

December 1, 2000

Ms. Gretchen Zmitrovich Mississippi Department of Environmental Quality 101 West Capital Street Jackson, MS 39210

Mr. Craig Brown US Environmental Protection Agency 61 Forsyth Street, SW Atlanta, GA 30303

Subject: Revised Site Assessment Work Plan Submittal

AKT Gravel Pit - Kuhlman Electric Corporation

Crystal Springs, MS

Dear Ms. Zmitrovich and Mr. Brown:

On behalf of Kuhlman Electric Corporation, IT Corporation is submitting the attached revised work plan for the Site Assessment of the AKT Gravel Pit. The submittal is in response to a requirement of Administrative Order 4165-00 of the Mississippi Commission of Environmental Quality.

If you have any questions, please contact me at (770) 677-7790 or Scott Schang of Latham & Watkins at (202) 637-2115.

Sincerely,

IT Corporation

A. Robert Thompson, CHMM

Operations Manager

attachment

cc: Thomas Minnich - Kuhlman Electric Corporation

Paul Acheson - Kuhlman Electric Corporation

Al Thomas - Kuhlman Electric Corporation

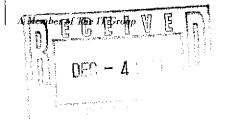
Scott Schang - Latham & Watkins

Anastasia Hamel - BorgWarner Inc.

Thomas Lupo - Seyfarth, Shaw, Fairweather & Geraldson

IT Corporation

11560 Great Oaks Way, Suite 500 Alpharetta, GA 30022-2424 Tel. 770.475.8994 Fax. 770.777.9545



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IT Corporation

11560 Great Oaks Way, Suite 500 Alpharetta, GA 30022-2424 Tel. 770.475.8994 Fax. 770.777.9545

A Member of The IT Group

Revised Site Assessment Work Plan AKT Gravel Pit Crystal Springs, Mississippi

December 1, 2000

Prepared for:

Kuhlman Electric Corporation

101 Kuhlman Drive Crystal Springs, MS 39059

Prepared by:

IT Corporation

11560 Great Oaks Way, Suite 500 Alpharetta, Georgia 30022 IT Corporation Project 820327

Prepared by:

Terence A. Whitt Principal Investigator Approved by:

A. Robert Thompson, CHMM Operations Manager

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Photographs

AKT Fill Area November 15, 2000

Appendix

A. Field Documentation Forms

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1.0 INTRODUCTION

This work plan describes the activities to characterize soil placed at the AKT gravel pit from the Kuhlman Electric Corporation (Kuhlman) facility in Crystal Springs, Mississippi, that is suspected of containing polychlorinated biphenyls (PCBs). **Figure 1** shows the approximate location of the AKT gravel pits. The soil is fill material placed in an open excavation at the AKT gravel pit. The characterization will determine the presence of PCBs and determine the horizontal and vertical extent in the soil, if found. **Figure 2** depicts the excavation at AKT that was filled from multiple sources including soil from Kuhlman. A photograph taken after the excavation was filled is presented in **Photograph 1**.

During building expansion construction at Kuhlman, soils were transported to the AKT gravel pit for fill material. After the transportation of the fill, it was determined that the soil may contain PCBs. IT Corporation has been retained by Kuhlman to perform the characterization of these soils. A summary of information and activities described in this plan are:

- The open excavation at AKT, prior to being filled, has been described as up to 12-feet deep and measuring approximately 315-feet long and 70-feet wide. This excavation volume equals 9,769 cubic yards.
- Limited information suggests that 33 dump truck loads of soil fill may have been deposited at AKT from the Kuhlman facility. At an assumed volume of 18 yards per truck, the quantity of soil brought from Kuhlman would equal 594 cubic yards.
- A systematic grid will be established over the fill area to identify soil boring sample locations. The
 grid spacing will be at 25-foot intervals, which will result in 70 borings.
- Soil samples will be continuously collected and classified at each boring using direct push sampling
 equipment. At each boring location, soil samples will be collected at the surface and at 1-foot vertical
 intervals to a depth of 12 feet. This will result in the collection of 13 samples at each boring location
 for a total of 1,190 samples. The boring will be continued to 20 feet. The last 8 feet of soil will be
 retained as a two continuous 4-foot soil sample within the plastic liner retrieved from the sampling
 equipment.
- At each boring location, select samples will be analyzed. The surface, 4-foot, 8-foot, and 12-foot samples will be initially analyzed. Initially, sample analysis will be for PCBs. If PCBs are identified in any of the four samples, additional samples will be analyzed to determine the vertical and horizontal distribution of PCBs. The retained soil core, from the 16-20 foot interval, may be used for sample collection and analysis, if the 15-foot soil sample contains PCBs.
- As each direct push sample liner is opened, the soils will be surveyed with a PID to monitor for
 evidence of volatile compounds. If PID readings are greater than 10 ppm a sample will be collected
 for volatile analysis.
- After the review of PCB data from the 70 borings, 12 samples will be analyzed for PAHs, cyanide and silver.
- Based on the results from the 70 borings, additional borings may be performed be better determine the horizontal distribution of PCBs.

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- Other constituents of concern will be analyzed for in selected samples. After the PCB data is reviewed, 12 samples will be analyzed for PAHs by SW846 Method 8270, cyanide by SW846 Method 9014 and silver by SW846 Method 6010B.
- Once the vertical and horizontal characterization work is completed, appropriate management options
 will be outlined to and approved by regulatory agencies and then implemented.

This work plan will serve as a controlling document during the investigation and is organized into the following general sections: Scope of Work (Section 2.0); Sampling and Analysis Plan (Section 3.0); Soil Management (Section 4.0); Reporting (Section 5.0); and Schedule (Section 6.0). A site-specific Health and Safety Plan (HASP) will be prepared for the investigation after approval of the work plan.

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2.0 CHARACTERIZATION SCOPE OF WORK

This investigation will include soil sampling using direct push technology (e.g., Geoprobe). The proposed soil sample collection locations are based on a systematic grid across the subject area (**Figure 2**). After the data is evaluated, a second phase (or more) of sampling may be required to tighten the grid distances to more accurately characterize PCB concentration distribution. The final grid may be as tight as 5-foot centers.

Soil sampling design will employ a systematic grid for the placement of proposed sampling locations. The grid will be used for sample data collection across the entire fill area.

The fieldwork will commence by surveying a 25-foot by 25-foot grid tied to local benchmarks within the study area (Figure 3). Soil samples from the resulting direct push locations will be collected at the intersection of the gridlines. Borings may be offset if subsurface obstructions are encountered. Soil samples will be continuously collected from the boring using an acetate liner in the direct push rods. As that liner is removed from the hole, it will be opened and a description of the material recorded. A sample of each 1-foot interval will be collected and packaged for possible analysis for PCBs. Four select intervals will be analyzed (surface, 4, 8, and 12-foot depths) on the first round of analysis. These samples will be homogenized in a stainless steel bowl using the quartering technique and packaged for shipment to the laboratory. Based on these results, other archived samples will be analyzed as required for vertical distribution information. Archived samples may be analyzed beyond standard soil holding times. Due to the highly stable properties of PCB, holding time should not affect the quality of the data produced. Initial boring depths will be approximately 20 feet deep. The 12 to 16-foot interval and the 16 to 20-foot interval will be collected and retained as a continuous core. Soil samples will be examined and a description of the soils will be recorded in boring logs under the direction of the on-site geologist. An example of the boring log intended for use during the project is provided in Appendix A. As soon as each boring is completed it will be filled with bentonite and hydrated.

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3.0 SAMPLING AND ANALYSIS PLAN

This Sampling and Analysis Plan (SAP) presents procedures for boring, soil sample collection, sample analytical methods, and data analysis methods. The following tasks will be performed for this delineation of the AKT gravel pit:

- Soil boring advancement with soil sample collection
- Soil sample analysis
- Data management and reporting of findings

3.1 Soil Borings

IT Corporation will mark each of the proposed soil borings at the grid intersections shown in **Figure 2**. IT Corporation will coordinate an underground utility search with AKT personnel. Boring locations will be adjusted as necessary to avoid underground utilities.

Borings for the soil sampling program will be advanced to approximately 20 feet below land surface (bls). A geologist will supervise all drilling and sampling operations. The geologist will oversee boring operations, classify soil types, prepare boring logs, collect soil samples, and supervise cleanup operations. All shallow borings will be advanced using direct-push (e.g. Geoprobe) methods.

The soil sample at each soil boring location will be collected continuously in 1-foot intervals using an acetate liner in the direct push rods. As that liner is removed from the hole, the liner will be opened, material will be described and recorded, and soil samples will be collected every 1-foot interval for the first 12-feet. The 12 to 16-foot core and the 16 to 20-foot core will be capped on both ends, labeled and retained. Laboratory soil samples will be homogenized in a stainless steel bowl and packaged for analysis for PCBs in 4-ounce glass jars with Teflon caps. Archived soil samples will be stored in 2-ounce glass jars with Teflon caps. Soil samples will be visually classified in the field by a geologist using the descriptive terminology of the Unified Soil Classification System (USCS) presented in ASTM D-2488. Visual observations will be noted on the boring log. Other conditions, such as odor and signs of constituent presence or disturbance, will also be noted. Strength testing and grain size analyses will not be used for classification. The borings will be filled with bentonite pellets and hydrated.

New laboratory-supplied sample containers will be used for samples collected. All soil samples shipped to the laboratory will be stored in coolers chilled with ice to maintain temperature at approximately 4°C. At the end of each sampling round, sample coolers will be shipped to the analytical laboratory under chain-of-custody protocol via overnight courier, or alternatively, will be picked up from the site by a courier. Samples will be submitted to a laboratory and analyzed for PCBs by SW-846 Method 8082. This method is defined in the EPA publication Test Methods for Evaluation of Solid Wastes, Physical/Chemical Methods (SW-846, 3rd Edition Update III).

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After the PCB data is reviewed, 12 samples will be analyzed for PAHs by SW846 Method 8270, cyanide by SW846 Method 9014 and silver by SW846 Method 6010B. Six of the samples will be from the higher PCB concentration samples and six will be from medium levels obtained.

3.2 Decontamination Procedures

All drilling and sampling equipment used during the investigation will be decontaminated before each use. Procedures for decontaminating investigative equipment are provided in the following sections.

3.2.1 Sampling Equipment

IT Corporation and subcontractor personnel will adhere to the procedures described below for the cleaning of all equipment that comes in direct contact with the sample being collected prior to field use. Sufficient clean equipment and sample containers will, whenever practical, be transported to the project site to minimize the need for excessive cleaning of equipment in the field. The sampling equipment will be thoroughly rinsed with tap water in the field as soon as possible after use to aid in future decontamination.

Teflon™ and/or Glass Equipment:

- 1. Wash the equipment thoroughly with the phosphate-free laboratory detergent and tap water. Use a brush to remove any particulate matter or surface film.
- 2. Rinse the equipment thoroughly with tap water.
- 3. Rinse the equipment thoroughly with deionized organic free (DIOF) water.
- Rinse the equipment twice with pesticide-grade isopropanol and follow with a DIOF water final rinse.
- Wrap the equipment completely with aluminum foil to prevent contamination during storage and/or transport to the field.

Stainless Steel Equipment:

- 1. Wash the equipment thoroughly with phosphate-free laboratory detergent and tap water. Use a brush to remove any particulate matter or surface film. If the sampling equipment was used to collect samples that contained oil, grease, or other hard-to-remove materials, it may be necessary to rinse the equipment several times with pesticide-grade isopropanol to remove the materials and/or to steam clean the equipment before washing with the detergent solution. If the field equipment cannot be cleaned with these procedures, it should be properly discarded.
- Rinse the equipment thoroughly with tap water.
- 3. Rinse the equipment thoroughly with DIOF water.
- Rinse the equipment with pesticide-grade isopropanol followed by a final DIOF rinse.

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 Wrap the equipment completely with aluminum foil to prevent contamination during storage and/or transport to the field.

3.2.2 Non-Sampling Field Equipment

Non-sampling field equipment is any equipment that could contact a sample area. All equipment and power tools used as non-sampling equipment (i.e., drilling equipment, augers, etc.) will be decontaminated before and after usage, as well as prior to removal from the site. All augers, sampling equipment, and downhole tools will be decontaminated by steam cleaning before each hole is drilled. Large pieces of equipment, such as drill rods, augers, and cutting heads will be cleaned inside and outside using a portable steam generator. Downhole sampling tools will also be steam cleaned with potable water before drilling is begun at each borehole. The onsite geologist will inspect the rig prior to drilling to ensure that the rig has been sufficiently cleaned. In particular, the geologist will assess whether oil, grease, hydraulic fluid, etc., have been removed; all seals and gaskets are intact; and whether fluids are leaking. Small equipment (such as hand tools) will be either steam cleaned or are rinsed with tap water, scrubbed with a water/mild phosphate-free detergent solution, and rinsed again with tap water.

All non-sampling equipment decontamination will be performed at a decontamination station specified in the site-specific HASP. The decontamination station will be constructed to contain all decontamination fluids and protect from overspray. The sides of the station will be a minimum of 6 inches high. Sawhorses and plastic ground cloths will be used in handling drilling and other non-sampling equipment to prevent cross-contamination in the field. No equipment will be laid directly on the ground.

3.3 Investigation Derived Waste

All solid and liquid investigation derived waste will be collected and temporarily stored in labeled drums for disposal.

3.4.1 Quality Assurance/Quality Control (QA/QC) Samples

To control and assure quality of the analytical data, additional samples will be submitted along with the primary samples of soil. Field precision will be assessed through the collection and measurement of field duplicates at a rate of 1 duplicate per 10 analytical samples. Field accuracy will be assessed through the use of field blanks and through adherence to all sample handling, preservation, and holding times specific to the method. Matrix spikes and matrix spike duplicates (MS/MSDs) will be analyzed at a frequency of 1 MS/MSD per 20 samples to assess analytical accuracy and precision, as well as site-specific matrix interferences.

Equipment blanks will be used for soil samples only when the samples were collected in non-disposable samplers, to verify that the sampling devices have been properly decontaminated. ASTM Type II distilled water will be poured into a decontaminated stainless steel bowl and transferred to the appropriate

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laboratory-supplied sample container. Equipment blank samples will be collected once each day of fieldwork.

3.4.2 Analytical Quality Control

Laboratory testing will be performed by qualified personnel in accordance with the appropriate methods referenced in this report. Laboratory data validation procedures will be performed on all environmental sample data in accordance with the following U.S. EPA guidance document:

U.S. EPA, 1994, USEPA Contract Laboratory Program. National Guidelines for Organic Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, February 1994.

The following QA/QC information on laboratory procedures will be documented and provided by the laboratory as part of the analytical report:

- method blanks
- surrogates
- · site matrix spikes/duplicates
- · laboratory control samples

The data evaluation approach will involve a combination of early and continuous review of the laboratory analytical reports, which will conform to U.S. EPA data quality objective (DQO) Level 3. It is anticipated that a review of the Level 3 reports will indicate any needed systematic corrections to the deliverable, which then can be verified in subsequent reporting and continuous review.

3.5 Data Management and Reporting

To ensure the integrity of sample analytical data from the time of collection in the field to the tabulation of results, data documentation protocols will be implemented. This will include providing sample labels, chain-of-custody records, and field information forms to document field information; and comparing laboratory analysis reports with tabular displays and graphic displays to evaluate the accuracy of data transfer. The project manager will be responsible for assessing whether the data collected meet the project DQOs described below.

3.5.1 Data Quality Objectives

The DQOs for this investigation will include methods and procedures equivalent to DQO Level 3 for the collection and analyses of soil samples to be submitted to the laboratory. The Level 3 DQO QA/QC will involve reporting of items listed in **Section 3.4.2**, and initial and continuing calibrations, GC chromatograms for samples, blanks, standards, spikes, and other raw data applicable to the method. During the data evaluation, IT Corporation may request backup QA/QC for certain reports.

Definitions of and goals for levels of precision, accuracy, completeness, representativeness, and comparability for the baseline investigation are presented below.

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Precision is a measure of the mutual agreement between individual measurements of the same property, and reflects the repeatability of the measurements. Accuracy reflects the relative agreement of a measurement with an accepted reference or true value, and is a measure of system bias. Completeness is a measure of the amount of valid data obtained from the measurement system relative to the amount anticipated under ideal conditions. The precision, accuracy, and completeness of the data collected during baseline investigation activities will be monitored and controlled by the defined methods of sample collection, handling, and analysis set forth in this Sampling and Analysis Plan.

Representativeness expresses the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition. Comparability is an expression of the confidence with which one data set can be compared to another. The representativeness and comparability of sample data will also be controlled by implementing appropriate sample collection, handling, and analytical methods.

Methods of sample collection and handling are designed to minimize sample contamination, disturbance, or alteration prior to analysis by the laboratory. All field measurements and observations will be conducted by experienced technical personnel using investigation methods standard to the engineering, geological, and environmental science professions. All field data collection activities will be thoroughly documented to allow subsequent evaluation of data precision, accuracy, and completeness.

The overall quality assurance objective for laboratory analyses will be to provide a laboratory QA/QC program consistent with procedures outlined in the U.S. EPA analytical methods employed for the baseline investigation. The quality control limits of accuracy and precision for laboratory analyses are governed by the methods and equipment used. The laboratory QA/QC requirements are designed to ensure that acceptable levels of data accuracy and precision are maintained throughout the analytical program, and to ensure that the data generated meet the required quantitation limits established by the DQOs.

3.5.2 QA/QC Criteria

Precision will be measured by calculating the relative percent difference (RPD) in duplicate sample analyses. Field duplicates will be analyzed for the same parameters as the associated samples to allow an evaluation of sample reproducibility. Although no specific review criteria for blind duplicates exist, the criteria for laboratory duplicates may be used to provide a subjective evaluation of overall precision. The laboratory duplicate criteria, as stated in Functional Guidelines, are:

- Control limits of ± 20 percent (± 35 percent for soil sample) for the RPD shall be used for sample concentrations greater than 5 times the practical quantification limit (PQL).
- A control limit of ± PQL (± 2 times PQL for soil samples) for the RPD shall be used for sample
 concentrations less than 5 times the PQL, including the case when only one of the duplicate samples
 is less than 5 times the PQL.

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Accuracy will be assessed using reference samples, percent recoveries, and blanks. Spiked samples and percent recoveries will be used by the analytical laboratory to check the accuracy of the reported concentrations against a known concentration. These analyses consisted of surrogates; laboratory control samples and duplicates (LCS/LCSDs); MS/MSDs; as needed. RPDs calculated from LCS/LCSD and the MS/MSD recoveries serve as a check on analytical precision. Equipment wash blank samples will be utilized to provide a mechanism for control and evaluation of the accuracy of samples obtained in the field. The control limits for the parameters used to assess analytical accuracy and precision are presented for each constituent and analysis in the laboratory's QA/QC plan.

The degree of completeness will be assessed by comparing the number of parameters initially analyzed with the number of parameters successfully reported and validated. The criterion for completeness is generally expressed as a percentage, with 100 percent complete data as the desired objective. For some of the data, corrective actions in the form of resampling and re-analysis, or re-extraction and re-analysis, may be required to provide valid data for the investigated feature.

Representativeness of sample analyses is evaluated using precision and accuracy assessments described above and through the collection and analysis of duplicate samples and measurements.

To ensure comparability between the data throughout the investigation, differences in sampling and analysis procedures will be minimized. Samples will be collected and documented in such a manner as to allow comparability to data collected at other times.

3.5.3 Sample Label

A sample label will be completed with indelible ink for each sample collected and will be affixed to each sample container. The information to be supplied on each label will include the job name and identification number, sample identification number, the collection date and time, type of sample, type of analyses, whether it has been preserved, the named of the person collecting the sample, and any special comments.

3.5.4 Chain-of-Custody Record and Field Information Forms

A chain-of-custody record will be competed for each sample shipment. Copies of the chain-of-custody records completed by the laboratory will be returned to IT Corporation, compared with the field record, and placed in the project file.

The field information forms, illustrated in **Appendix A**, will be completed for field activities. Copies of field information forms and other field notes will be maintained in the project file.

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3.5.5 Laboratory Analysis Reports

To keep track of reported laboratory analyses, and as a mechanism for verifying the reported QA/QC protocols, a project chemist will be designated as the point of contact with the analytical laboratory. The project chemist's responsibilities will include:

- Scheduling and tracking receipt of analyses from the laboratory
- Reviewing reported QA/QC documentation, including completed chain-of-custody forms
- Managing data quality review
- Immediate reporting of identified problems to the laboratory
- Forwarding analyses for tabulation
- Filing of laboratory analysis reports in the project file

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4.0 SOIL MANAGEMENT

The delineation data produced from sample collection and analysis will be used to develop the soil management options. A detailed work plan outlining the proposed remedial actions to be taken will be developed based on the results of the investigation. The work plan will include details of the confirmation sampling and analyses, which will include PCBs and other constituents of concern,

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5.0 REPORTING

A report will be prepared summarizing the procedures for data collection and the analytical results after the completion of field activities. The report will use text, tables, and figures to present the findings of data collected during the AKT gravel pit delineation. The report will include the following components:

- Description of field methods employed
- Summary of the field results
- Analytical summary tables
- Discussion of the laboratory results
- Maps showing constituent concentrations in soil
- Estimates of type (hazardous/non-hazardous) and volumes of soil present.

The report's appendixes will consist of:

- Boring logs of the direct-push borings
- Maps showing lateral and vertical representation of analytical data
- Laboratory data sheets
- Chain-of-custody sheets for the analytical samples
- QA/QC report for the analytical data
- Complete summary tables for the analytical results, including tabulation of detection limits and analytical methods for each constituent in each sample. As the planned CLP/Level 3 data packages are quite voluminous, three copies of the package will be included as a separate volume.

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6.0 SCHEDULE

IT will schedule direct push boring work within 1 week after approval of the Work Plan. IT anticipates submitting the investigation report documenting this work approximately 60 days after completion of field activities. All estimated beginning and completion dates are subject to contractor availability and, in certain instances, weather.

Activity	Schedule		
Implement Work Plan	Begin within 10 calendar days of Work Plan approval by		
•	MDEQ and EPA		
Mobilize to perform soil borings	Begin within twenty working days of Work Plan approval.		
Perform soil borings and sampling	Complete within twelve working days		
Analysis of initial soil samples including	Complete within ten working days from completion of soil		
data review	sampling		
Analysis of subsequent soil samples (if	Complete within ten working days from receipt of initial soil		
necessary) including data review	sample results		
Analysis of final soil samples (if	Complete within ten working days from receipt of		
necessary) including data review.	subsequent soil sample results		
Perform second phase boring and	Begin within thirty working days of receipt of final soil sample		
sampling (if necessary).	results		
Analysis of soil samples from second	Complete within ten working days from completion of second		
phase sampling including data review	phase soil sampling		
Submit investigation report	Complete within 60 calendar days of receipt of final		
	laboratory analyses		

FIGURES

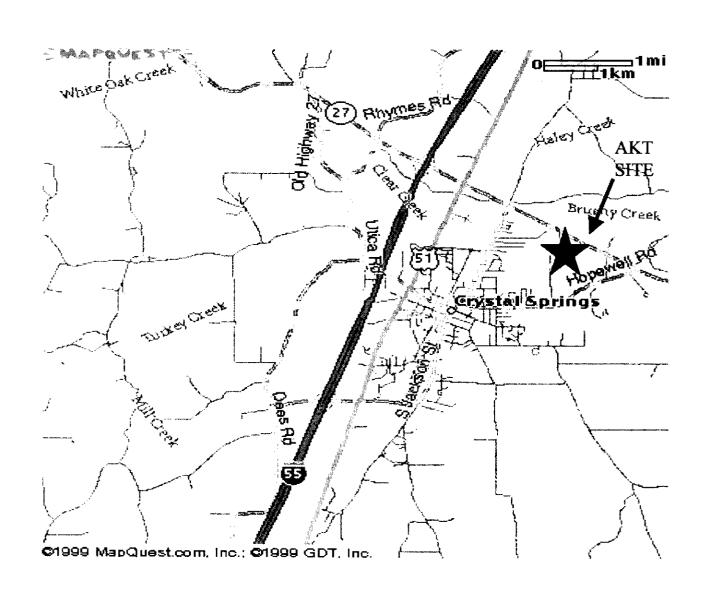
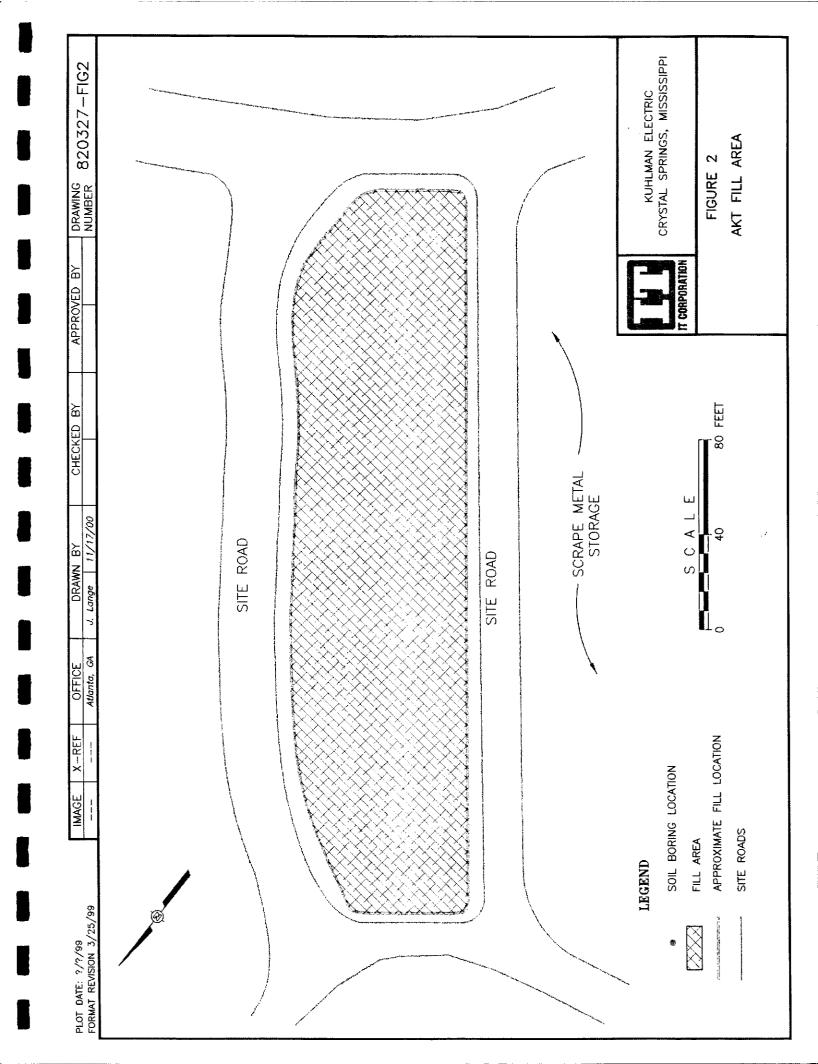
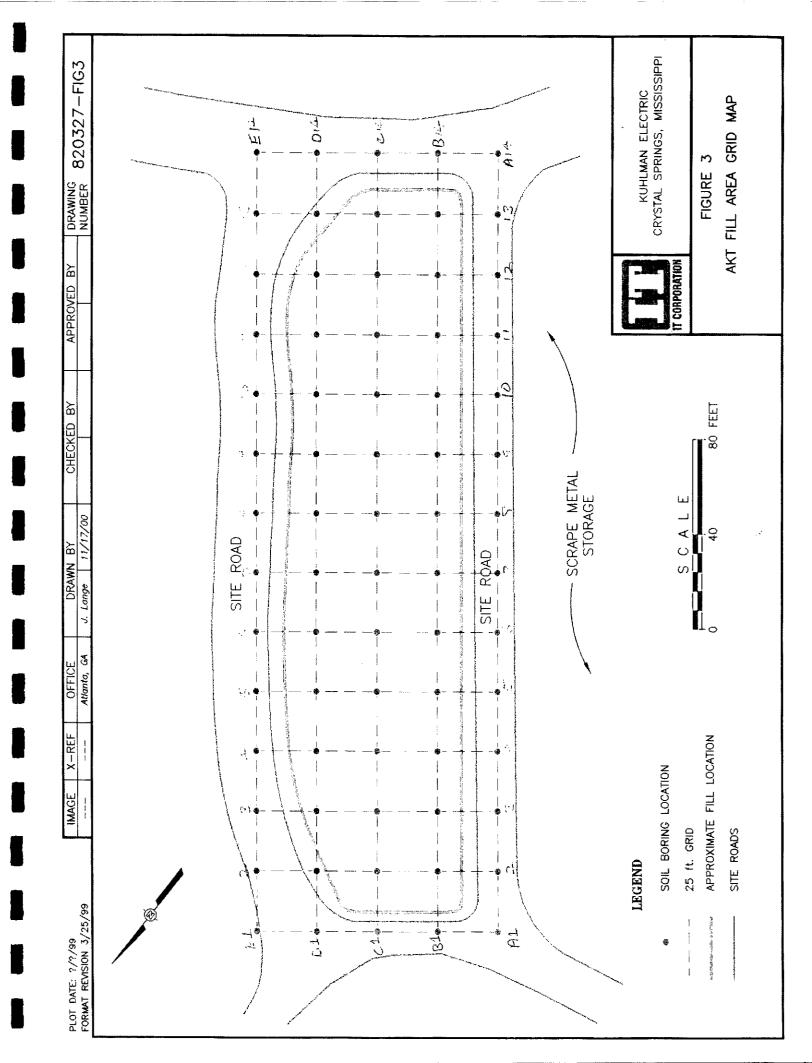


FIGURE 1: Crystal Springs, Ms Location Map





PHOTOGRAPHS



Photograph 1 – AKT Fill Area November 15, 2000

APPENDIX A

FIELD DOCUMENTATION FORMS

BORING/DRILLING FIELD LOG

Project Location Surface Elev	Total Hole Depth	710	j. Nu	See Site Map For Boring Location COMMENTS:
Screen: Dia Casing: Dia Fill Material	Length	Type/Size Type Rig/Core		
Drill Co.	Method	Date	Permit #	
Depth (1t.) Well Completion Sample ID			Descript	
- 2 - - 0 - - 2 - - 4 - - 6 - - 10 - - 12 - - 14 - - 14 -				
- 16 - - 18 - - 20 - - 22 - - 24 -				

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