		
GA0001-MS	WCS-87-GP01-SS-GA0001-MSD-MSD	15-OCT-98	15:20	5 g EnCore	3	None except cool to 4 C	Volatiles by 8260B	N		
GA0001-MS	WCS-87-GP01-SS-GA0001-MSD-MSD	15-OCT-98	15:20	4 oz CWM	1	None except cool to 4 C	CYANIDE BY 9010B, OP Pesticides by 8141A, PCBs by 8082, Semivolatiles by 8270C	N		
GA0002	WCS-87-GP01-DS-GA0002-REG	15-OCT-98	15:45	5 g EnCore	3	None except cool to 4 C	Volatiles by 8260B	N		
GA0002	WCS-87-GP01-DS-GA0002-REG	15-OCT-98	15:45	8 oz CWM	1	None except cool to 4 C	Cl Pesticides by 8081A, CYANIDE BY 9010B, TAL Metals by 6010B/7471A - Soils, PCBs by 8082, Semivolatiles by 8270C	N		
GA0002	WCS-87-GP01-DS-GA0002-REG	15-OCT-98	15:45	8 oz CWM	1	None except cool to 4 C	Cl Herbicides by 8151A, OP Pesticides by 8141A	N		
GA0003	WCS-87-GP02-SS-GA0003-REG	15-OCT-98	14:40	5 g EnCore	3	None except cool to 4 C	Volatiles by 8260B	N		
GA0003	WCS-87-GP02-SS-GA0003-REG	15-OCT-98	14:40	8 oz CWM	1	None except cool to 4 C	Cl Pesticides by 8081A, CYANIDE BY 9010B, TAL Metals by 6010B/7471A - Soils, PCBs by 8082, Semivolatiles by 8270C	N		
GA0003	WCS-87-GP02-SS-GA0003-REG	15-OCT-98	14:40	8 oz CWM	1	None except cool to 4 C	Cl Herbicides by 8151A, OP Pesticides by 8141A	N		
GA0004	WCS-87-GP02-DS-GA0004-REG	15-OCT-98	15:00	5 g EnCore	3	None except cool to 4 C	Volatiles by 8260B	N		
GA0004	WCS-87-GP02-DS-GA0004-REG	15-OCT-98	15:00	8 oz CWM	1	None except cool to 4 C	Cl Pesticides by 8081A, CYANIDE BY 9010B, TAL Metals by 6010B/7471A - Soils, PCBs by 8082, Semivolatiles by 8270C	N		
GA0004	WCS-87-GP02-DS-GA0004-REG	15-OCT-98	15:00	8 oz CWM	1	None except cool to 4 C	Cl Herbicides by 8151A, OP Pesticides by 8141A	N		
GA0012	WCS-87-GP02-SS-GA0012-FD	15-OCT-98	14:40	5 g EnCore	3	None except cool to 4 C	Volatiles by 8260B	N		
GA0012	WCS-87-GP02-SS-GA0012-FD	15-OCT-98	14:40	8 oz CWM	1	None except cool to 4 C	Cl Pesticides by 8081A, TAL Metals by 6010B/7471A - Soils, PCBs by 8082, Semivolatiles by 8270C	N		
GA0012	WCS-87-GP02-SS-GA0012-FD	15-OCT-98	14:40	4 oz CWM	1	None except cool to 4 C	Cl Herbicides by 8151A, OP Pesticides by 8141A	N		
GA0012	WCS-87-GP02-SS-GA0012-FD	15-OCT-98	14:40	8 OZ CWM	1	NONE EXPECT COOL TO	CYANIDE BY 9010B	N		

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H8K110108

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 87-111098-QSK

Project Number: 774645

Project Name: Fort McClellan

Sample Coordinator: John W. Andrew

Turnaround Time: Normal

Samples Shipment Date: 10-NOV-98

Lab Destination: Quanterra Environmental Services - Knoxville

Lab Contact: John Reynolds

Project Contact: Randy McBride

Carrier/Waybill No.: Quality Express/ Courier

Bill To: Duane Nielsen
312 Directors Drive
Knoxville TN 37923

Report To: Duane Nielsen
312 Directors Drive
Knoxville TN 37923

Special Instructions:

Possible Hazard Indentification:
Non-hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown [✓]

Sample Disposal:
Return to Client [ ] Disposal by Lab [✓] Archive (mos.)

1. Relinquished By (Signature/Affiliation) Jeffrey L Hulet	Date: 11/10/98 Time: 1730	1. Received By (Signature/Affiliation) D W Burton	Date: 11 10 98 Time: 1730
2. Relinquished By (Signature/Affiliation) D W Burton	Date: 11 11 98 Time: 0810	2. Received By (Signature/Affiliation) Bryan Blomquist	Date: 11/11/98 Time: 0810
3. Relinquished By (Signature/Affiliation)	Date: Time:	3. Received By (Signature/Affiliation)	Date: Time:

Comments:

Rec'd at 2°C
Custody Seals Intact
DW 11-11-98

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Fil	CID	Condition On Receipt
GA0023	WCS-87-DEP02-DEP-GA0023-REG	10-NOV-98	13:50	5 g EnCore	3	None except cool to 4 C	Volatiles by 8260B	N		
GA0023	WCS-87-DEP02-DEP-GA0023-REG	10-NOV-98	13:50	8 oz CWM	1	None except cool to 4 C	Cl Pesticides by 8081A, CYANIDE BY 9010B, TAL Metals by 6010B/7471A - Soils, PCBs by 8082, Semivolatiles by 8270C	N		
GA0023	WCS-87-DEP02-DEP-GA0023-REG	10-NOV-98	13:50	8 oz CWM	1	None except cool to 4 C	Cl Herbicides by 8151A, OP Pesticides by 8141A	N		
GA0024	WCS-87-DEP01-DEP-GA0024-REG	10-NOV-98	13:15	5 g EnCore	3	None except cool to 4 C	Volatiles by 8260B	N		
GA0024	WCS-87-DEP01-DEP-GA0024-REG	10-NOV-98	13:15	8 oz CWM	1	None except cool to 4 C	Cl Pesticides by 8081A, CYANIDE BY 9010B, TAL Metals by 6010B/7471A -	N		

H8K110108

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 87-111098-QSK

Sample No	Sample Name	Sample Date	Sample Time	Container		Preservative	Requested Testing Program	Fil	CID	Condition On Receipt
							Soils, PCBs by 8082, Semivolatiles by 8270C			
GA0024	WCS-87-DEP01-DEP-GA0024-REG	10-NOV-98	13:15	8 oz CWM	1	None except cool to 4 C	Cl Herbicides by 8151A, OP Pesticides by 8141A	N		

Quote# 25476

H8L100202

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 87-120998-QSK

Project Number: 774645

Project Name: Fort McClellan

Sample Coordinator: John W. Andrew

Turnaround Time: Normal

Samples Shipment Date: 10-DEC-98

Lab Destination: Quanterra Environmental Services - Knoxville

Lab Contact: John Reynolds

Project Contact: Randy McBride

Carrier/Waybill No.: Quality Express/ Courier PK28705

Bill To: Duane Nielsen, 312 Directors Drive, Knoxville TN 37923

Report To: Duane Nielsen, 312 Directors Drive, Knoxville TN 37923

Special Instructions:

Possible Hazard Indentification: Non-hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown [X]

Sample Disposal: Return to Client [ ] Disposal by Lab [X] Archive (mos.)

1. Relinquished By (Signature/Affiliation)	Date: 12/10/98 Time: 0800	1. Received By (Signature/Affiliation)	Date: 12 10 98 Time: 0800
2. Relinquished By (Signature/Affiliation)	Date: 12 10 98 Time: 1310	2. Received By (Signature/Affiliation)	Date: 12-10-98 Time: 13:10
3. Relinquished By (Signature/Affiliation)	Date: Time:	3. Received By (Signature/Affiliation)	Date: Time:

Comments:

Rec'd at 2°C
Custody Seals Intact
JW 12-10-98

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Fil	CID	Condition On Receipt
120998-TB	FIELDQC-BW-120998-TB-TB	09-DEC-98	07:00	40 ml VOA Vial	3	HCl<pH 2	Volatiles by 8260B	N		
GA3009	WCS-87-GP07-GW-GA3009-REG	10-DEC-98	13:25	40 mL VOA Vial	3	HCl<pH 2	Volatiles by 8260B	N		
GA3009	WCS-87-GP07-GW-GA3009-REG	10-DEC-98	13:25	1 L Amb. Glass	1	None except cool to 4 C	Semivolatiles by 8270C	N		
GA3009	WCS-87-GP07-GW-GA3009-REG	10-DEC-98	13:25	1 L Amb. Glass	1	None except cool to 4 C	OP Pesticides by 8141A	N		
GA3009	WCS-87-GP07-GW-GA3009-REG	10-DEC-98	13:25	1 L Amb. Glass	1	None except cool to 4 C	Cl Herbicides by 8151A	N		
GA3009	WCS-87-GP07-GW-GA3009-REG	10-DEC-98	13:25	1 L Amb. Glass	1	None except cool to 4 C	Cl Pesticides by 8081A, PCBs by 8082	N		
GA3009	WCS-87-GP07-GW-GA3009-REG	10-DEC-98	13:25	1 L HDPE	1	HNO3<pH 2	TAL Metals by 6010B/7470A, Water	N		pH<2
GA3009	WCS-87-GP07-GW-GA3009-REG	10-DEC-98	13:25	1 L HDPE	1	NaOH>pH 12	CYANIDE BY 9010B	N		pH>12

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H8L100202

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 87-120998-QSK

Sample No	Sample Name	Sample Date	Sample Time	Container		Preservative	Requested Testing Program	Fil	CID	Condition On Receipt
GA3009	WCS-87-GP07-GW-GA3009-REG	10-DEC-98	13:25	1 L Amb. Glass	1	None except cool to 4 C	HR Dioxins by 8290	N		
GA3010	WCS-87-GP08-GW-GA3010-REG	10-DEC-98	15:10	1 L HDPE	1	HNO3<pH 2	TAL Metals by 6010B/7470A - Water	N		pH<2
GA3010	WCS-87-GP08-GW-GA3010-REG	10-DEC-98	15:10	1 L Amb. Glass	1	None except cool to 4 C	Cl Pesticides by 8081A, PCBs by 8082	N		
GA3010	WCS-87-GP08-GW-GA3010-REG	10-DEC-98	15:10	1 L Amb. Glass	1	None except cool to 4 C	OP Pesticides by 8141A	N		
GA3010	WCS-87-GP08-GW-GA3010-REG	10-DEC-98	15:10	40 mL VOA Vial	3	HCl<pH 2	Volatiles by 8260B	N		
GA3010	WCS-87-GP08-GW-GA3010-REG	10-DEC-98	15:10	1 L Amb. Glass	1	None except cool to 4 C	Semivolatiles by 8270C	N		
GA3010	WCS-87-GP08-GW-GA3010-REG	10-DEC-98	15:10	1 L Amb. Glass	1	None except cool to 4 C	Cl Herbicides by 8151A	N		
GA3010	WCS-87-GP08-GW-GA3010-REG	10-DEC-98	15:10	1 L HDPE	1	NaOH>pH 12	CYANIDE BY 9010B	N		pH>12
GA3010	WCS-87-GP08-GW-GA3010-REG	10-DEC-98	15:10	1 L Amb. Glass	1	None except cool to 4 C	HR Dioxins by 8290	N		

Quote #25476

H8L110233

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 87-121098-QSK

Project Number: 774645

Project Name: Fort McClellan

Sample Coordinator: John W. Andrew

Turnaround Time: Normal

Samples Shipment Date: 11-DEC-98

Lab Destination: Quanterra Environmental Services - Knoxville

Lab Contact: John Reynolds

Project Contact: Randy McBride

Carrier/Waybill No.: Quality Express/ Courier

Bill To: Duane Nielsen
312 Directors Drive
Knoxville TN 37923

Report To: Duane Nielsen
312 Directors Drive
Knoxville TN 37923

Special Instructions:

Possible Hazard Indentification:
Non-hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown [X]

Sample Disposal:
Return to Client [ ] Disposal by Lab [X] Archive (mos.)

1. Relinquished By (Signature/Affiliation) ITC-rp — Date: 12/11/98 Time: 1000
2. Relinquished By (Signature/Affiliation) — Date: 12-11-98 Time: ~~1400~~ 1500
3. Relinquished By (Signature/Affiliation) — Date: Time:

1. Received By (Signature/Affiliation) — Date: 12-11-98 Time: 1000
2. Received By (Signature/Affiliation) — Date: 12-11-98 Time: ~~14:00~~ 15:00
3. Received By (Signature/Affiliation) — Date: Time:

Comments:

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Fil	CID	Condition On Receipt
121098-TB	FIELDQC-BW-121098-TB-TB	10-DEC-98	07:00	40 ml VOA Vial	3	HCl<pH 2	Volatiles by 8260B	N		
GA3004	WCS-87-GP04-GW-GA3004-REG	10-DEC-98	11:00	40 mL VOA Vial	3	HCl<pH 2	Volatiles by 8260B	N		
GA3004	WCS-87-GP04-GW-GA3004-REG	10-DEC-98	11:00	1 L Amb. Glass	1	None except cool to 4 C	Semivolatiles by 8270C	N		
GA3004	WCS-87-GP04-GW-GA3004-REG	10-DEC-98	11:00	1 L Amb. Glass	1	None except cool to 4 C	OP Pesticides by 8141A	N		
GA3004	WCS-87-GP04-GW-GA3004-REG	10-DEC-98	11:00	1 L Amb. Glass	1	None except cool to 4 C	Cl Herbicides by 8151A	N		
GA3004	WCS-87-GP04-GW-GA3004-REG	10-DEC-98	11:00	1 L Amb. Glass	1	None except cool to 4 C	Cl Pesticides by 8081A, PCBs by 8082	N		
GA3004	WCS-87-GP04-GW-GA3004-REG	10-DEC-98	11:00	1 L HDPE	1	HNO3<pH 2	TAL Metals by 6010B/7470A Water	N	pH<2	
GA3004	WCS-87-GP04-GW-GA3004-REG	10-DEC-98	11:00	1 L HDPE	1	NaOH>pH 12	CYANIDE BY 9010B	N	pH>12	

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H8L110233

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 87-121098-QSK

Sample No	Sample Name	Sample Date	Sample Time	Container		Preservative	Requested Testing Program	Fil	CID	Condition On Receipt
GA3004	WCS-87-GP04-GW-GA3004-REG	10-DEC-98	11:00	1 L Amb. Glass	1	None except cool to 4 C	HR Dioxins by 8290	N		
GA3004-MS	WCS-87-GP04-GW-GA3004-MS-MS	10-DEC-98	11:00	1 L HDPE	1	HNO3<pH 2	TAL Metals by 6010B/7470A - Water	N	PH<2	
GA3004-MS	WCS-87-GP04-GW-GA3004-MS-MS	10-DEC-98	11:00	1 L Amb. Glass	1	None except cool to 4 C	Cl Pesticides by 8081A, PCBs by 8082	N		
GA3004-MS	WCS-87-GP04-GW-GA3004-MS-MS	10-DEC-98	11:00	1 L Amb. Glass	1	None except cool to 4 C	Cl Herbicides by 8151A	N		
GA3004-MS	WCS-87-GP04-GW-GA3004-MS-MS	10-DEC-98	11:00	40 mL VOA Vial	3	HCl<pH 2	Volatiles by 8260B	N		
GA3004-MS	WCS-87-GP04-GW-GA3004-MS-MS	10-DEC-98	11:00	1 L Amb. Glass	1	None except cool to 4 C	Semivolatiles by 8270C	N		
GA3004-MS	WCS-87-GP04-GW-GA3004-MS-MS	10-DEC-98	11:00	1 L Amb. Glass	1	None except cool to 4 C	OP Pesticides by 8141A	N		
GA3004-MS	WCS-87-GP04-GW-GA3004-MS-MS	10-DEC-98	11:00	1 L HDPE	1	NaOH>pH 12	CYANIDE BY 9010B	N	PH>12	
GA3004-MS	WCS-87-GP04-GW-GA3004-MS-MS	10-DEC-98	11:00	1 L Amb. Glass	1	None except cool to 4 C	HR Dioxins by 8290	N		
GA3004-MS	WCS-87-GP04-GW-GA3004-MSD-MSD	10-DEC-98	11:00	1 L Amb. Glass	1	None except cool to 4 C	Cl Herbicides by 8151A	N		
GA3004-MS	WCS-87-GP04-GW-GA3004-MSD-MSD	10-DEC-98	11:00	1 L Amb. Glass	1	None except cool to 4 C	OP Pesticides by 8141A	N		
GA3004-MS	WCS-87-GP04-GW-GA3004-MSD-MSD	10-DEC-98	11:00	1 L Amb. Glass	1	None except cool to 4 C	Cl Pesticides by 8081A, PCBs by 8082	N		
GA3004-MS	WCS-87-GP04-GW-GA3004-MSD-MSD	10-DEC-98	11:00	1 L HDPE	1	NaOH>pH 12	CYANIDE BY 9010B	N	PH>12	
GA3004-MS	WCS-87-GP04-GW-GA3004-MSD-MSD	10-DEC-98	11:00	40 mL VOA Vial	3	HCl<pH 2	Volatiles by 8260B	N		
GA3004-MS	WCS-87-GP04-GW-GA3004-MSD-MSD	10-DEC-98	11:00	1 L HDPE	1	HNO3<pH 2	TAL Metals by 6010B/7470A - Water	N	PH<2	
GA3004-MS	WCS-87-GP04-GW-GA3004-MSD-MSD	10-DEC-98	11:00	1 L Amb. Glass	1	None except cool to 4 C	Semivolatiles by 8270C	N		
GA3004-MS	WCS-87-GP04-GW-GA3004-MSD-MSD	10-DEC-98	11:00	1 L Amb. Glass	1	None except cool to 4 C	HR Dioxins by 8290	N		
GA3006	WCS-87-GP06-GW-GA3006-REG	11-DEC-98	14:20	40 mL VOA Vial	3	HCl<pH 2	Volatiles by 8260B	N		
GA3006	WCS-87-GP06-GW-GA3006-REG	11-DEC-98	14:20	1 L Amb. Glass	1	None except cool to 4 C	Semivolatiles by 8270C	N		
GA3006	WCS-87-GP06-GW-GA3006-REG	11-DEC-98	14:20	1 L HDPE	1	HNO3<pH 2	TAL Metals by 6010B/7470A - Water	N	PH<2	
GA3006	WCS-87-GP06-GW-GA3006-REG	11-DEC-98	14:20	1 L Amb. Glass	1	None except cool to 4 C	Cl Pesticides by 8081A, PCBs by 8082	N		
GA3006	WCS-87-GP06-GW-GA3006-REG	11-DEC-98	14:20	1 L Amb. Glass	1	None except cool to 4 C	OP Pesticides by 8141A	N		
GA3006	WCS-87-GP06-GW-GA3006-REG	11-DEC-98	14:20	1 L Amb. Glass	1	None except cool to 4 C	Cl Herbicides by 8151A	N		
GA3006	WCS-87-GP06-GW-GA3006-REG	11-DEC-98	14:20	1 L HDPE	1	NaOH>pH 12	CYANIDE BY 9010B	N	PH>12	
GA3006	WCS-87-GP06-GW-GA3006-REG	11-DEC-98	14:20	1 L Amb. Glass	1	None except cool to 4 C	HR Dioxins by 8290	N		

Quote# 25476

H8L120108

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 87-121198-QSK

Project Number: 774645

Project Name: Fort McClellan

Sample Coordinator: John W. Andrew

Turnaround Time: Normal

Samples Shipment Date: 11-DEC-98

Lab Destination: Quanterra Environmental Services - Knoxville

Lab Contact: John Reynolds

Project Contact: Randy McBride

Carrier/Waybill No.: Hand Delivered/ Jeff Tarr

Bill To: Duane Nielsen
312 Directors Drive
Knoxville TN 37923

Report To: Duane Nielsen
312 Directors Drive
Knoxville TN 37923

Special Instructions:

Possible Hazard Indentification:
Non-hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown [X]

Sample Disposal:
Return to Client [ ] Disposal by Lab [X] Archive (mos.)

1. Relinquished By (Signature/Affiliation)	Date: 12-12-98 Time: 9:30	1. Received By (Signature/Affiliation)	Date: 12/12/98 Time: 9:30
2. Relinquished By (Signature/Affiliation)	Date: Time:	2. Received By (Signature/Affiliation)	Date: Time:
3. Relinquished By (Signature/Affiliation)	Date: Time:	3. Received By (Signature/Affiliation)	Date: Time:

Comments:

Rec'd at 2°C
No Custody Seals required
JW 12-12-98

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Fil	CID	Condition On Receipt
121198-ER	FIELDQC-BW-121198-ER-ER	11-DEC-98	14:00	40 ml VOA Vial	3	HCl<pH 2	Volatiles by 8260B	N		
121198-ER	FIELDQC-BW-121198-ER-ER	11-DEC-98	14:00	1 L Amb. Glass	1	None except cool to 4 C	Semivolatiles by 8270C	N		
121198-ER	FIELDQC-BW-121198-ER-ER	11-DEC-98	14:00	1 L HDPE	1	HNO3<pH 2	TAL Metals by 6010B/7470A - Water	N	PHCR	
121198-ER	FIELDQC-BW-121198-ER-ER	11-DEC-98	14:00	1 L Amb. Glass	1	None except cool to 4 C	Cl Pesticides by 8081A, PCBs by 8082	N		
121198-ER	FIELDQC-BW-121198-ER-ER	11-DEC-98	14:00	1 L Amb. Glass	1	None except cool to 4 C	Cl Herbicides by 8151A	N		
121198-ER	FIELDQC-BW-121198-ER-ER	11-DEC-98	14:00	1 L Amb. Glass	1	None except cool to 4 C	OP Pesticides by 8141A	N		
121198-TB	FIELDQC-BW-121198-TB-TB	11-DEC-98	07:00	40 ml VOA Vial	3	HCl<pH 2	Volatiles by 8260B	N		
GA3001	WCS-87-GP01-GW-GA3001-REG	11-DEC-98	08:35	40 mL VOA Vial	3	HCl<pH 2	Volatiles by 8260B	N		

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H8L120108

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 87-121198-QSK

Sample No	Sample Name	Sample Date	Sample Time	Container		Preservative	Requested Testing Program	Fil	CID	Condition On Receipt
GA3001	WCS-87-GP01-GW-GA3001-REG	11-DEC-98	08:35	1 L Amb. Glass	1	None except cool to 4 C	Semivolatiles by 8270C	N		
GA3001	WCS-87-GP01-GW-GA3001-REG	11-DEC-98	08:35	1 L HDPE	1	HNO3<pH 2	TAL Metals by 6010B/7470A - Water	N	PH42	
GA3001	WCS-87-GP01-GW-GA3001-REG	11-DEC-98	08:35	1 L Amb. Glass	1	None except cool to 4 C	Cl Pesticides by 8081A, PCBs by 8082	N		
GA3001	WCS-87-GP01-GW-GA3001-REG	11-DEC-98	08:35	1 L HDPE	1	NaOH>pH 12	CYANIDE BY 9010B	N	PH7A2	
GA3001	WCS-87-GP01-GW-GA3001-REG	11-DEC-98	08:35	1 L Amb. Glass	1	None except cool to 4 C	Cl Herbicides by 8151A	N		
GA3001	WCS-87-GP01-GW-GA3001-REG	11-DEC-98	08:35	1 L Amb. Glass	1	None except cool to 4 C	OP Pesticides by 8141A	N		
GA3002	WCS-87-GP02-GW-GA3002-REG	11-DEC-98	07:10	40 mL VOA Vial	3	HCl<pH 2	Volatiles by 8260B	N		
GA3002	WCS-87-GP02-GW-GA3002-REG	11-DEC-98	07:10	1 L Amb. Glass	1	None except cool to 4 C	Semivolatiles by 8270C	N		
GA3002	WCS-87-GP02-GW-GA3002-REG	11-DEC-98	07:10	1 L HDPE	1	HNO3<pH 2	TAL Metals by 6010B/7470A - Water	N	PH42	
GA3002	WCS-87-GP02-GW-GA3002-REG	11-DEC-98	07:10	1 L Amb. Glass	1	None except cool to 4 C	Cl Pesticides by 8081A, PCBs by 8082	N		
GA3002	WCS-87-GP02-GW-GA3002-REG	11-DEC-98	07:10	1 L HDPE	1	NaOH>pH 12	CYANIDE BY 9010B	N	PH7A2	
GA3002	WCS-87-GP02-GW-GA3002-REG	11-DEC-98	07:10	1 L Amb. Glass	1	None except cool to 4 C	Cl Herbicides by 8151A	N		
GA3002	WCS-87-GP02-GW-GA3002-REG	11-DEC-98	07:10	1 L Amb. Glass	1	None except cool to 4 C	OP Pesticides by 8141A	N		

Quote # 25476

H8L50159

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 87-121498-QSK

Project Number: 774645

Project Name: Fort McClellan

Sample Coordinator: John W. Andrew

Turnaround Time: Normal

Samples Shipment Date: 15-DEC-98

Lab Destination: Quanterra Environmental Services - Knoxville

Lab Contact: John Reynolds

Project Contact: Randy McBride

Carrier/Waybill No.: Quality Express/ Courier

Bill To: Duane Nielsen
312 Directors Drive
Knoxville TN 37923

Report To: Duane Nielsen
312 Directors Drive
Knoxville TN 37923

Special Instructions:

Possible Hazard Indentification:
Non-hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown [X]

Sample Disposal:
Return to Client [ ] Disposal by Lab [X] Archive (mos.)

1. Relinquished By (Signature/Affiliation) ITCorp — Date: 12/15/98 Time: 0800
2. Relinquished By (Signature/Affiliation) — Date: 12/15/98 Time: 1300
3. Relinquished By (Signature/Affiliation) — Date: Time:

1. Received By (Signature/Affiliation) — Date: 12/15/98 Time: 0800
2. Received By (Signature/Affiliation) Justin Wells — Date: 12-15-98 Time: 13:00
3. Received By (Signature/Affiliation) — Date: Time:

Comments:
Rec'd at 2°C
Custody Seals Intact
JW 12-15-98

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Fil	CID	Condition On Receipt
121498-TB	FIELDQC-BW-121498-TB-TB	14-DEC-98	07:00	40 ml VOA Vial	3	HCl<pH 2	Volatiles by 8260B	N		
GA3003	WCS-87-GP03-GW-GA3003-REG	14-DEC-98	15:30	40 mL VOA Vial	3	HCl<pH 2	Volatiles by 8260B	N		
GA3003	WCS-87-GP03-GW-GA3003-REG	14-DEC-98	15:30	1 L Amb. Glass	1	None except cool to 4 C	Semivolatiles by 8270C	N		
GA3003	WCS-87-GP03-GW-GA3003-REG	14-DEC-98	15:30	1 L Amb. Glass	1	None except cool to 4 C	OP Pesticides by 8141A	N		
GA3003	WCS-87-GP03-GW-GA3003-REG	14-DEC-98	15:30	1 L Amb. Glass	1	None except cool to 4 C	Cl Herbicides by 8151A	N		
GA3003	WCS-87-GP03-GW-GA3003-REG	14-DEC-98	15:30	1 L Amb. Glass	1	None except cool to 4 C	Cl Pesticides by 8081A, PCBs by 8082	N		
GA3003	WCS-87-GP03-GW-GA3003-REG	14-DEC-98	15:30	1 L HDPE	1	HNO3<pH 2	TAL Metals by 6010B/7470A - Water	N		
GA3003	WCS-87-GP03-GW-GA3003-REG	14-DEC-98	15:30	1 L HDPE	1	NaOH>pH 12	CYANIDE BY 9010B	N		

H8L150159

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 87-121498-QSK

Sample No	Sample Name	Sample Date	Sample Time	Container		Preservative	Requested Testing Program	Fil	CID	Condition On Receipt
GA3003	WCS-87-GP03-GW-GA3003-REG	14-DEC-98	15:30	1 L Amb. Glass	1	None except cool to 4 C	HR Dioxins by 8290 ✓	N		
GA3007	WCS-87-GP03-GW-GA3007-FD	14-DEC-98	15:30	1 L HDPE	1	HNO3<pH 2	TAL Metals by 6010B/7470A - Water	N	pH<2	
GA3007	WCS-87-GP03-GW-GA3007-FD	14-DEC-98	15:30	1 L Amb. Glass	1	None except cool to 4 C	Cl Pesticides by 8081A, PCBs by 8082	N		
GA3007	WCS-87-GP03-GW-GA3007-FD	14-DEC-98	15:30	1 L Amb. Glass	1	None except cool to 4 C	OP Pesticides by 8141A	N		
GA3007	WCS-87-GP03-GW-GA3007-FD	14-DEC-98	15:30	40 mL VOA Vial	3	HCl<pH 2	Volatiles by 8260B	N		
GA3007	WCS-87-GP03-GW-GA3007-FD	14-DEC-98	15:30	1 L Amb. Glass	1	None except cool to 4 C	Semivolatiles by 8270C	N		
GA3007	WCS-87-GP03-GW-GA3007-FD	14-DEC-98	15:30	1 L Amb. Glass	1	None except cool to 4 C	Cl Herbicides by 8151A	N		
GA3007	WCS-87-GP03-GW-GA3007-FD	14-DEC-98	15:30	1 L HDPE	1	NaOH>pH 12	CYANIDE BY 9010B	N	pH>12	
GA3007	WCS-87-GP03-GW-GA3007-FD	14-DEC-98	15:30	1 L Amb. Glass	1	None except cool to 4 C	HR Dioxins by 8290	N		

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Quote# 25476

H8L160166

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 87-121598-QSK

Project Number: 774645

Project Name: Fort McClellan

Sample Coordinator: John W. Andrew

Turnaround Time: Normal

Samples Shipment Date: 16-DEC-98

Lab Destination: Quanterra Environmental Services - Knoxville

Lab Contact: John Reynolds

Project Contact: Randy McBride

Carrier/Waybill No.: Quality Express/ Courier

Bill To: Duane Nielsen
312 Directors Drive
Knoxville TN 37923

Report To: Duane Nielsen
312 Directors Drive
Knoxville TN 37923

Special Instructions:

Possible Hazard Indentification:
Non-hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown [✓]

Sample Disposal:
Return to Client [ ] Disposal by Lab [✓] Archive (mos.)

1. Relinquished By (Signature/Affiliation) — Date: 12/16/98 Time: 0800
2. Relinquished By (Signature/Affiliation) — Date: 12/16/98 Time: 1315
3. Relinquished By (Signature/Affiliation) — Date: Time:

1. Received By (Signature/Affiliation) — Date: 12 16 98 Time: 0800
2. Received By (Signature/Affiliation) — Date: 12-16-98 Time: 13:15
3. Received By (Signature/Affiliation) — Date: Time:

Comments:

Rec'd at 2°C
Custody seals Intact
JW 12-16-98

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Fil	CID	Condition On Receipt
GA3005	WCS-87-GP05-GW-GA3005-REG	15-DEC-98	13:50	40 mL VOA Vial	3	HCl<pH 2	Volatiles by 8260B ✓	N		
GA3005	WCS-87-GP05-GW-GA3005-REG	15-DEC-98	13:50	1 L Amb. Glass	1	None except cool to 4 C	Semivolatiles by 8270C ✓	N		
GA3005	WCS-87-GP05-GW-GA3005-REG	15-DEC-98	13:50	1 L HDPE	1	HNO3<pH 2	TAL Metals by 6010B/7470A - Water	N	HK<2	
GA3005	WCS-87-GP05-GW-GA3005-REG	15-DEC-98	13:50	1 L Amb. Glass	1	None except cool to 4 C	Cl Pesticides by 8081A, PCBs by 8082	N		
GA3005	WCS-87-GP05-GW-GA3005-REG	15-DEC-98	13:50	1 L Amb. Glass	1	None except cool to 4 C	OP Pesticides by 8141A ✓	N		
GA3005	WCS-87-GP05-GW-GA3005-REG	15-DEC-98	13:50	1 L Amb. Glass	1	None except cool to 4 C	Cl Herbicides by 8151A ✓	N		
GA3005	WCS-87-GP05-GW-GA3005-REG	15-DEC-98	13:50	1 L HDPE	1	NaOH>pH 12	CYANIDE BY 9010B ✓	N	HK>12	
GA3005	WCS-87-GP05-GW-GA3005-REG	15-DEC-98	13:50	1 L Amb. Glass	1	None except cool to 4 C	HR Dioxins by 8290 ✓	N		

L49A260180

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 87-012599-QSK

Project Number: 774645

Project Name: Fort McClellan

Sample Coordinator: John W. Andrew

Turnaround Time: NORMAL

Samples Shipment Date: 26-JAN-99

Lab Destination: Quanterra Environmental Services - Knoxville

Lab Contact: John Reynolds

Project Contact: Randy McBride

Carrier/Waybill No.: Quality Express/ Courier

Bill To: Duane Nielsen
312 Directors Drive
Knoxville TN 37923

Report To: Duane Nielsen
312 Directors Drive
Knoxville TN 37923

Special Instructions: NONE

Possible Hazard Indentification:
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☒

Sample Disposal:
Return to Client ☐ Disposal by Lab ☒ Archive (mos.)

1. Relinquished By (Signature/Affiliation)	Date: 01/26/99 Time: 0930	1. Received By (Signature/Affiliation)	Date: 1 26 99 Time: 0930
2. Relinquished By (Signature/Affiliation)	Date: 1 26 99 Time: 1420	2. Received By (Signature/Affiliation)	Date: 1-26-99 Time: 14:20
3. Relinquished By (Signature/Affiliation)	Date: Time:	3. Received By (Signature/Affiliation)	Date: Time:

Comments: NONE

Rec'd at 2°C
Custody Seals Intact
JW 1-26-99

Sample No	Sample Name	Sample Date	Sample Time	Container	Ctr Qty	Preservative	Requested Testing Program	Fil	CID	Condition On Receipt
GA1001	WCS-87-SW/SD01-SD-GA1001-REG	25-JAN-99	15:50	5 g EnCore	3	None except cool to 4 C	Volatiles by 8260B	N		
GA1001	WCS-87-SW/SD01-SD-GA1001-REG	25-JAN-99	15:50	8 oz CWM	1	None except cool to 4 C	Cl Pesticides by 8081A, TAL Metals by 6010B/7471A - Soils, PCBs by 8082, Semivolatiles by 8270C	N		
GA1001	WCS-87-SW/SD01-SD-GA1001-REG	25-JAN-99	15:50	8 oz CWM	1	None except cool to 4 C	Cl Herbicides by 8151A, OP Pesticides by 8141A	N		
GA1001	WCS-87-SW/SD01-SD-GA1001-REG	25-JAN-99	15:50	4 oz CWM	1	None Required	Grain Size by ASTM D421/D422	N		
GA1001	WCS-87-SW/SD01-SD-GA1001-REG	25-JAN-99	15:50	8 oz CWM	1	None except cool to 4 C	CYANIDE BY 9010B, Total Organic Carbon by 9060	N		
GA2001	WCS-87-SW/SD01-SW-GA2001-REG	25-JAN-99	15:50	1 L Amb. Glass	1	None except cool to 4 C	Cl Herbicides by 8151A	N		

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INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Reference Document No: 87-012599-QSK

Sample No	Sample Name	Sample Date	Sample Time	Container		Preservative	Requested Testing Program	Fil	CID	Condition On Receipt
GA2001	WCS-87-SW/SD01-SW-GA2001-REG	25-JAN-99	15:50	1 L HDPE	1	NaOH>pH 12	CYANIDE BY 9010B	N		
GA2001	WCS-87-SW/SD01-SW-GA2001-REG	25-JAN-99	15:50	1 L Amb. Glass	1	None except cool to 4 C	Cl Pesticides by 8081A, PCBs by 8082	N		pH-7
GA2001	WCS-87-SW/SD01-SW-GA2001-REG	25-JAN-99	15:50	40 mL VOA Vial	3	HCl<pH 2	Volatiles by 8260B	N		
GA2001	WCS-87-SW/SD01-SW-GA2001-REG	25-JAN-99	15:50	1 L Amb. Glass	1	None except cool to 4 C	Semivolatiles by 8270C	N		
GA2001	WCS-87-SW/SD01-SW-GA2001-REG	25-JAN-99	15:50	1 L HDPE	1	HNO3<pH 2	TAL Metals by 6010B/7470A - Water	N		pH=7
GA2001	WCS-87-SW/SD01-SW-GA2001-REG	25-JAN-99	15:50	1 L Amb. Glass	1	None except cool to 4 C	OP Pesticides by 8141A	N		

G-1L

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INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 71650
Page 1 of 1

White: To accompany samples
Yellow: Hand copy
*See back of form for special instructions.

Project Name/No. [1] Ft McClellan 77465
Sample Team Members [2] J. Jenkins
Profit Center No. [3] NA
Project Manager [4] NA
Chain of Custody ~~Purchase Order~~ No. [6] 87-061199-CAS
Required Report Date [11] ASAP!!

Samples Shipment Date [7] 06/11/99
Lab Destination [8] Columbia Analytical Services
Lab Contact [9] Amar Anwar
Project Contact/Phone [12] Randy McBride 423-690-3211
Carrier/Waybill No. [13] FedEx 7902 5949 2430

Bill to: [5] Duane Nielsen, 312 Directors Drive, Knoxville TN 37923, 423-690-3211
Report to: [10] Duane Nielsen (as above) 423-690-3626 (FAX)

ONE CONTAINER PER LINE

Sample Number [14]	Sample Description/Type [15]	Date/Time Collected [16]	Container Type [17]	Sample Volume [18]	Preservative [19]	Requested Testing Program [20]	Condition on Receipt [21]	Disposal Record No. [22]
GA0023R	soil	06/11/99	CWM	8oz	4°C	8290 w/Dioxins	FOR LAB USE ONLY	
GA0024R	soil	06/11/99	CWM	8oz	4°C	8290 w/Dioxins		
							FOR LAB USE ONLY	

Special Instructions: [23] 48 hr Turnaround (FAX) Results to D. Nielsen 423-690-3626

Possible Hazard Identification: [24] Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☒

Sample Disposal: [25] Return to Client ☐ Disposal by Lab ☒ Archive _____ (mos.)

Turnaround Time Required: [26] Normal ☐ Rush ☒ 48 hrs

QC Level: [27] I. ☐ II. ☐ III. ☒ Project Specific (specify):

1. Relinquished by [28] (Signature/Affiliation) [signature] / IT Corp	Date: 6/11/99 Time: 1100 AM	1. Received by [28] (Signature/Affiliation)	Date: Time:
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: [29]

IACA 9/19/91

APPENDIX C

BORING LOGS AND WELL CONSTRUCTION LOGS

BORING LOGS

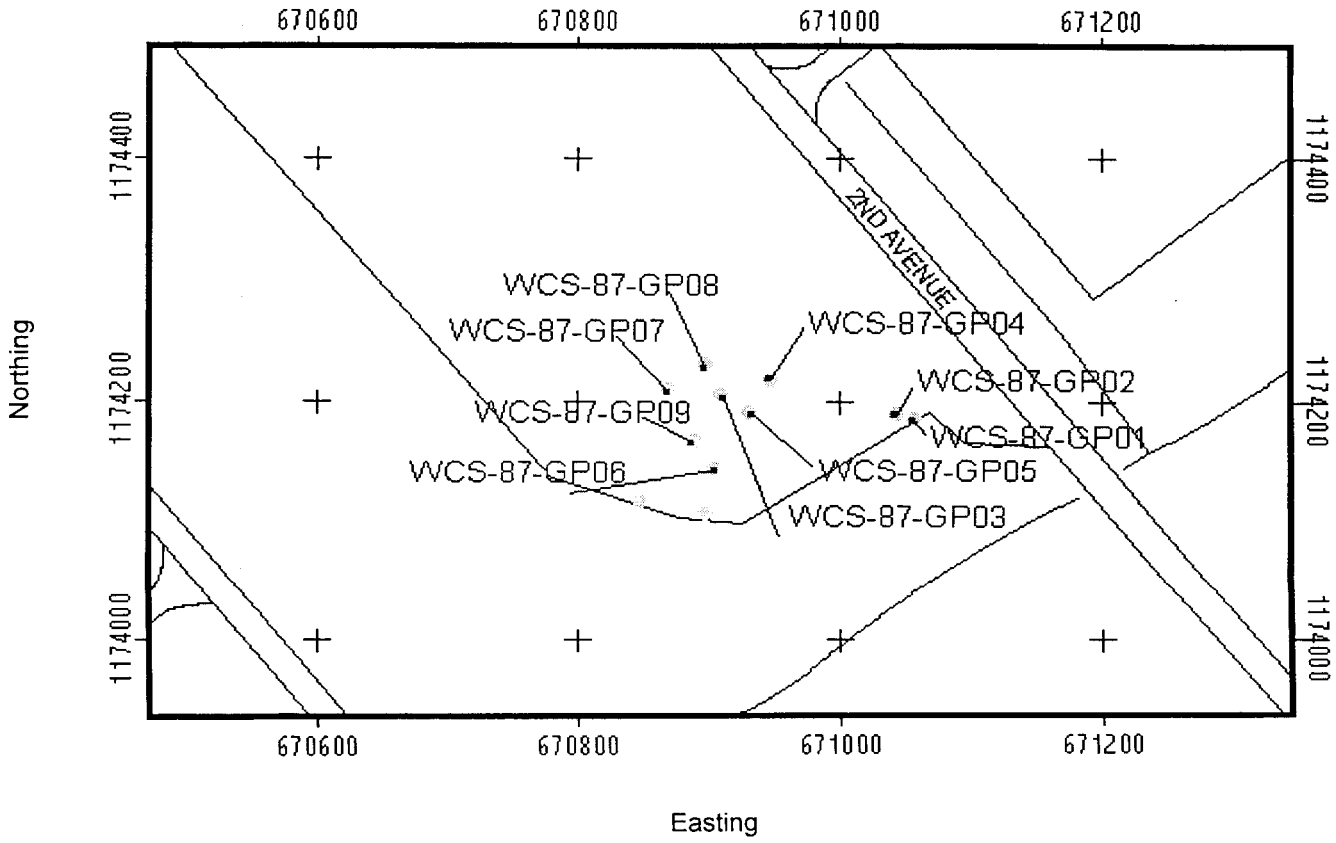
HTRW DRILLING LOG

District: **Mobile USACE**		HOLE NUMBER WCS-87-GP01
1. Company name: **IT Corporation**	2. Drill Subcontractor: TEG & Miller Drilling Co.	Sheet 1 of 3 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniels/Jeff Brownfield	6. Mfr. designation of drill: Geoprobe/CME-550
7. Sizes and types of drilling and sampling equipment: Direct Push, Hollow Stem Auger DP- 4'x2" acetate-lined sampler HSA-5'x8.5"od augers, 2'x2" steel split spoons	8. Hole location: Former Waste Chemical Storage Area, Parcel 87 9. Surface elevation (feet above mean sea level): 765.08 10. Date started: 10/15/98 — 11. Date completed: 12/03/98
12. Overburden thickness (feet bgs): 8	15. Depth groundwater encountered (feet bgs): 7
13. Depth drilled into rock (feet bgs): 7	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 15	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA					
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	X, SVOCs	X	CL/OP Pest	CL Herb	Cyanide	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
		Temp. well		D. Peterman		

LOCATION SKETCH/COMMENTS:



Project: Fort McClellan

bgs= below ground surface
NA = Not applicable

Hole no.: WCS-87-GP01

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: WCS-87-GP01

Project: Fort McClellan | Geologist: D. Peterman | Sheet 2 of 3 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
765	0	cl-sm: Gray to brown, SAND, some Clay, some Silt, loose, dry, very soft, low plasticity.	cl-sm		Organic Vapor = 75.2ppm		GA0001		Rec 48"
	1	cl-sm: Mottled yellow brown to gray SAND, some Silt, friable, low plasticity, dry, soft to medium stiff.			Organic Vapor = 0.0ppm				
	2								
	3		cl-sm						
	4								
760	5	cl-sm: SAND, some Silt, trace yellow brown Clay, damp.			Organic Vapor = 0.0ppm				Rec 19"
	6								
			cl-sm				GA0002		
	7								
	8	sh: SHALE, some Sand, brown, mottled yellowish brown, dark brown, bluish gray, reddish yellow, water in hole.			Organic Vapor = 0.0ppm				Blow 10 21 17 26. Direct push refusal at 8.0'.
	9		sh						

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: WCS-87-GP01

Project: Fort McClellan | Geologist: D. Peterman | Sheet 3 of 3 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
755	10	sh: Hard black SHALE.							10
	11								11
	12		sh						12
	13								13
	14								14
	15								Hollow stem auger refusal at 15.0'. Bottom of borehole at 15.0'. 15

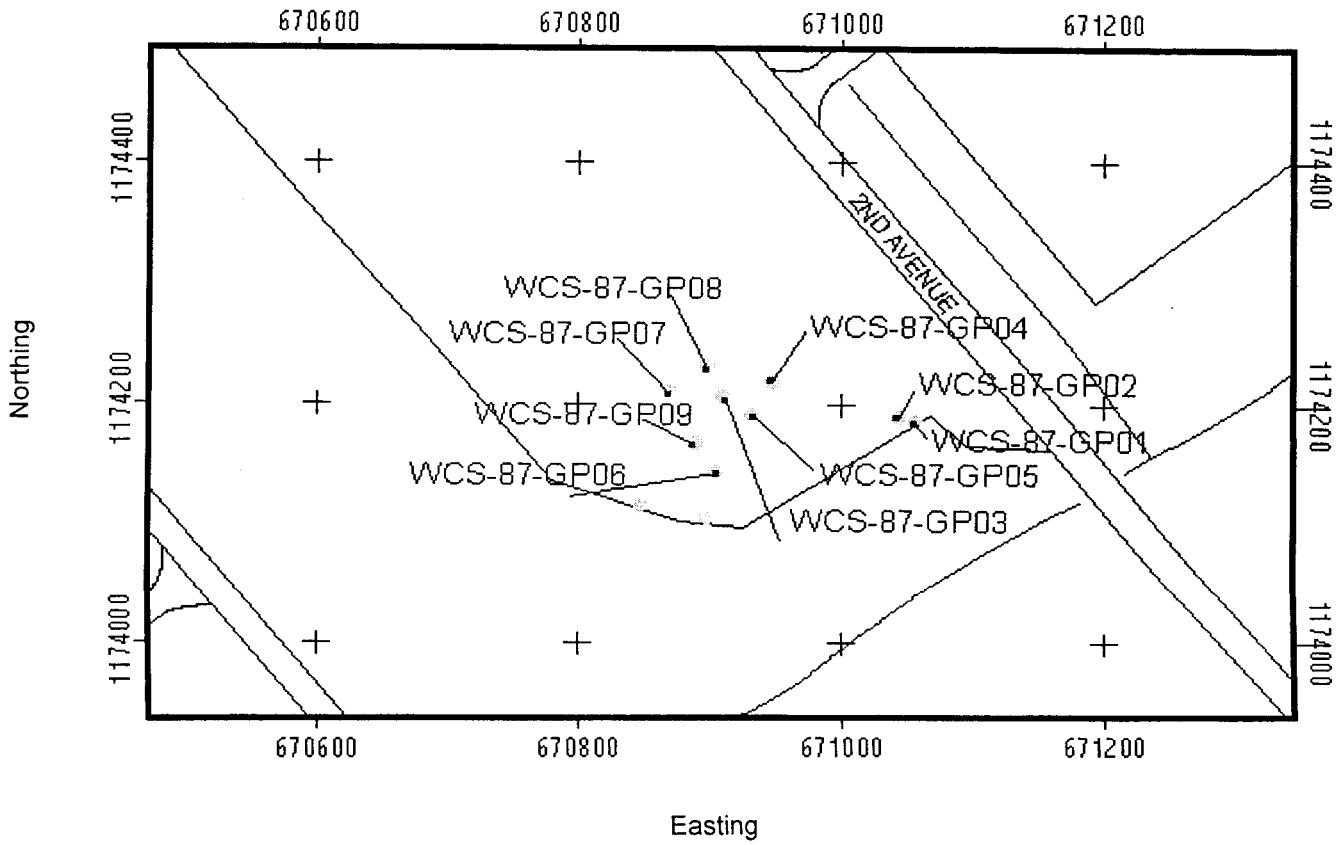
HTRW DRILLING LOG

District: **Mobile USACE**		HOLE NUMBER WCS-87-GP02
1. Company name: **IT Corporation**	2. Drill Subcontractor: TEG & Miller Drilling Co.	Sheet 1 of 4 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniels/Jeff Brownfield	6. Mfr. designation of drill: Geoprobe/CME-550
7. Sizes and types of drilling and sampling equipment: Direct Push, Hollow Stem Auger DP-4'x2" acetate-lined sampler HSA- 5'x8.5"od augers, 2'x2" steel split spoons	8. Hole location: Former Waste Chemical Storage Area, Parcel 87 9. Surface elevation (feet above mean sea level): 765.76 10. Date started: 10/15/98 — 11. Date completed: 12/03/98
12. Overburden thickness (feet bgs): >23	15. Depth groundwater encountered (feet bgs): 7, 23
13. Depth drilled into rock (feet bgs): 0	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 23	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA					
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	X, SVOCs	X	CL/OP Pest.	CL Herb.	Cyanide	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
		Temp. well		D. Peterman, C. Short		

LOCATION SKETCH/COMMENTS:



bgs= below ground surface
NA = Not applicable

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: WCS-87-GP02

Project: Fort McClellan | Geologist: D. Peterman, C. Short | Sheet 2 of 4 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
765	0	cl-sm: SAND and CLAY, some Silt, loose, slightly damp, Quartzite fragments(fine to coarse), yellowish brown CLAY to SAND, some Silt.	cl-sm		Organic Vapor = 0.0ppm		GA0003		Rec 100%
	1	cl-sm: SAND and CLAY, some Silt,mottled gray, reddish brown to yellowish brown, medium-high plasticity, dry, soft.	cl-sm						Rec 30"
	2	NA: Very soft.	NA		Organic Vapor = 0.0ppm				
	3				Organic Vapor = 0.0ppm				
	4	cl: CLAY, some Silt, gray, very soft, low to high plasticity, damp, interbedded Quartzite (fine) grains.	cl						Rec 20"
	5								
760	6						GA0004		
	7								
	8	cl: CLAY, some Sand (coarse), moist, soft to hard, mottled dark brown, light gray, yellowish red, yellowish brown, bluish gray, trace small Gravel, angular.			Organic Vapor = 6.5ppm				Blow 8 10 10 11 Rec 24". Direct push refusal at 8.0'.
	9		cl						

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: WCS-87-GP02

Project: Fort McClellan | Geologist: D. Peterman, C. Short | Sheet 3 of 4 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	10	NA: No Recovery.							
755									
	11								
	12								
	13	sh: SHALE, some Sand and Clay, damp to dry, hard to very hard, some broken Sandstone, grayish yellow, Shale is very hard, dry, white inclusions, dark brown to black.			Organic Vapor = 0.0ppm				Blow 50 Rec 10"
	14		sh						
	15	sh: SHALE, black and gray							
750									
	16								
	17		sh						
	18								
	19								
	20								

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: WCS-87-GP02

Project: Fort McClellan

Geologist: D. Peterman, C. Short

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
		sh: SHALE, gray.							
745									
	21								21
			sh						
	22								22
									Bottom of borehole at 23.0'
	23								23

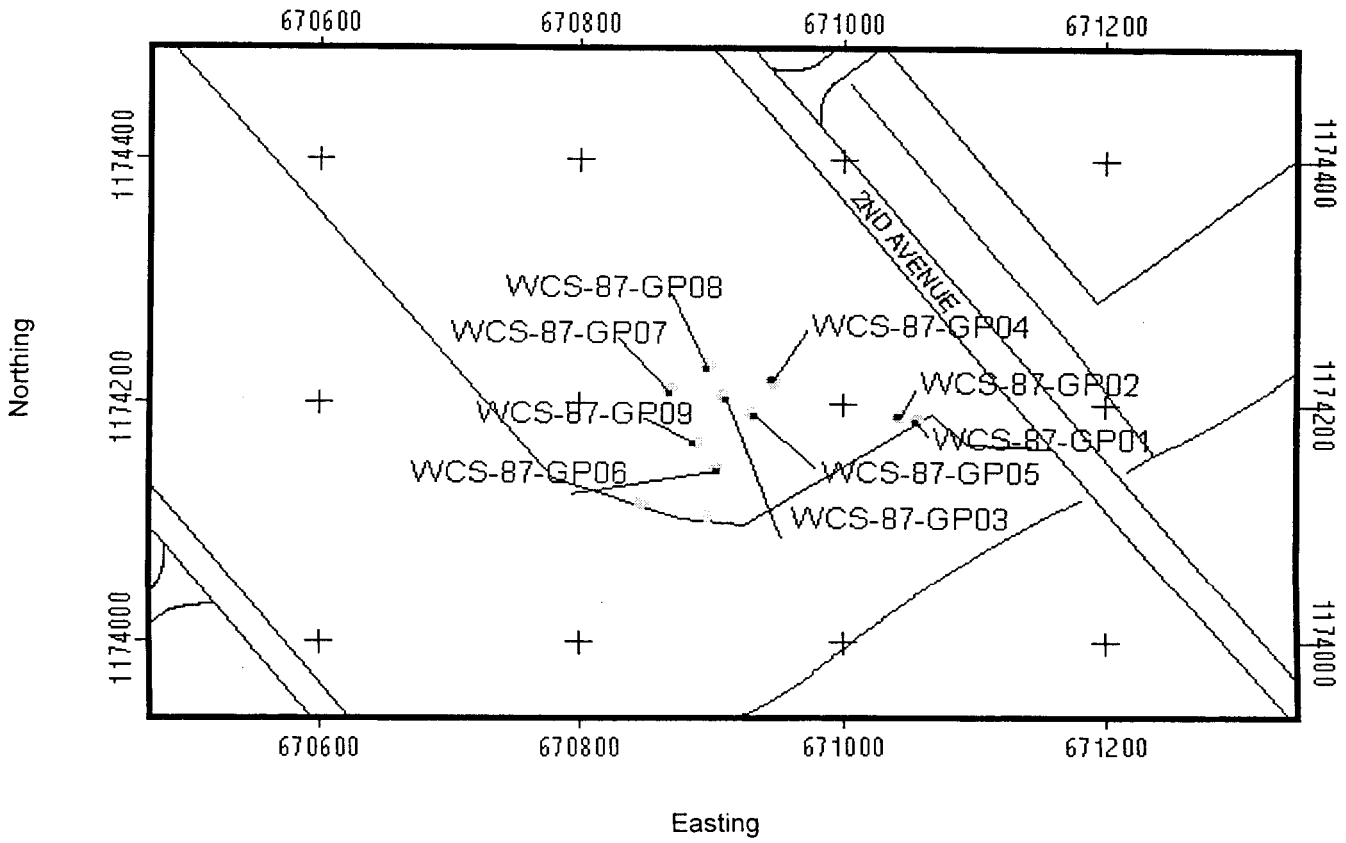
HTRW DRILLING LOG

District: Mobile USACE		HOLE NUMBER WCS-87-GP03
1. Company name: IT Corporation	2. Drill Subcontractor: TEG & Miller Drilling Co.	Sheet 1 of 3 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniels/Jeff Brownfield	6. Mfr. designation of drill: Geoprobe/CME-550
7. Sizes and types of drilling and sampling equipment: Direct Push, Hollow Stem Auger DP- 4'x2" acetate-lined sampler HSA-5'x8.5"od augers, 2'x2" steel split spoons	8. Hole location: Former Waste Chemical Storage Area, Parcel 87 9. Surface elevation (feet above mean sea level): 765.33 10. Date started: 10/02/98 — 11. Date completed: 12/03/98
12. Overburden thickness (feet bgs): >18	15. Depth groundwater encountered (feet bgs): 8-10
13. Depth drilled into rock (feet bgs): 0	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 18	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA					
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	X, SVOCs	X	CL/OP Pest.	CL Herb	Cyanide	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
		Temp. well		D.Peterman, C. Short		

LOCATION SKETCH/COMMENTS:



bgs= below ground surface
NA = Not applicable

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: WCS-87-GP03

Project: Fort McClellan | Geologist: D.Peterman, C. Short | Sheet 2 of 3 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
765	0	cl: CLAY, some Silt, yellowish brown, black organic precipitate, low plasticity.	cl		Organic Vapor = 2.2ppm		GA0005		Rec (100%)
	1	ch: CLAY, soft, high plasticity, damp.	ch		Organic Vapor = 0.0ppm				Rec 31" (64%)
	2				Organic Vapor = 0.8ppm				
	3	cl: CLAY, some Sand, low plasticity, light gray mottling.	cl		Organic Vapor = 0.4ppm				
	4				Organic Vapor = 0.4ppm				
760	5	cl: CLAY, some Silt, medium stiff, dry, medium plasticity, gray, reddish brown mottling.	cl		Organic Vapor = 0.8ppm				Rec 28" (58%)
	6				Organic Vapor = 0.8ppm				
	7				Organic Vapor = 0.8ppm				
	8				Organic Vapor = 0.8ppm				
	9	cl: CLAY, shaley, dry.	cl		Organic Vapor = 0.0ppm				Rec 36" (100%)

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: WCS-87-GP03

Project: Fort McClellan | Geologist: D.Peterman, C. Short | Sheet 3 of 3 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
755	10	cl: CLAY, medium stiff, medium plasticity, shaley, mottled with black organics.			Organic Vapor = 0.0ppm		GA0006		
	11		cl		Organic Vapor = 0.0ppm				
	12	sh: SHALE, highly weathered, damp, brittle, mottled gray, reddish yellow, reddish brown, dark brown, dark gray, yellowish brown, pinkish gray layering, dark reddish stains in partings, trace Silt and Sand; Shale at bottom of interval.							Direct push refusal at 12.0'.
	13		sh		Organic Vapor = 0.0ppm				Blow 23 37 33 50 Rec 24"
	14								
750	15	sh: SHALE, hard, black.							
	16		sh						
	17								
	18								Bottom of boring at 18.0'.

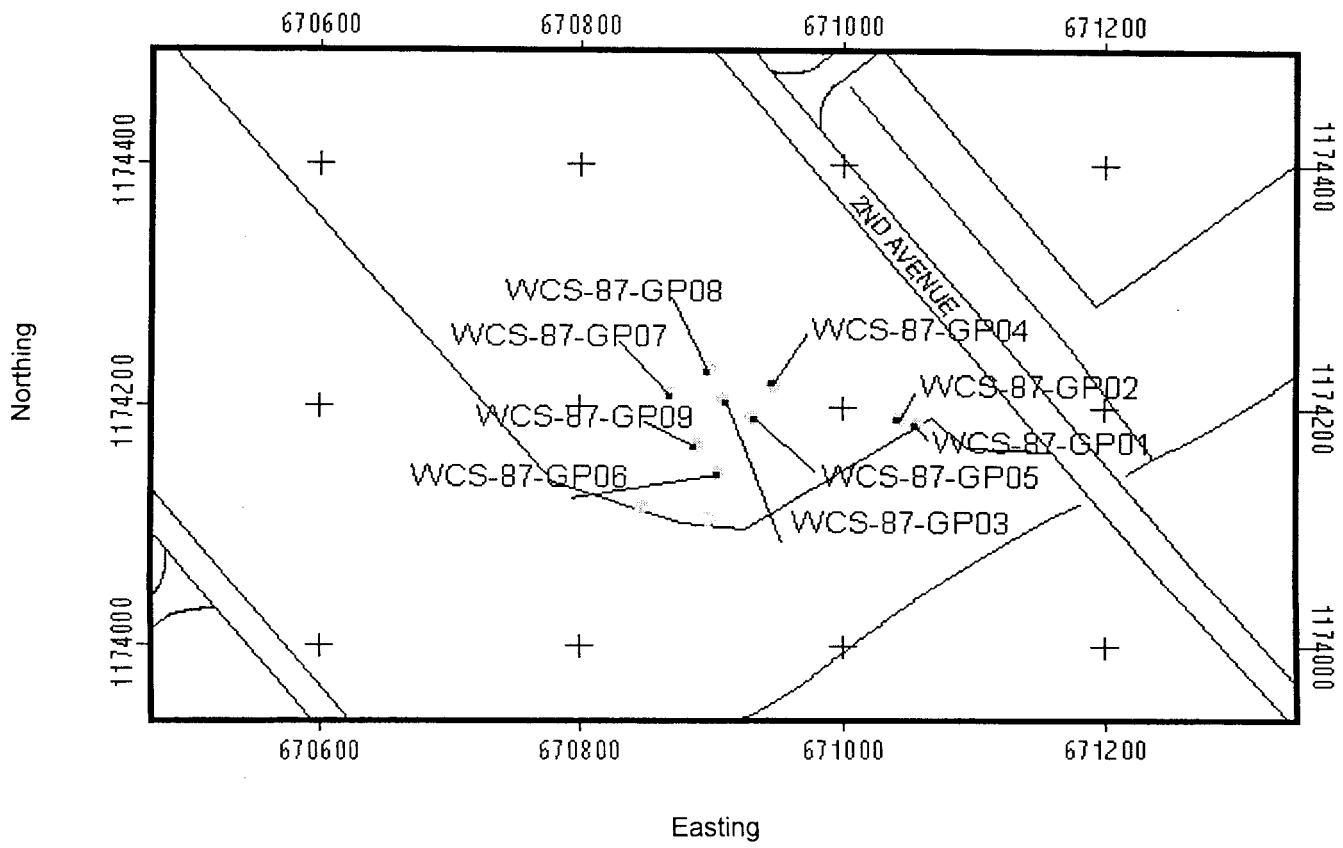
HTRW DRILLING LOG

District: **Mobile USACE**		HOLE NUMBER WCS-87-GP04
1. Company name: **IT Corporation**	2. Drill Subcontractor: TEG & Miller Drilling Co.	Sheet 1 of 3 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniels	6. Mfr. designation of drill: Geoprobe/CME-550
7. Sizes and types of drilling and sampling equipment: Direct Push, Hollow Stem Auger DP- 4'x2" acetate-lined sampler HSA- 5'x8.5"od augers, 2'x2" steel split spoons	8. Hole location: Former Waste Chemical Storage Area, Parcel 87 9. Surface elevation (feet above mean sea level): 765.23 10. Date started: 10/02/98 — 11. Date completed: 12/04/98
12. Overburden thickness (feet bgs): >18	15. Depth groundwater encountered (feet bgs): 6-7, 10
13. Depth drilled into rock (feet bgs): 0	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 18	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA					
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	X, SVOCs	X	CL/OP Pests.	CL Herb.	Cyanide	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
		Temp. well		D.Peterman, C. Short		

LOCATION SKETCH/COMMENTS:



bgs= below ground surface
NA = Not applicable

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: WCS-87-GP04

Project: Fort McClellan | Geologist: D.Peterman, C. Short | Sheet 2 of 3 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
765	0	cl: CLAY, some Silt, yellowish brown, low plasticity, Shale fragments, dry.	cl		Organic Vapor = 1.0ppm		GA0007		Rec (100%)
	1	cl-ml: CLAY, some Silt, gray, yellowish brown mottling, soft to medium stiff, damp to wet, medium-high plasticity.	cl-ml		Organic Vapor = 4.3ppm				Rec 29" (60%)
	2				Organic Vapor = 212.2pp				
	3				Organic Vapor = 2.9ppm		GA0008		
	4				Organic Vapor = 2.2ppm				
760	5	NA: No Recovery	NA						
	6								
	7								
	8	sh: SHALE, highly weathered, some Sand, little Clay (plastic), moist to damp, soft to hard, mottled black, dark brown, pale gray, yellowish brown, dark reddish brown, bluish gray, grayish yellow.	sh		Organic Vapor = 0.0ppm				Blow 6 9 14 17 Rec 20" (50%)
	9				Organic Vapor = 1.3ppm				

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: WCS-87-GP04

Project: Fort McClellan | Geologist: D.Peterman, C. Short | Sheet 3 of 3 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
755	10	NA: No Recovery.			Organic Vapor = 12.3ppm				
	11				Organic Vapor = 0.7ppm				
	12								Direct-push refusal at 12.0'.
	13	sh: SHALE, highly weathered, hard, damp, brown to black, stains in partings, white and reddish yellow; Water in hole.			Organic Vapor = 0.0ppm				Blow 3 16 46 50 Rec 22"
	14		sh						
750	15	NA: No sample taken.							
	16		NA						
	17								
	18								Bottom of borehole is 18'.

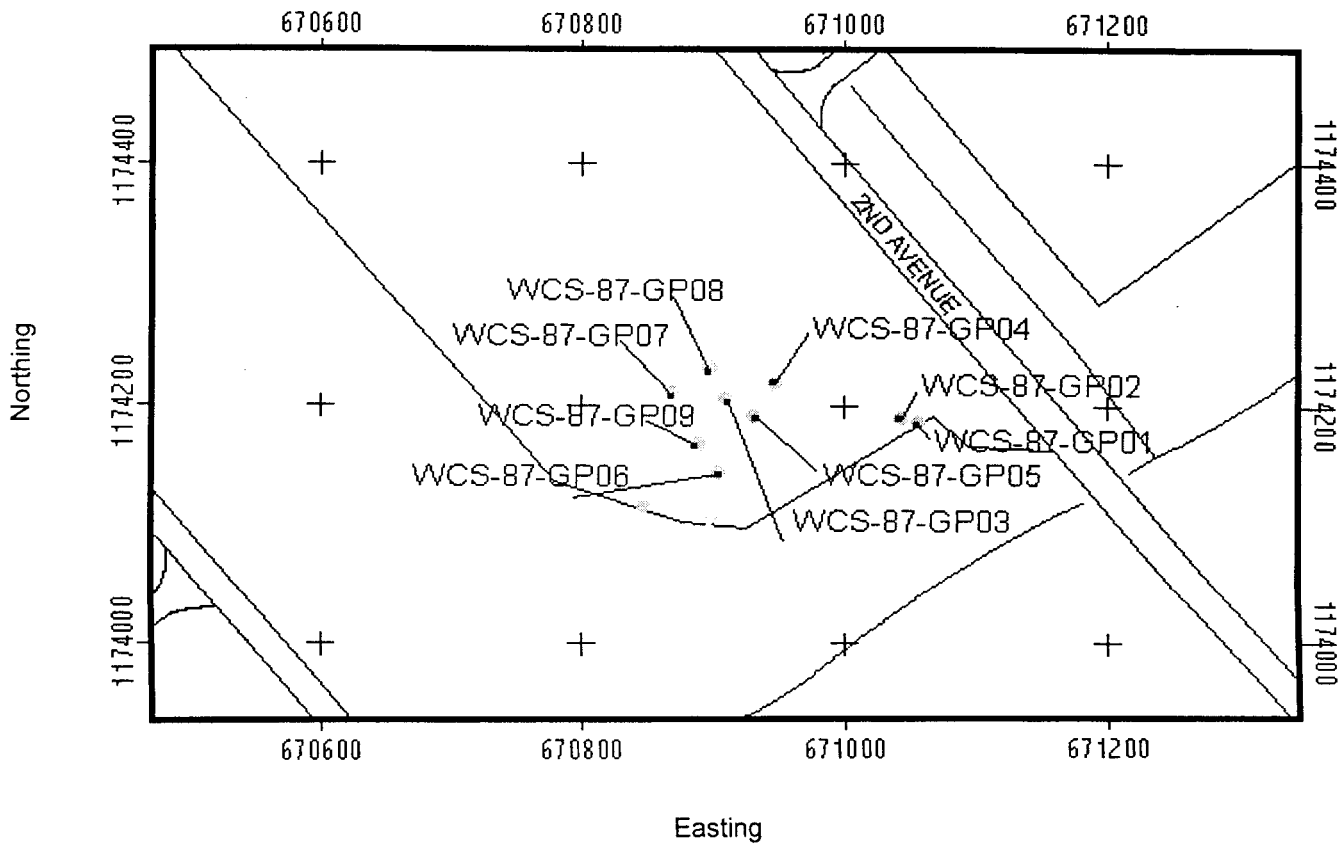
HTRW DRILLING LOG

District: **Mobile USACE**		HOLE NUMBER WCS-87-GP05
1. Company name: **IT Corporation**	2. Drill Subcontractor: TEG & Miller Drilling Co.	Sheet 1 of 3 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniels/Jeff Brownfield	6. Mfr. designation of drill: Geoprobe/CME-550
7. Sizes and types of drilling and sampling equipment: Direct Push, Hollow Stem Auger DP- 2"x4' acetate-lined sampler HSA- 5'x8.5"od augers, 2'x2" steel split spoons	8. Hole location: Former Waste Chemical Storage Area, Parcel 87 9. Surface elevation (feet above mean sea level): 765.12 10. Date started: 09/23/98 — 11. Date completed: 12/03/98
12. Overburden thickness (feet bgs): >16.5	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): 0	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 16.5	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA					
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	X, SVOCs	X	CL/OP Pests	CL Herb.	Cyanide	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
		Temp. well		C. Short		

LOCATION SKETCH/COMMENTS:



bgs= below ground surface
NA = Not applicable

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: WCS-87-GP05

Project: Fort McClellan | Geologist: C. Short | Sheet 2 of 3 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
765	0	sm: Soft, moist, SAND, coarse, reddish yellow, yellowish white, dark brown, shaley fragments.	sm		Organic Vapor = 0.4ppm		GA0009		Rec 1.0'
	1	sm: Soft, damp to moist, SAND, some Silt, reddish yellow to 1.3' mottled dark brown, dark yellowish brown, reddish yellow, grayish brown, some black, fine shaley fragments; white to reddish white Sand is mottled with black fragments.			Organic Vapor = 0.4ppm				Rec 29"
	2								
	3		sm						
	4								
760	5	ml: Firm to stiff, SILT, some Clay, mottled traces of Sand, coarse, trace of large Gravel.			Organic Vapor = 0.5ppm				Rec 25"
	6								
	7		ml						
	8								
	9	cl: Firm to hard CLAY, mottled bluish gray, light gray, some Shale, mottled, dry, brittle.			Organic Vapor = 0.5ppm				Rec 48"

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: WCS-87-GP05

Project: Fort McClellan | Geologist: C. Short | Sheet 3 of 3 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
755	10		cl				GA0010		
	11								
	12	sh: SHALE, highly weathered, damp to wet, dark brown to black, stains in partings are reddish yellow.							Blow 17 17 17 50 Rec 10"
	13								
	14		sh						
750	15				Organic Vapor = 0.0ppm				
	16								Bottom of borehole at 16.5'.

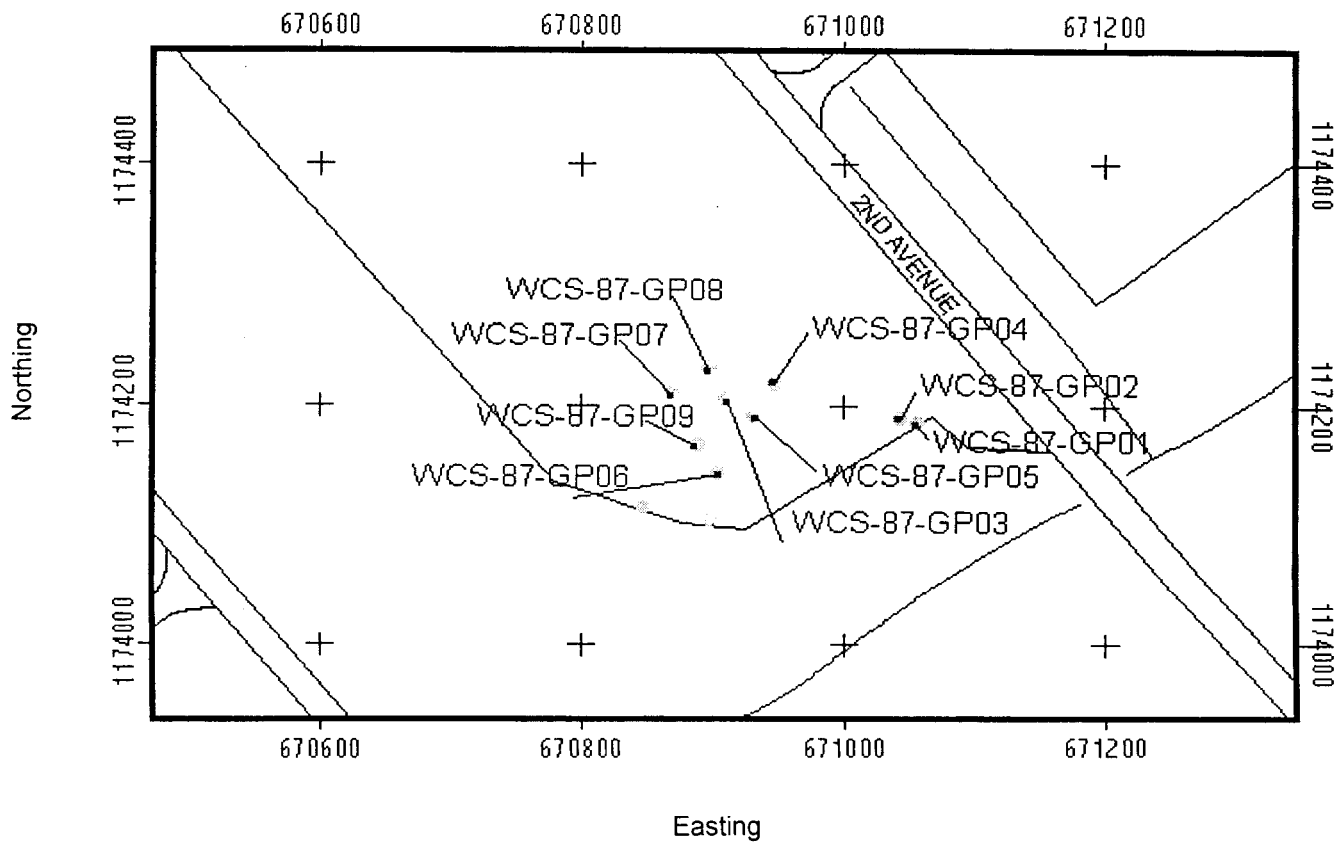
HTRW DRILLING LOG

District: Mobile USACE		HOLE NUMBER WCS-87-GP06
1. Company name: IT Corporation	2. Drill Subcontractor: TEG & Miller Drilling Co.	Sheet 1 of 3 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniels/ Jeff Brownfield	6. Mfr. designation of drill: Geoprobe/CME-550
7. Sizes and types of drilling and sampling equipment: Direct Push, Hollow Stem Auger DP-4'x2" acetate-lined sampler HSA- 5'x8.5"od augers, 2'x2" steel split spoons	8. Hole location: Former Waste Chemical Storage Area, Parcel 87 9. Surface elevation (feet above mean sea level): 763.79 10. Date started: 09/23/98 — 11. Date completed: 12/03/98
12. Overburden thickness (feet bgs): >15	15. Depth groundwater encountered (feet bgs): 8-10
13. Depth drilled into rock (feet bgs): 0	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 15	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA					
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	X, SVOCs	X	CL/OP Pest	CL Herb.	Cyanide	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
		Temp. well		C. Short		

LOCATION SKETCH/COMMENTS:



Project: Fort McClellan

bgs= below ground surface
NA = Not applicable

Hole no.: WCS-87-GP06

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: WCS-87-GP06

Project: Fort McClellan | Geologist: C. Short | Sheet 2 of 3 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	sm: Soft, damp, SAND, some Silt, white and yellowish brown, trace rounded Gravel.	sm		Organic Vapor = 0.4ppm		GA0011		Rec 1.0'
	1	sm: SILT, dark grayish yellowish brown and yellowish brown, tiny black fragments, mottled yellowish red, and SAND coarse to fine, yellowish red; soft, damp, SAND, yellowish white to dark red and yellowish red. Direct push refusal at 7.0'.	sm		Organic Vapor = 0.4ppm		GA0014		Rec 38"
	2								
	3								
760	4								
	5	NA: No Recovery	NA		Organic Vapor = 0.5ppm				
	6								
	7	ml: SILT, some Sand and Clay, wet, soft to hard, yellowish brown, mottled dark brown, reddish yellow, pale gray, Sand medium to fine, black chips, inclusions about 30%.	ml		Organic Vapor = 0.0ppm				Blow 7 24 37 49 Rec 18"
	8	sh: SHALE, highly weathered, damp, soft, mottled dark brown, reddish yellow, pale gray, layering evident.							
755	9								

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: WCS-87-GP06

Project: Fort McClellan | Geologist: C. Short | Sheet 3 of 3 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	10								10
	11		sh						11
	12								12
	13								13
750	14								14
	15								Bottom of borehole at 15.0' 15

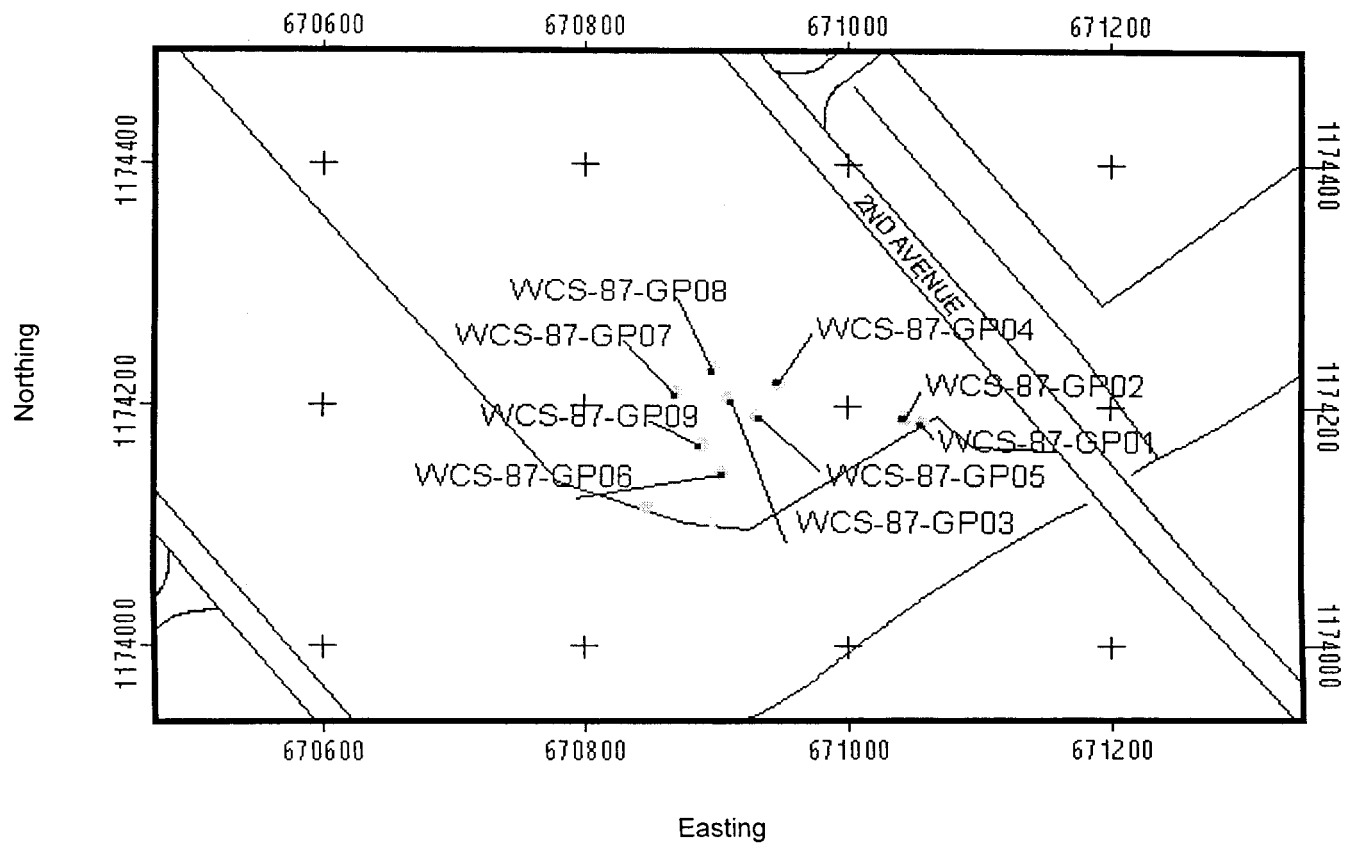
HTRW DRILLING LOG

District: **Mobile USACE**		HOLE NUMBER WCS-87-GP07
1. Company name: **IT Corporation**	2. Drill Subcontractor: TEG & Miller Drilling Co.	Sheet 1 of 3 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniels/ Jeff Brownfield	6. Mfr. designation of drill: Geoprobe/CME-550
7. Sizes and types of drilling and sampling equipment: Direct Push, Hollow Stem Auger DP- 2"x4' acetate-lined sampler HSA- 5'x8.5"od augers, 2'x2" steel split spoons	8. Hole location: Former Waste Chemical Storage Area, Parcel 87 9. Surface elevation (feet above mean sea level): 764.37 10. Date started: 09/23/98 — 11. Date completed: 12/04/98
12. Overburden thickness (feet bgs): >16	15. Depth groundwater encountered (feet bgs): 6
13. Depth drilled into rock (feet bgs): 0	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 16	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA					
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	X, SVOCs	X	CL/OP Pest	CL Herb.	Cyanide	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
		Temp. well		C. Short		

LOCATION SKETCH/COMMENTS:



bgs= below ground surface
NA = Not applicable

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: WCS-87-GP07

Project: Fort McClellan | Geologist: C. Short | Sheet 2 of 3 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	sm: Soft, damp, SAND, some Silt, dark yellowish brown, little Gravel, small.	sm		Organic Vapor = 0.4ppm		GA0015		Rec 1.0'
	1	sm-ml: About 6 inches: soft, damp, SILT, some tiny black fragments and SAND; 7-28 inches: SAND, coarse, damp to moist, some Silt; 24-28 inches: very moist, SAND, reddish yellow, brownish yellow, dark reddish yellow.	sm-ml		Organic Vapor = 0.4ppm				Rec 28"
	2								
	3								
	4								
760									
	5	sh: Soft to firm, silty, SHALE, highly weathered, some Sand, mottled light gray, dark red, yellowish red, dark brown, dark reddish brown.	sh		Organic Vapor = 0.5ppm				Rec 44"
	6								
	7								
	8								
	9	sh: Firm to stiff, sandy, silty SHALE, mottled.			Organic Vapor = 0.5ppm				Rec 42"
755									

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: WCS-87-GP07

Project: Fort McClellan | Geologist: C. Short | Sheet 3 of 3 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	10		sh				GA0016		
	11	sh: SHALE, highly weathered, damp to dry, brittle, hard, dark brown to black, mottled, grayish brown, stains in partings; Water in hole.			Organic Vapor = 6.5ppm				Blow 6 4 36 50 Rec 15"
	12								Direct push refusal at 12'.
	13		sh						
	14								
750									
	15								
	16								Bottom of borehole at 16.0'.

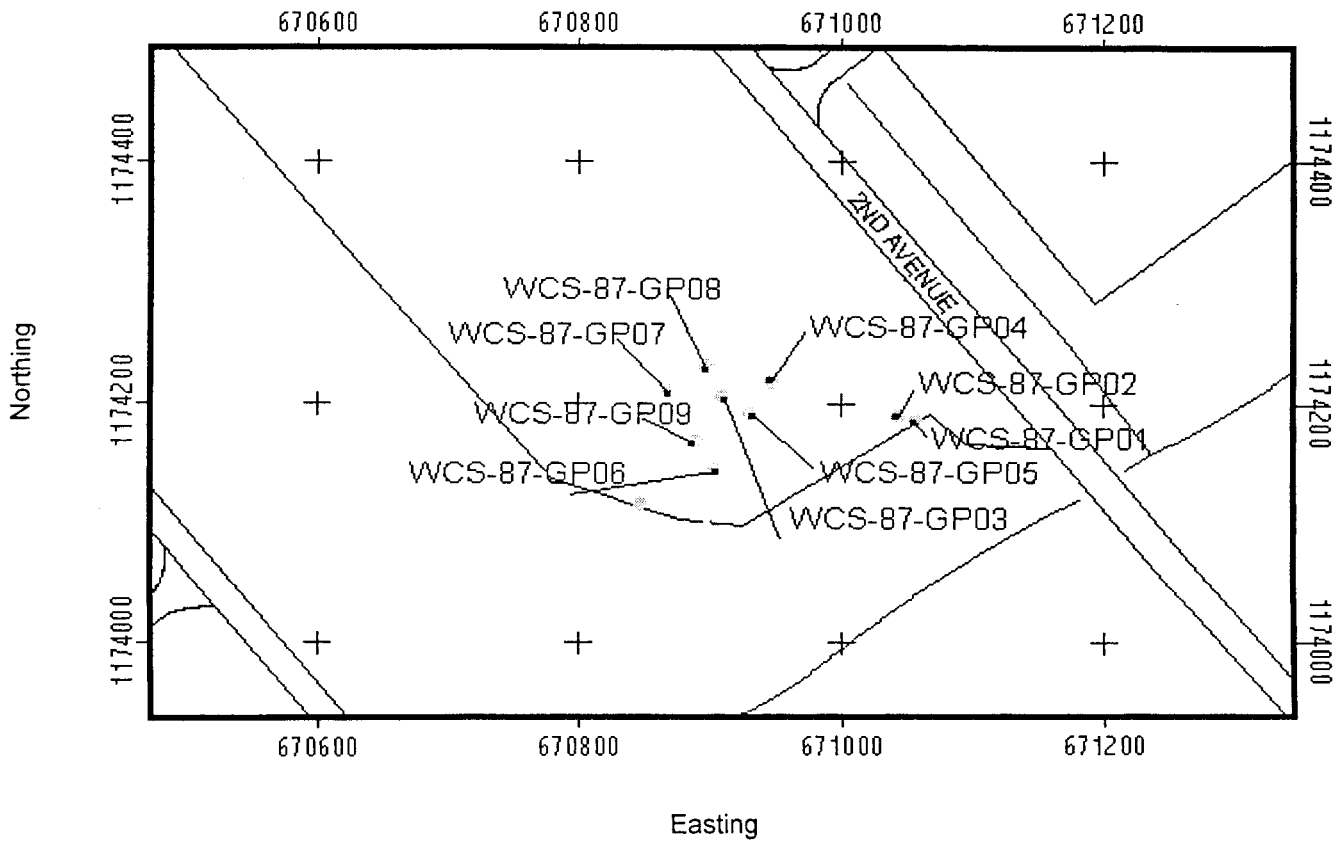
HTRW DRILLING LOG

District: **Mobile USACE**		HOLE NUMBER WCS-87-GP08
1. Company name: **IT Corporation**	2. Drill Subcontractor: TEG & Miller Drilling Co.	Sheet 1 of 3 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniels/ Jeff Brownfield	6. Mfr. designation of drill: Geoprobe/CME-550
7. Sizes and types of drilling and sampling equipment: Direct Push, Hollow Stem Auger DP-4'x2" acetate-lined sampler1 HSA- 5'x8.5"od augers, 2'x2" steel split spoons	8. Hole location: Former Waste Chemical Storage Area, Parcel 87 9. Surface elevation (feet above mean sea level): 764.75 10. Date started: 09/23/98 — 11. Date completed: 12/04/98
12. Overburden thickness (feet bgs): >14	15. Depth groundwater encountered (feet bgs): 5, 12.5
13. Depth drilled into rock (feet bgs): 0	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 14	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA					
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	X, SVOCs	X	CL/OP Pest	CL Herb.	Cyanide	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
		Temp. well		J.Jenkins, C. Short		

LOCATION SKETCH/COMMENTS:



bgs= below ground surface
NA = Not applicable

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: WCS-87-GP08

Project: Fort McClellan | Geologist: J.Jenkins, C. Short | Sheet 2 of 3 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	sm: Soft to firm, damp to moist, SAND, some Silt, yellowish brown, trace white Gravel.	sm		Organic Vapor = 0.5ppm		GA0019		Rec 1.0'
	1	sm: Soft, moist, SAND, some Silt, yellowish red, mottled dark yellowish red to dark red and yellowish gray; 22-25 inches: very moist.	sm		Organic Vapor = 0.5ppm				Rec 32"
	2								
	3								
	4								
760									
	5	sp-sm: Soft to hard, damp, SAND and broken SANDSTONE, yellowish red and yellowish white, mottled light gray, dark red, pale yellowish white.	sp-sm		Organic Vapor = 0.4ppm				Rec 39"
	6								
	7								
	8								
	9	ml: Firm to stiff, SILT, some Clay, damp to moist, light gray, yellowish red, reddish brown, some medium to large Gravel.			Organic Vapor = 0.3ppm				Rec 48"
755									

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: WCS-87-GP08

Project: Fort McClellan | Geologist: J.Jenkins, C. Short | Sheet 3 of 3 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	10		ml				GA0020		
	11								
	12	ml: Yellowish orange, lean, CLAY and SILT, bedding structure present, dry to damp.	ml						Blow 11 50 (5) Rec 0.9'
		sh: SHALE, dark gray, dry.							
	13		sh						
	14								Blow 24 50 (3) Rec 0.75'.

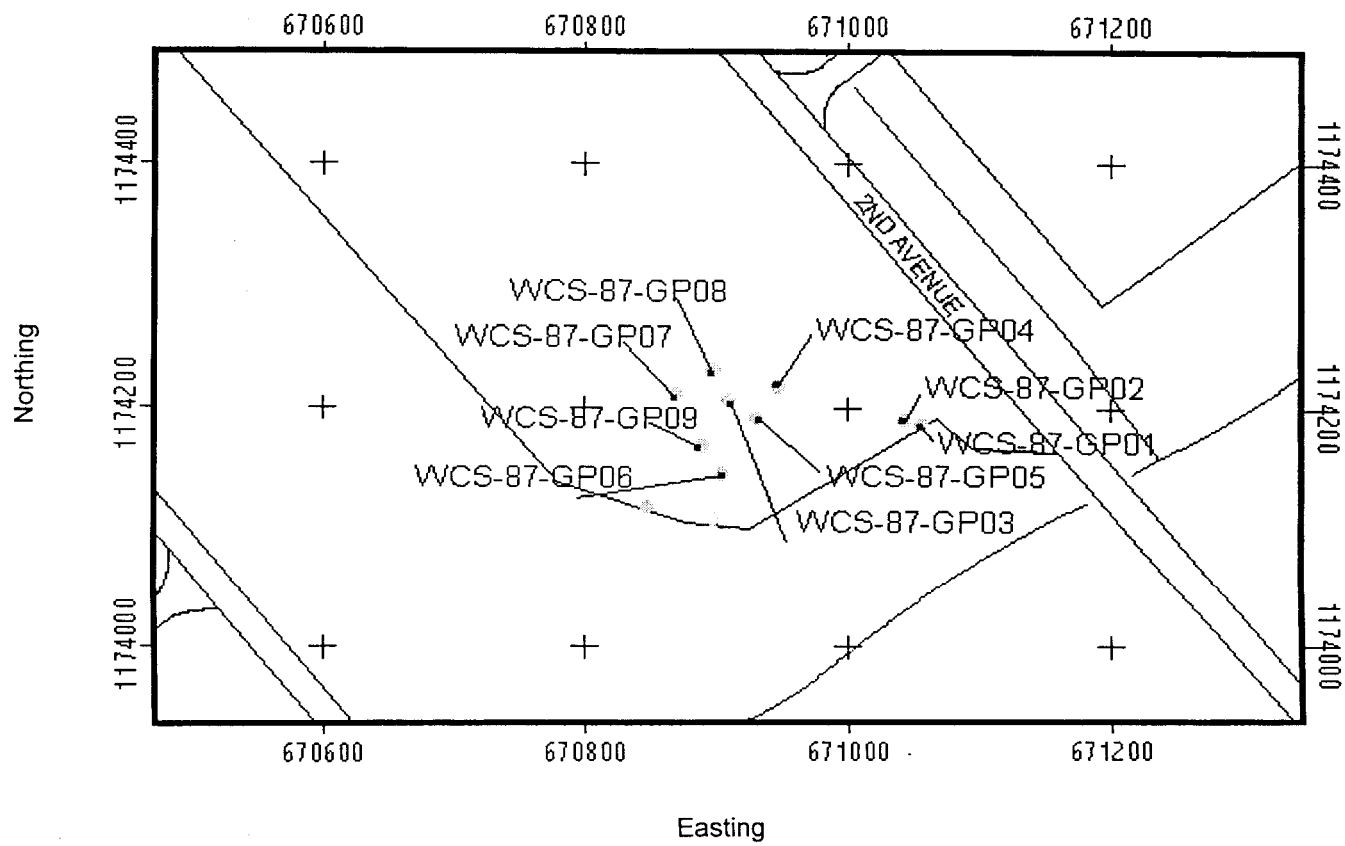
HTRW DRILLING LOG

District: Mobile USACE		HOLE NUMBER WCS-87-GP09
1. Company name: IT Corporation	2. Drill Subcontractor: TEG	Sheet 1 of 2 sheets

3. Project: Fort McClellan	4. Location: **Calhoun County, Alabama**
5. Name of driller: Sammy McDaniels	6. Mfr. designation of drill: Geoprobe
7. Sizes and types of drilling and sampling equipment: Direct Push	8. Hole location: Former Waste Chemical Storage Area, Parcel 87
	9. Surface elevation (feet above mean sea level): 764.15
4'x2" acetate-lined sampler	10. Date started: 09/23/98 / 11. Date completed: 09/23/98
12. Overburden thickness (feet bgs): >1	15. Depth groundwater encountered (feet bgs): NA
13. Depth drilled into rock (feet bgs): 0	16. Depth to water and elapsed time after drilling completed (feet bgs): NA
14. Total depth of hole (feet bgs): 1	17. Other water level measurements (specify): NA

18. Geotechnical samples:	Collected:	Disturbed:	Undisturbed:	19. Total no. of core boxes: NA		
	NA					
20. Samples for chemical analysis:	VOC	Metals	Other (specify)	Other (specify)	Other (specify)	21. Total core recovery:
	X, SVOCs	X	CL/OP Pest	CL Herb.	Cyanide	NA
22. Disposition of hole:	Backfilled	Monitoring well	Other (specify)	Geologist:		
	X			Carolyn Short		

LOCATION SKETCH/COMMENTS:



Project: Fort McClellan

bgs= below ground surface
NA = Not applicable

Hole no.: WCS-87-GP09

HTRW DRILLING LOG (Continuation Sheet)

HOLE NUMBER: WCS-87-GP09

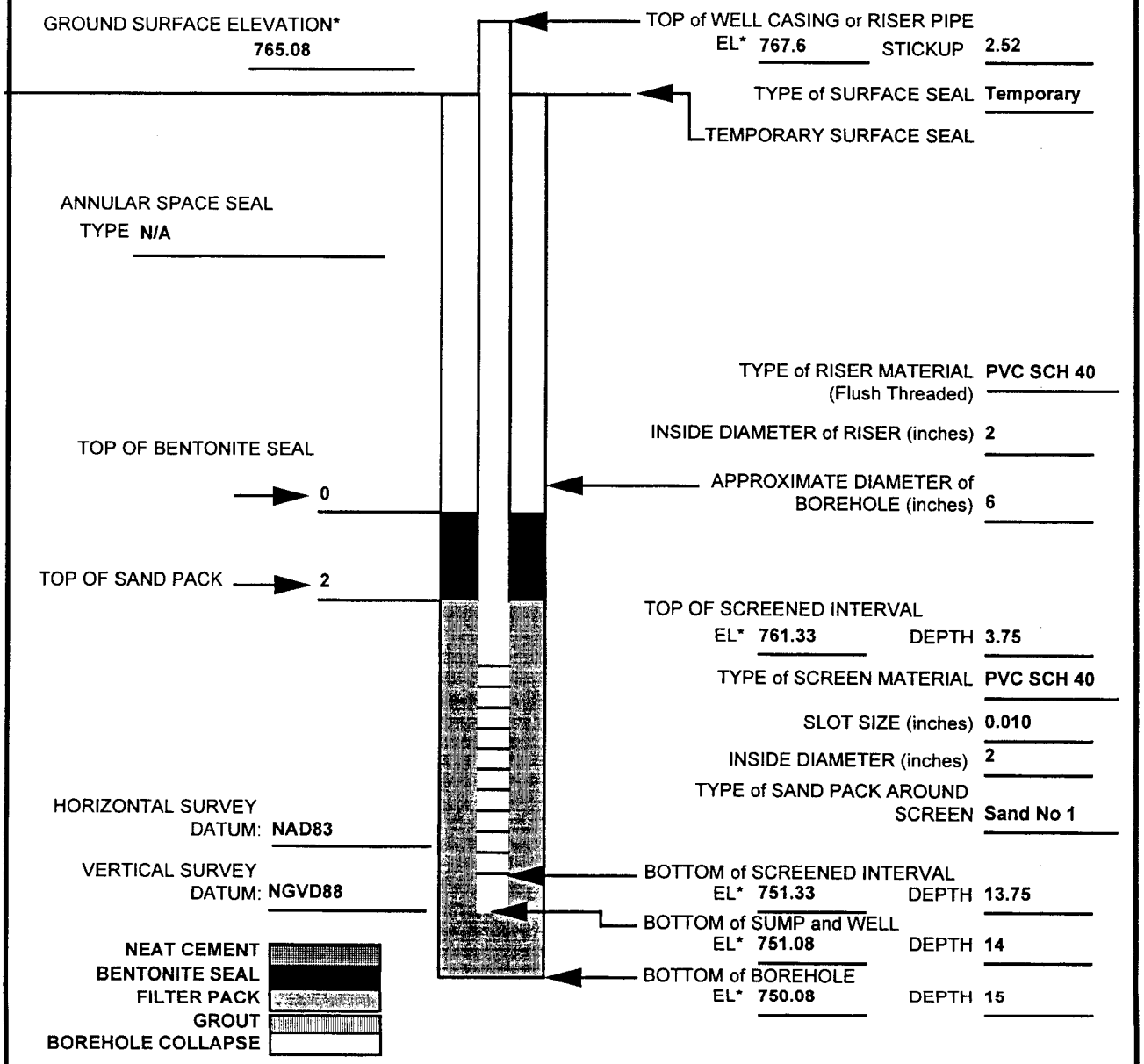
Project: Fort McClellan | Geologist: Carolyn Short | Sheet 2 of 2 sheets

Elev. (a)	Depth (b)	Description of Materials (c)	USCS / Lithology	Graphic	Field screening results (d)	Geotech sample or core box no. (e)	Analytical sample no. (f)	Blow counts (g)	Remarks (h)
	0	sm: SAND, some Silt, soft, dry, yellowish gray to dark brown to light grayish brown.	sm		Organic Vapor = 0.1ppm		GA0021		Rec 1.0' 0
	1								Bottom of borehole at 1.0', 1

WELL CONSTRUCTION LOGS

MONITORING WELL INSTALLATION DETAIL

PROJECT: Fort McClellan, SAD TERC	WELL NO: WCS-87-GP01
LOCATION Anniston, AL	DRILLING METHOD: Hollow Stem Auger
CLIENT: USACE Mobile District	INSTALLATION DATE 12/03/98
CONTRACTOR Miller Drilling Co.	NORTHING: 1174184.59
DRILLER: J. Blowfield	EASTING: 671055.64
IT FIELD REPRESENTATIVE: C. Short	JOB NO: 774645A

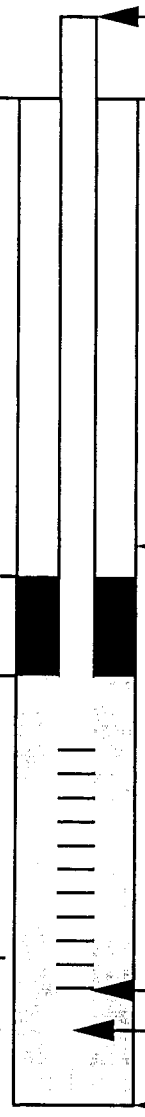


*All elevations (EL) are referenced to MSL.

All depths and heights are given in feet and are referenced to the ground surface.

MONITORING WELL INSTALLATION DETAIL

PROJECT: Fort McClellan, SAD TERC	WELL NO: WCS-87-GP02
LOCATION Anniston, AL	DRILLING METHOD: Hollow Stem Auger
CLIENT: USACE Mobile District	INSTALLATION DATE 12/03/98
CONTRACTOR Miller Drilling Co.	NORTHING: 1174189.16
DRILLER: J. Blowfield	EASTING: 671042.24
IT FIELD REPRESENTATIVE: C. Short	JOB NO: 774645A



GROUND SURFACE ELEVATION* 765.76

TOP of WELL CASING or RISER PIPE EL* 768.04 STICKUP 2.28

TYPE of SURFACE SEAL Temporary

TEMPORARY SURFACE SEAL

ANNULAR SPACE SEAL TYPE N/A

TYPE of RISER MATERIAL (Flush Threaded) PVC SCH 40

INSIDE DIAMETER of RISER (inches) 2

TOP OF BENTONITE SEAL 8

APPROXIMATE DIAMETER of BOREHOLE (inches) 6

TOP OF SAND PACK 10

TOP OF SCREENED INTERVAL EL* 754.01 DEPTH 11.75

TYPE of SCREEN MATERIAL PVC SCH 40

SLOT SIZE (inches) 0.010

INSIDE DIAMETER (inches) 2

TYPE of SAND PACK AROUND SCREEN Sand No 1

HORIZONTAL SURVEY DATUM: NAD83

VERTICAL SURVEY DATUM: NGVD88

BOTTOM of SCREENED INTERVAL EL* 744.01 DEPTH 21.75

BOTTOM of SUMP and WELL EL* 743.76 DEPTH 22

BOTTOM of BOREHOLE EL* 742.76 DEPTH 23

NEAT CEMENT
BENTONITE SEAL
FILTER PACK
GROUT
BOREHOLE COLLAPSE

*All elevations (EL) are referenced to MSL.

All depths and heights are given in feet and are referenced to the ground surface.

MONITORING WELL INSTALLATION DETAIL

PROJECT: Fort McClellan, SAD TERC	WELL NO: WCS-87-GP03
LOCATION Anniston, AL	DRILLING METHOD: Hollow Stem Auger
CLIENT: USACE Mobile District	INSTALLATION DATE 12/03/98
CONTRACTOR Miller Drilling Co.	NORTHING: 1174202.74
DRILLER: J. Blowfield	EASTING: 670910.12
IT FIELD REPRESENTATIVE: C. Short	JOB NO: 774645A

GROUND SURFACE ELEVATION*
765.33

TOP of WELL CASING or RISER PIPE
EL* 766.76 STICKUP 1.43

TYPE of SURFACE SEAL Temporary

TEMPORARY SURFACE SEAL

ANNULAR SPACE SEAL
TYPE N/A

TYPE of RISER MATERIAL (Flush Threaded) PVC SCH 40

INSIDE DIAMETER of RISER (inches) 2

TOP OF BENTONITE SEAL
3

APPROXIMATE DIAMETER of BOREHOLE (inches) 6

TOP OF SAND PACK 5

TOP OF SCREENED INTERVAL
EL* 758.58 DEPTH 6.75

TYPE of SCREEN MATERIAL PVC SCH 40

SLOT SIZE (inches) 0.010

INSIDE DIAMETER (inches) 2

TYPE of SAND PACK AROUND SCREEN Sand No 1

HORIZONTAL SURVEY DATUM: NAD83

VERTICAL SURVEY DATUM: NGVD88

BOTTOM of SCREENED INTERVAL
EL* 748.58 DEPTH 16.75

BOTTOM of SUMP and WELL
EL* 748.33 DEPTH 17

BOTTOM of BOREHOLE
EL* 747.33 DEPTH 18

NEAT CEMENT
BENTONITE SEAL
FILTER PACK
GROUT
BOREHOLE COLLAPSE

*All elevations (EL) are referenced to MSL.

All depths and heights are given in feet and are referenced to the ground surface.

MONITORING WELL INSTALLATION DETAIL

PROJECT: Fort McClellan, SAD TERC	WELL NO: WCS-87-GP04
LOCATION Anniston, AL	DRILLING METHOD: Hollow Stem Auger
CLIENT: USACE Mobile District	INSTALLATION DATE 12/04/98
CONTRACTOR Miller Drilling Co.	NORTHING: 1174215.89
DRILLER: J. Blowfield	EASTING: 670946.84
IT FIELD REPRESENTATIVE: C. Short	JOB NO: 774645A

GROUND SURFACE ELEVATION*
765.23

TOP of WELL CASING or RISER PIPE
EL* 766.64 STICKUP 1.41

TYPE of SURFACE SEAL Temporary

TEMPORARY SURFACE SEAL

ANNULAR SPACE SEAL
TYPE N/A

TYPE of RISER MATERIAL (Flush Threaded) PVC SCH 40

INSIDE DIAMETER of RISER (inches) 2

TOP OF BENTONITE SEAL
0

APPROXIMATE DIAMETER of BOREHOLE (inches) 6

TOP OF SAND PACK 5

TOP OF SCREENED INTERVAL
EL* 758.48 DEPTH 6.75

TYPE of SCREEN MATERIAL PVC SCH 40

SLOT SIZE (inches) 0.010

INSIDE DIAMETER (inches) 2

TYPE of SAND PACK AROUND SCREEN Sand No 1

HORIZONTAL SURVEY DATUM: NAD83

VERTICAL SURVEY DATUM: NGVD88

BOTTOM of SCREENED INTERVAL
EL* 748.48 DEPTH 16.75

BOTTOM of SUMP and WELL
EL* 748.23 DEPTH 17

BOTTOM of BOREHOLE
EL* 747.23 DEPTH 18

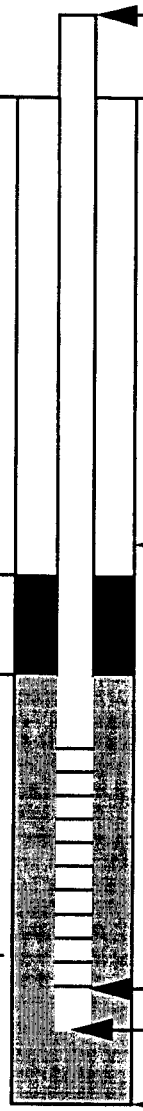
NEAT CEMENT
BENTONITE SEAL
FILTER PACK
GROUT
BOREHOLE COLLAPSE

*All elevations (EL) are referenced to MSL.

All depths and heights are given in feet and are referenced to the ground surface.

MONITORING WELL INSTALLATION DETAIL

PROJECT: Fort McClellan, SAD TERC	WELL NO: WCS-87-GP05
LOCATION Anniston, AL	DRILLING METHOD: Hollow Stem Auger
CLIENT: USACE Mobile District	INSTALLATION DATE 12/03/93
CONTRACTOR Miller Drilling Co.	NORTHING: 1174190.79
DRILLER: J. Blowfield	EASTING: 670930.15
IT FIELD REPRESENTATIVE: C. Short	JOB NO: 774645A



GROUND SURFACE ELEVATION* 765.12

TOP of WELL CASING or RISER PIPE EL* 768.29 STICKUP 3.17

TYPE of SURFACE SEAL Temporary

TEMPORARY SURFACE SEAL

ANNULAR SPACE SEAL TYPE N/A

TYPE of RISER MATERIAL (Flush Threaded) PVC SCH 40

INSIDE DIAMETER of RISER (inches) 2

TOP OF BENTONITE SEAL 0

APPROXIMATE DIAMETER of BOREHOLE (inches) 6

TOP OF SAND PACK 3.5

TOP OF SCREENED INTERVAL EL* 759.87 DEPTH 5.25

TYPE of SCREEN MATERIAL PVC SCH 40

SLOT SIZE (inches) 0.010

INSIDE DIAMETER (inches) 2

TYPE of SAND PACK AROUND SCREEN Sand No 1

HORIZONTAL SURVEY DATUM: NAD83

VERTICAL SURVEY DATUM: NGVD88

BOTTOM of SCREENED INTERVAL EL* 749.87 DEPTH 15.25

BOTTOM of SUMP and WELL EL* 749.62 DEPTH 15.5

BOTTOM of BOREHOLE EL* 748.62 DEPTH 16.5

NEAT CEMENT
BENTONITE SEAL
FILTER PACK
GROUT
BOREHOLE COLLAPSE

*All elevations (EL) are referenced to MSL.

All depths and heights are given in feet and are referenced to the ground surface.

MONITORING WELL INSTALLATION DETAIL

PROJECT: Fort McClellan, SAD TERC	WELL NO: WCS-87-GP06
LOCATION Anniston, AL	DRILLING METHOD: Hollow Stem Auger
CLIENT: USACE Mobile District	INSTALLATION DATE 12/03/98
CONTRACTOR Miller Drilling Co.	NORTHING: 1174143.86
DRILLER: J. Blowfield	EASTING: 670903.9
IT FIELD REPRESENTATIVE: C. Short	JOB NO: 774645A

GROUND SURFACE ELEVATION* 763.79

TOP of WELL CASING or RISER PIPE EL* 766.68 STICKUP 2.89

TYPE of SURFACE SEAL Temporary

TEMPORARY SURFACE SEAL

ANNULAR SPACE SEAL TYPE N/A

TYPE of RISER MATERIAL (Flush Threaded) PVC SCH 40

INSIDE DIAMETER of RISER (inches) 2

TOP OF BENTONITE SEAL 0

APPROXIMATE DIAMETER of BOREHOLE (inches) 6

TOP OF SAND PACK 2

TOP OF SCREENED INTERVAL EL* 760.04 DEPTH 3.75

TYPE of SCREEN MATERIAL PVC SCH 40

SLOT SIZE (inches) 0.010

INSIDE DIAMETER (inches) 2

TYPE of SAND PACK AROUND SCREEN Sand No 1

HORIZONTAL SURVEY DATUM: NAD83

VERTICAL SURVEY DATUM: NGVD88

BOTTOM of SCREENED INTERVAL EL* 750.04 DEPTH 13.75

BOTTOM of SUMP and WELL EL* 749.79 DEPTH 14

BOTTOM of BOREHOLE EL* 748.79 DEPTH 15

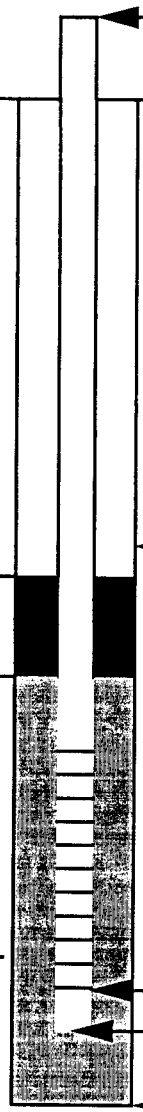
NEAT CEMENT
BENTONITE SEAL
FILTER PACK
GROUT
BOREHOLE COLLAPSE

*All elevations (EL) are referenced to MSL.

All depths and heights are given in feet and are referenced to the ground surface.

MONITORING WELL INSTALLATION DETAIL

PROJECT: Fort McClellan, SAD TERC	WELL NO: WCS-87-GP07
LOCATION Anniston, AL	DRILLING METHOD: Hollow Stem Auger
CLIENT: USACE Mobile District	INSTALLATION DATE 12/04/98
CONTRACTOR Miller Drilling Co.	NORTHING: 1174208.3
DRILLER: J. Blowfield	EASTING: 670869.29
IT FIELD REPRESENTATIVE: C. Short	JOB NO: 774645A



GROUND SURFACE ELEVATION* 764.37

TOP of WELL CASING or RISER PIPE EL* 767.64 STICKUP 3.27

TYPE of SURFACE SEAL Temporary

TEMPORARY SURFACE SEAL

ANNULAR SPACE SEAL TYPE N/A

TYPE of RISER MATERIAL (Flush Threaded) PVC SCH 40

INSIDE DIAMETER of RISER (inches) 2

TOP OF BENTONITE SEAL 0

APPROXIMATE DIAMETER of BOREHOLE (inches) 6

TOP OF SAND PACK 3

TOP OF SCREENED INTERVAL EL* 759.62 DEPTH 4.75

TYPE of SCREEN MATERIAL PVC SCH 40

SLOT SIZE (inches) 0.010

INSIDE DIAMETER (inches) 2

TYPE of SAND PACK AROUND SCREEN Sand No 1

HORIZONTAL SURVEY DATUM: NAD83

VERTICAL SURVEY DATUM: NGVD88

BOTTOM of SCREENED INTERVAL EL* 749.62 DEPTH 14.75

BOTTOM of SUMP and WELL EL* 749.37 DEPTH 15

BOTTOM of BOREHOLE EL* 748.37 DEPTH 16

NEAT CEMENT
BENTONITE SEAL
FILTER PACK
GROUT
BOREHOLE COLLAPSE

*All elevations (EL) are referenced to MSL.

All depths and heights are given in feet and are referenced to the ground surface.

MONITORING WELL INSTALLATION DETAIL

PROJECT: Fort McClellan, SAD TERC	WELL NO: WCS-87-GP08
LOCATION Anniston, AL	DRILLING METHOD: Hollow Stem Auger
CLIENT: USACE Mobile District	INSTALLATION DATE 12/04/98
CONTRACTOR Miller Drilling Co.	NORTHING: 1174228.54
DRILLER: D.Bishop	EASTING: 670898.09
IT FIELD REPRESENTATIVE: J. Jenkins	JOB NO: 774645A

GROUND SURFACE ELEVATION* 764.75

TOP of WELL CASING or RISER PIPE
EL* 765.76 STICKUP 1.01

TYPE of SURFACE SEAL Temporary

TEMPORARY SURFACE SEAL

ANNULAR SPACE SEAL
TYPE N/A

TYPE of RISER MATERIAL (Flush Threaded) PVC SCH 40

INSIDE DIAMETER of RISER (inches) 2

TOP OF BENTONITE SEAL 1

APPROXIMATE DIAMETER of BOREHOLE (inches) 8

TOP OF SAND PACK 3

TOP OF SCREENED INTERVAL
EL* 761 DEPTH 3.75

TYPE of SCREEN MATERIAL PVC SCH 40

SLOT SIZE (inches) 0.010

INSIDE DIAMETER (inches) 2

TYPE of SAND PACK AROUND SCREEN Sand No 1

HORIZONTAL SURVEY DATUM: NAD83

VERTICAL SURVEY DATUM: NGVD88

BOTTOM of SCREENED INTERVAL
EL* 751 DEPTH 13.75

BOTTOM of SUMP and WELL
EL* 750.75 DEPTH 14

BOTTOM of BOREHOLE
EL* 750.75 DEPTH 14

NEAT CEMENT
BENTONITE SEAL
FILTER PACK
GROUT
BOREHOLE COLLAPSE

*All elevations (EL) are referenced to MSL.

All depths and heights are given in feet and are referenced to the ground surface.