Preliminary Design Report for the Soil Operable Unit

Waukegan Manufactured Gas and Coke Plant Site
Waukegan, Illinois

November 2002

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394834

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604

January 31, 2003

Mr. Stephen H. Armstrong
Assistant General Counsel
North Shore Gas
130 East Randolph Street
Chicago, IL 60601

Re: Preliminary Soil Design Comments
Waukegan Coke Plant, Waukegan, IL

Dear Mr. Armstrong:

The U.S. Environmental Protection Agency (U.S. EPA) has reviewed the "Preliminary Design Report for the Soil Operable Unit" (November 2002) prepared by Barr Engineering for the Waukegan Coke Plant site, Waukegan, IL. Our comments are listed below. The State's comments will be forwarded to you as soon as I receive them.

A. **Section 1.2.1 PAH Remediation Zone, page 2**
The description of the ROD remedy for the PAH soil should indicate that treatment of the soil is the preferred alternative and that placement in a landfill will not be selected unless treatment is not practicable (e.g., not feasible, excessive cost, etc.) (see ROD, page 23).

B. **Section 1.2.2 Arsenic Remediation Zone, page 2**
The description of the ROD remedy for the arsenic soils should indicate that the arsenic-contaminated soils will be stabilized/solidified in place unless U.S. EPA determines that onsite management interferes with future land use, in which case, offsite disposal may be used (see ROD, page 23).

C. **Section 1.2.3 Designated Soil Stockpile, page 2**
A description of the selected remedy for these soils should be added to this section indicating that these soils will be remediated in the same manner as the PAH soils.

D. **Section 2.1 PAH Remediation, Zone, page 6**
Please clarify what is meant by "visibly little impacted."

E. **Section 2.2 Arsenic Remediation, Zone, page 7**
Please clarify what is meant by "visibly little impacted."

F. **Section 2.5 Onsite Borrow Source, page 7, sixth sentence**
This section indicates that the DSSS soil can be used as backfill onsite because concentrations in nearly all samples were below 10^{-6} RHE values. Confirm that the intent is to use this soil as backfill below the 6-inch-thick cover soil for the vegetative layer, and that uncontaminated soil from an offsite borrow area will be used for the cover.

In addition, please provide explanation of the development of the 10^{-6} RHE value for PCBs because this is not a chemical listed in the ROD table of cleanup levels?

The Toxic Substances Control Act (TSCA) PCB Remediation Wastes (40 CFR 761.61) should be considered as a potential ARAR because the DSSS soil contains PCBs. Concentrations of PCBs greater than 1 mg/kg were present in 6 of 20 samples (see Table 3 and Appendix A, Table 3 in the preliminary design report). The TSCA requirements (40 CFR 761.61 (a)(4)) for PCB remediation wastes are not applicable to CERCLA sites, but should be considered. TSCA requires either a concrete or asphalt cap of at least 6 inches or a compacted soil cap 10 inches thick for high occupancy areas (people present > 6.7 hrs/week) when PCBs are present at concentrations between 1 and 10 mg/kg.

G. **Section 3.0 Disposal Options Evaluation, page 8, first paragraph**
This paragraph should be revised to contain the explicit language of the ROD relative to the selected remedies for the PAH- and arsenic-contaminated soils (see Comments 1 and 2 above). As written, the paragraph does not indicate U.S. EPA's preference for treatment remedies or decision making for the arsenic soil remediation presented in the ROD.

H. **Section 3.0 Disposal Options Evaluation, page 8, second paragraph**
This paragraph summarizes the April 21, 2000, D.C. Court of Appeals ruling in the Association of Battery Recyclers, Inc., v. U.S. EPA. In essence, the court had ruled that U.S. EPA has failed to show that the TCLP test, developed for potential mismanagement of wastes in a municipal solid waste landfill (MSW), was relevant to potential disposal of MGP waste because insufficient evidence was given to the court that such wastes had been, or were likely to be, disposed of in an MSW. In order to carry out this court order, U.S. EPA amended RCRA in the *Federal Register* on March 13, 2002, as follows:
"***Sec. 261.24 Toxicity characteristic**. (a) A solid waste (except manufactured gas plant waste) exhibits the characteristic of toxicity if, using the Toxicity Characteristic Leaching Procedure, test Method 1311 in ``Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, as incorporated by reference in Sec. 260.11 of this chapter, the extract from a representative sample of the waste contains any of the contaminants listed in*

table 1 at the concentration equal to or greater than the respective value given in that table. "

As a result, the TCLP test cannot be used for determining whether MGP waste is a hazardous waste. As described in the Remedial Investigation (RI) Report (see *Section 2.1.3 History of Site and Adjacent Areas*), however, the waste at the site is a combination of wastes from a creosote wood treatment plant, and from a coke and manufactured gas production plant. The RI report states that the primary function of the plant under General Motors ownership was to supply coke for its foundry in Saginaw, Michigan, and that no gas was sold for offsite use during the years 1947 to 1971 (see RI, page 9). Much of the soil contamination resulted from a combination of activities including the creosote operations (predominantly on the western half of the site, 1908 to circa 1917), manufactured gas production (1928 to 1947) and coke production (1928 to 1971). Because creosote wood treating wastes and coke production wastes are not included in the toxicity characteristic exclusion cited above, the soil should be characterized for potential toxicity characteristics using the TCLP test.

While the majority of PAH and arsenic contaminated soils are expected to pass the TCLP limits, those soils failing TCLP and "generated" (i.e., first removed from the land or area of contamination) will be required to meet Land Disposal Restrictions for Contaminated Soil (note that past TCLP results for tar and tar-saturated sand exceeded the TCLP limit of 0.5 mg/L for benzene). Note that soils treated in-situ are not generated and if subsequently removed and pass the TCLP test limits, would not be required to be treated to meet LDRs. Further explanation of U.S. EPA policy on this issue can be found in the U.S. EPA Guidance *Management of Remediation Waste Under RCRA* (EPA530-F-98-026). In the event though that soils are removed and fail the TCLP test, please include a description of the LDR requirements (i.e., must achieve the lower of 10 percent of the universal treatment standard (UTS) or 90 percent reduction), along with a table of specific concentrations that must be achieved for the chemicals potentially present in the soil before land disposal (e.g., benzo(a) pyrene 10 % UTS of 34 mg/kg, benzene 10 % UTS of 100 mg/kg). In addition, include a description of the facility to be used for treatment of PAH soils exceeding the TCLP limits.

I. **Section 3.1 PRZ Management Options, page 9, fifth paragraph**
It is stated that thermal options are not economically justified compared to landfill disposal because they are twice as expensive. The ROD requires treatment such as thermal desorption unless it is not practicable because it is either not feasible or because it is excessively costly. The Preliminary Design should state that treatment is not practicable for soils passing TCLP testing because its cost is excessive.

J. **Section 3.2 ARZ Material Management Options, page 10, first paragraph**
A discussion of requirements for on-site solidification/stabilization is presented

but later rendered moot because off-site disposal is proposed. Although off-site disposal is acceptable, further clarification of requirements should be presented in the event that onsite stabilization/solidification is reconsidered. The first paragraph indicates that on-site stabilization/solidification of the ARZ material would consist primarily of geotechnical corrections (to improve strength and handling characteristics), and that stabilization would not have to reduce leachability because it passes the TCLP test limits. The TCLP test and the TCLP limits were designed for migration from wastes in a landfill environment (i.e., low pH) with multiple liners to prevent leaching (i.e., limits assuming a hundredfold dilution if a liner leaks) and are not relevant for materials that are left in place. The ARZ soils left onsite would have to be solidified/stabilized sufficiently to prevent direct contact risks (i.e., no longer available for direct ingestion, inhalation or significant erosion if exposed on the surface) as well as leaching of arsenic to groundwater. A test such as the synthetic precipitation leaching procedure (SPLP) using a pH representative of rainfall would be more appropriate along with test limits set at the drinking water MCL. For arsenic, the MCL is 50 mg/L, as opposed to the TCLP limit of 5,000 mg/L. As discussed above, however, this issue is moot if the soils are disposed of offsite in a Subtitle C or D landfill, as proposed.

K. **Section 3.3 DSS, page 10**
This section states that disposal of DSS material is under discussion with U.S. EPA. The ROD requirements for disposal of this material are the same as that for the PAH remediation zone.

L. **Section 3.4 Conclusions, page 10**
Please include a bullet describing the source of the Marginal Zone Cover Soil.

M. **Section 4.1 Excavation Verification Sampling, page 12, second bullet**
The method described for calculating the representative exposure concentration includes sample results from areas not designated for removal (i.e., samples from outside the area of known soil contamination). This will have the effect of reducing the recalculated exposure concentrations because relatively uncontaminated soil will be included. This may result in relatively small areas of soil remaining onsite that exceed the ROD cleanup levels. The ROD did not state that cleanup was intended to result in a particular risk level for a 5-acre exposure domain. Rather, it gave specific cleanup levels to be met for each remediation area. If the proposed approach is used, it may require a restrictive covenant to limit future sale of the land to the specific designated 5-acre parcels in Figure 2.

O. **Section 4.3 Compliance with ARARs, page 13**
Revise this section to include RCRA as an ARAR because the contaminated soil must be tested for toxicity characteristics as discussed above. In addition, the Toxic Substances Control Act (TSCA) (40 CFR 761.61) PCB Remediation Wastes should be considered as an ARAR because it includes requirements for

PCB waste cleanups (40 CFR 761.61 (a)(4)).

P. **Section 5.2.2 Backfill, page 17**
Describe sampling to be performed on off-site borrow soil to be used as cover soil to confirm that it is free from contamination?

Q. **Section 5.2.4 Water Management, page 18, second paragraph**
This section indicates that the adequacy of treatment system for the decontamination activities will be demonstrated on the first batch of water, and subsequent batches will be discharged before receiving the sample results. This approach allows for the potential of discharging contaminated water. If two carbon vessels in series are to be used, a sample collected from between the vessels to monitor breakthrough in the first vessel would protect against the potential for discharge of contaminated water and allow for the treated water to be discharged before receiving analytical. In addition, if the decontamination activities include surfactants, the use of carbon as a treatment method for water containing surfactant is not recommended because of its ability to desorb contaminants from the carbon.

R. Will the disposal of the IDW drums remaining on site be included as part of the implementation of the soil remedy? If so, where is this information going to be provided?

Please call me (312-886-7078) if you have any questions concerning the above or if they seem to conflict with what we discussed at our meeting on January 28.

Sincerely,

KA

Kevin Adler
OMC/WCP Project Manager

Preliminary Design Report for the Soil Operable Unit

Waukegan Manufactured Gas and Coke Plant Site
Waukegan, Illinois

November 2002

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Waukegan Manufactured Gas and Coke Plant Site
Waukegan, Illinois
November 2002

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Appendix H Soil Action-Specific ARARs from ROD, Determined to be Not Applicable or Relevant and Appropriate

Appendix I Soil Remedial Action Technical Specifications Outline

1.0 Overview

This document is the Preliminary Design for the soil remedy at the Waukegan Manufactured Gas and Coke Plant Site, which is Operable Unit 2 of the Outboard Marine Corporation Superfund Site, located in Waukegan, Illinois. The site location is shown in Figure 1.

1.1 Scope of Preliminary Design

The selected remedy presented in the September 1999 ROD included: Vadose Zone Soil Remedial Components (Soil Operable Unit) and Ground Water Remedial Components (Groundwater Operable Unit). The soil remedy is comprised of five components, the PAH Remediation Zone, the Arsenic Remediation Zone, the Marginal Zone, Institutional Controls, and a Soil Management Plan. Each soil remedy component is summarized in Section 1.2. The Groundwater Remedial Design will be presented in a separate document in accordance with the Groundwater Remedial Design schedule. The ROD also identifies a requirement to conduct Five-Year Reviews.

The Soil Preliminary Design represents approximately the 30 percent complete stage of the design, and includes the available pre-design study and sample analysis results, preliminary or conceptual plans for the work, design assumptions, preliminary identification of ancillary plans and requirements, and a preliminary construction schedule. The details of the scope of this document are summarized in Section 1.4.

1.2 Soil Remedial Action Goals and Objectives

The ROD presents three Remedial Action Objectives for the contaminated soils:

- Protect human health and the environment by reducing or eliminating exposure (direct contact, ingestion, inhalation) to soil with a concentration of contaminants representing an excess cancer risk of greater than $1x10^{-6}$ as a point of departure and a hazard index (HI) greater than 1 for reasonably anticipated future land use scenarios.

- Protect the environment by minimizing/eliminating the migration of contaminants in the soil to ground water or to surrounding surface water bodies.

- Ensure future beneficial commercial/industrial use of the site.

The ROD states that the "basis and rationale for the soils remediation objectives is protection of reasonable future uses. This includes industrial, commercial and utility worker protection." The ROD goes on to state, in the "Future Site Use" portion of the Remedial Action Objectives section, that

"based on current zoning requirements, discussions with Site owners, past operators, nearby businesses, the Illinois EPA and the community, U.S. EPA reasonably anticipates that the future use of the Site will be restricted to the current (and historical) use of industrial and commercial. Although a residential scenario was assessed in the Baseline Risk Assessment, it was done for comparison purposes only and is not considered an appropriate future use." The Remedial Design is being prepared consistent with these objectives and land use restrictions.

The soil remedial zones identified in the ROD are the PAH Remediation Zone, the Arsenic Remediation Zone, and the Marginal Zone. The delineation of these zones is shown on Figure 2. Additional explanation of the limits of the zones is in Section 2 of this report.

1.2.1 PAH Remediation Zone

Excavation is required for the PAH Remediation Zone (PRZ) soils where the concentrations of polynuclear aromatic hydrocarbons (PAHs) are calculated to pose a carcinogenic risk exceeding 1×10^{-5} or a hazard index of 1 for the most severe representative high exposure (RHE) scenario. The ROD benzo(a)pyrene excavation cleanup level is 116 mg/kg. Soil Cleanup Levels for individual parameters are presented in Table 1, which repeats the information from Table 4 of the ROD. PAH Remediation Zone soils are to be removed and treated or disposed of in off-site RCRA Subtitle C or D landfills.

1.2.2 Arsenic Remediation Zone

The Arsenic Remediation Zone (ARZ) includes soils where the concentrations of arsenic are expected to pose a carcinogenic risk of 1×10^{-5} for the most severe RHE scenario. The ROD arsenic cleanup level is 940 mg/kg. The Soil Cleanup Levels for arsenic are presented in Table 1, which repeats the information from Table 4 of the ROD. There is some overlap between the arsenic-containing soil and the PAH-containing soil. ARZ soils are to be stabilized/solidified in-situ or disposed of off site in compliance with all regulatory requirements.

1.2.3 Designated Soil Stockpile

The soils in the Designated Soil Stockpile (DSS) were excavated during construction of the new slip (Slip No. 4) in 1990 and 1991. The DSS soils are in a covered soil pile south of Slip No. 4.

1.2.4 Marginal Zone

The ROD requires that the soil in the marginal zone (see Figure 2) be covered with vegetation, pavement, or buildings. The cover is intended to minimize infiltration, manage surface water drainage/erosion control, provide a barrier to direct contact exposure, and, in the case of the

vegetation cover, enhance in-situ degradation of low-level concentrations of residual soil organics. The Marginal Zone encompasses the area of the site associated with PAH and arsenic concentrations between 1.0×10^{-5} and 1.0×10^{-6} excess carcinogenic risk, RHE, or arsenic concentrations above the 25 mg/kg protection of groundwater value. The Marginal Zone cover is six inches of topsoil and selected vegetation, or buildings and pavement that will minimize infiltration and provide a barrier to direct contact with soil.

1.2.5 Institutional Controls

Institutional Controls are to be placed on the property, in accordance with the provisions of the Soils Management Plan, as required by the Remedial Design Administrative Order on Consent, U.S. EPA Docket No. V-W-'01-C-651 (see RD AOC Scope of Work, IV d.). The institutional controls are to consist of appropriate Site use restrictions, deed notifications, groundwater use prohibitions, and easements/covenants that limit the Site to industrial/commercial uses that do not adversely affect the remedy. Institutional controls are to be addressed in a separate document in accordance with the current Remedial Design Work Plan schedule.

1.2.6 Soil Management Plan

The Soil Management Plan will define testing requirements and the process and procedures for approving future uses/development of the Site. The plan will allow flexibility for future commercial/industrial development and will allow for evaluation of potential impact on the remedy. The plan will also define roles and responsibilities to implement, monitor, and enforce institutional controls. A draft Soil Management Plan is to be submitted with the Soil Prefinal Design, in accordance with the current Remedial Design Work Plan schedule.

1.3 Soil Pre-Design Study Data

Soil pre-design study data is presented in the Appendices. The data from the Soil Pre-Design Study is in Appendix A, which is also the U.S. EPA-approved Waste Characterization Plan. This data includes sampling of soils in and at the perimeter of anticipated excavation zones, material characterization samples from the DSS and from selected arsenic soil and tar soil samples. Data from the Waste Characterization Study is in Appendix B. Data from the Dredged Spoils Soil Stockpile investigation is presented in Appendix C. The boring logs and test trench logs from the Soil Pre-Design Study investigation are in Appendix D.

1.4 Soil Preliminary Design Work Plan Scope

The Soil Preliminary Design represents approximately the 30 percent complete stage of the design and includes the following, as called for in the Statement of Work for the Remedial Design AOC:

1. Pre-Design Study Results.
2. Preliminary plans, drawings, and sketches, including design calculations.
3. Results of studies and additional sampling and analyses, if any, conducted after the Pre-Design Study.
4. Design assumptions and parameters, including the proposed method of soil treatment and/or disposal, design restrictions, process performance criteria, appropriate unit processes for the treatment train, and expected removal or treatment efficiencies for both the process and waste (concentration and volume) as applicable.
5. Proposed cleanup verification methods, including compliance with ARARs.
6. Outline of required specifications.
7. Proposed siting of processes and construction activity.
8. A plan to assist in keeping the nearby population informed about Site activities.
9. Expected long-term monitoring and operation requirements.
10. Real estate, easement, and permit requirements.
11. Preliminary construction schedule, including contracting strategy.

The above items are presented in this Preliminary Design Report and its appendices. The Soil Management Plan and operation and maintenance requirements will be acknowledged in the Soil Preliminary Design but will not be presented until the Soil Prefinal Design.

1.5 Report Organization

Section 1 of this Preliminary Design Report presents an overview of the soil remedy and the scope of this report. Section 2 provides the estimated remedial quantities for the soil remedy. Section 3 establishes the expected disposal options for the DSS material, PRZ soils, and ARZ soils. Where there is a recommended selection among the disposal options named in the ROD , the rationale is explained. Section 4 presents the proposed system for cleanup verification for the remediation zones.

Section 5 is the preliminary construction plan. This is a conceptual layout of the major components and movements of material for the soil remedy work. It includes the preliminary schedule for the construction work. Section 6 identifies the access requirements, easement and permit requirements, and community relations assistance that is anticipated for the soil remedial action work.

2.0 Remedial Quantities

This section summarizes key assumptions concerning excavation areas and volumes. These assumptions and quantities are included in Table 2. Figure 2 shows the overall remediation zones. Excavations will proceed based on the limits shown in Figure 2 and excavation verification sampling. Excavation verification sampling is described in Section 4.1. The excavations will not extend below the groundwater table. The delineations and volume estimates were prepared based upon the Soil Pre-Design Investigation data (see Appendix A) and the boring and test trench logs (see Appendix D) as well as the Remedial Investigation data and logs.

2.1 PAH Remediation Zone

The PRZ consists of areas of tar and tar-saturated soil, and PAH-contaminated soil exceeding ROD Soil Cleanup Levels. It is estimated that eleven small surficial tar-impacted areas, two large tar-impacted areas, and five areas of PAH contaminated soil will be excavated. The depths of the excavations are estimated to range between 2.5 feet and the water table (generally present at 4 to 6 feet below ground surface). The estimated quantity of material in the PAH Remediation Zone is 29,000 cubic yards (CY).The shapes of the excavation areas shown in Figure 2 represent practical excavation limits that encompass all the identified material exceeding the ROD Soil Cleanup Levels. The volume calculations assume excavations with straight sidewalls and no oversizing for sideslopes. Sideslope material or material that is visibly little impacted may be set aside for backfill in the excavation after confirmatory sampling of the excavation limits. See Appendix E for preliminary excavation plans.

2.2 Arsenic Remediation Zone

The Arsenic Remediation Zone consists mainly of industrial pond deposits from the former manufactured gas and coking operations located in one large and two small areas. The estimated volume of material in the ARZ is 6,000 CY. The anticipated size of the large excavation area is approximately 27,000 square feet, with a depth of excavation typically extending to the water table. The two small excavation areas consist of less than 100 CY collectively, with depths of 3 ft and 4 ft.

The ARZ and PRZ overlap in one area. The size of the overlapping area is approximately 120 ft. long by 10 ft wide and is estimated to be approximately 300 CY. This material is included in the ARZ volume estimate.

The dimensions and volumes represent the excavation area required to remove the identified material that exceeds the cleanup criteria. The volume calculations assume excavations with straight sidewalls

and no oversizing for sideslopes. Sideslope material or material that is visibly little impacted may be set aside for backfill in the excavation after confirmatory sampling of the excavation limits. See Appendix E for preliminary excavation plans.

2.3 Designated Soil Stockpile

The soils in the DSS were excavated during construction of the new slip (Slip No. 4) in 1990 and 1991. The estimated volume of soil in the DSS is 4,000 CY.

2.4 Marginal Zone

The ROD requires that the area of the site associated with PAH and arsenic concentrations between 1.0×10^{-5} and 1.0×10^{-6} RHE or arsenic concentrations above the 25 mg/kg groundwater protection value be covered as part of the remedial action. This area is approximately 15 acres and is outlined on Figure 2. The cover will consist of six inches of topsoil and selected vegetation.

The Feasibility Study (FS) provided that most of the area be seeded with deep-rooted native grass species and that limited areas around the perimeter of the excavation be planted with mulberry trees. The seed and tree selection is explained in the May 14, 1998 "Implementation of Phytoremediation" report prepared by John Fletcher, included here as Appendix F.

2.5 On-Site Borrow Source

The Dredged Spoils Soil Stockpile (DSSS) is the on-site borrow source to be used as backfill for the Site excavations. Sixteen samples collected from 12 borings at the DSSS are presented in Table 3. Data summary tables and copies of the DSSS boring logs are in Appendix C. The locations of the DSSS borings are shown on the plansheet in Appendix E. Fifteen of the 16 samples are below the marginal zone soil criteria of 1.0×10^{-6} RHE for all of the cleanup goals, and all the samples are below the 1.0×10^{-5} RHE criteria. One sample marginally exceeded the 1.0×10^{-6} RHE soil criteria for benzo(a)pyrene (13 mg/kg reported versus 11.6 mg/kg ROD standard for marginal zone limits). The soil in the DSSS is therefore suitable for use as backfill at the Site both within the Marginal Zone and outside the Marginal Zone.

3.0 Disposal Options Evaluation

The 1999 ROD specified treatment or disposal for material from the PRZ and from the ARZ. PRZ soils are to be removed and treated or disposed of in off-site RCRA Subtitle C or D landfills. ARZ soils are to be stabilized/solidified in situ or disposed of off site in compliance with all regulatory requirements. The treatment and/or disposal costs for the materials to be excavated from the PRZ, ARZ, and DSS are evaluated in this section. Disposal vendors were contacted for estimated transportation and disposal costs for each method of disposal.

The PRZ and ARZ materials are manufactured gas plant (MGP) wastes. As MGP wastes, these materials are subject to the recent federal and state rule-making pursuant to the court's decision in the Association of Battery Recyclers, Inc. v. U.S. EPA, 203 F.3d 1047 (D.C. Cir. 2000). The U.S. EPA and the Illinois Environmental Protection Agency have amended their regulations to reflect the fact that the TCLP test is not allowed to determine whether MGP waste is hazardous (see 40 C.F.R. § 261.24 and 35 Ill. Adm. Code §721.124). This status as MGP wastes allows these materials to be accepted for disposal at co-burning facilities, thermal desorption facilities, and landfills, and also means that land disposal restrictions do not attach to these materials.

The plan for management of PRZ and ARZ material from the remedial action can be summarized as follows:

- Material that fails TCLP is to be placed in a Subtitle C landfill
- Material that passes TCLP but exceeds the ROD Soil Cleanup Levels is to be placed in a Subtitle D landfill

Material that does not exceed the ROD Soil Cleanup Levels is to be backfilled in the excavation on Site.

3.1 PRZ Management Options

The material within the PRZ consists of tar, tar-saturated soils, oily soils, entrained debris, and some relatively clean soil and debris. The DSS soil is addressed in Section 3.3.

There are several options for disposal of PRZ material. The options considered here are co-burning, thermal desorption, and landfill disposal.

Co-burning facilities are available in Pennsylvania and Utah. The preferred method of transportation to Pennsylvania would be via over-the-road trucks, while the preferred method of transportation to Utah would be via rail cars. In both cases, waste transported for co-burning must meet a six-inch

minus size requirement. Depending on the fuel value (BTU content) of the PRZ waste, the co-burning costs are $25 to $40 per ton. The estimated transportation and disposal costs for co-burning range from $85 to $103 per ton, as seen in Table 4. The material from the PRZ typically has a relatively low BTU content, and consequently disposal costs would be toward the higher end of the range.

Thermal desorption is available at a fixed facility at Cedar Rapids, Iowa. The preferred method of transportation to Iowa would be via over-the-road trucks. The estimated transportation and disposal cost is around $100 per ton for oily and lightly contaminated material, but may be higher for cohesive tar-saturated soil.

Landfill disposal for MGP materials is available in the Chicago area. The material that fails TCLP would be landfilled at a Subtitle C facility. The transportation and disposal costs for Subtitle C land disposal are $54 per ton for a facility in the greater Chicago metropolitan area. The cost of Subtitle C landfill management of the PRZ material may be $254 per ton for disposal at an out-of-state facility, as seen in Table 4.

The Waste Characterization Plan testing (the plan is in Appendix A, the test results are in Appendix B) was performed on samples that were blended to represent the potential quality of excavated soils from the PRZ. These tests are considered representative of much of the material that would actually be shipped off site for disposal. The TCLP testing found that none of the samples exceeded a TCLP threshold. Material of this character that exceeds the ROD Soil Cleanup Levels can be disposed of in a Subtitle D landfill. The WCP Group would not use municipal landfill cells that do not meet current Subtitle D requirements. The transportation and disposal costs for Subtitle D land disposal are $31 to $60 per ton for a facility in the greater Chicago metropolitan area.

On the basis of this analysis, the costs of the thermal options (desorption or co-burning) are twice the cost of disposal in a Subtitle C landfill in the greater Chicago metropolitan area. Use of the thermal options is not economically justified. Consequently, the WCP Group is expecting to send all PRZ materials that exceed TCLP to a Subtitle C landfill in the Chicago area. PRZ material that exceeds the ROD Soil Cleanup Levels but does not fail TCLP is to be sent to a Subtitle D facility.

3.2 ARZ Material Management Options

The ARZ materials are residuals from a gas purification process used at the WCP site, and consequently are MGP wastes. The ROD provides that materials from the ARZ are to be stabilized/solidified in situ or excavated and disposed of off Site in compliance with all regulatory requirements.

On-site stabilization/solidification and placement has been considered for the ARZ material. The ARZ material has been tested and passes TCLP (see Appendix A, Table 3, and Appendix B). Consequently, the stabilization would consist primarily of geotechnical correction, to improve the strength and handling characteristics of the material for backfill. This would likely be achieved by mixing the ARZ material with DSSS sand. It is estimated that this treatment would cost $20 to $30/ton.

Materials excavated from the ARZ are suitable for land disposal at a Subtitle D landfill. This waste has been tested and consistently passes TCLP. Portions of the ARZ overlap and co-mingle with the PRZ. TCLP testing of a sample of material that was a mix described as tar/pond deposit passed all TCLP thresholds (see Appendix A, Table 3). Consequently, the PRZ and ARZ materials that overlap are also suitable for Subtitle D landfill disposal. Disposal at a local Subtitle D facility would cost approximately $31/ton, as seen in Table 4.

The cost of off-site disposal at a Subtitle D landfill is similar to the estimated cost of stabilization/solidification and placement on site, and will minimize possible negative impacts on future use of the site. The WCP Group proposes to dispose of the ARZ material off site in a Subtitle D landfill.

3.3 DSS

The appropriate management of the DSS material is under discussion with the EPA.

3.4 Conclusions

The evaluation of PRZ material management options shows that it is not justified to prefer thermal treatment of these materials to landfill disposal. Landfill disposal is about half the cost of thermal options. The ARZ material is to be placed at a Subtitle D landfill.

The plan for management of PRZ and ARZ material from the remedial action can be summarized as follows:

- Material that fails TCLP is to be placed in a Subtitle C landfill
- Material that passes TCLP but exceeds the ROD Soil Cleanup Levels is to be placed in a Subtitle D landfill
- Material that does not exceed the ROD Soil Cleanup Levels is to be backfilled in the excavation on site.

4.0 Cleanup Verification

The soil remedy includes excavating soils from the PRZ and ARZ, and constructing a soil cover over the Marginal Zone. These actions are designed to satisfy the ROD cleanup goals for contaminated soils. This section includes (1) an outline of the soil excavation verification process; (2) the proposed approach for verifying soil cover extents; and (3) a preliminary evaluation of how the soil remedy design complies with Applicable or Relevant and Appropriate Requirements (ARARs).

4.1 Excavation Verification Sampling

The objective of the confirmatory sampling program is to ensure that the ROD Soil Cleanup Levels, as shown in Table 1, have been reached. Post-excavation samples will be collected from the exposed sidewalls and bottom (if above the water table) to verify soil quality at the excavation limits. In general, excavations will be completed to the limits shown in the construction plans, although the limits of surface patches of tar or small discrete excavation areas will be assessed in the field (the limits of small patches of material shown in Figure 2 were used for the purposes of estimating remedial volumes, and are not intended to reflect defined excavation limits). Deminimis quantities of materials in the subsurface, as determined by observation in the field, may be left in place .

For excavation perimeters larger than 50 lineal feet, the attainment of the soil cleanup goals will be evaluated based on the process defined in U.S. EPA *Methods for Evaluating the Attainment of Cleanup Standards, Volume 1: Soils and Soil Media*, Chapter 6, EPA230/02-89-042, 1989 (Cleanup Attainment Guidance). The post-excavation verification sampling procedure is based on the program described in Appendix 4-A of the FS (attached here as Appendix G). The procedure will generally involve the following steps:

- **Step 1. Number of Lateral Verification Sampling Points:** On average, there will be one sample every 50 feet along the sidewalls of each excavation. The measured perimeter length in feet will be divided by 50 feet and rounded to the nearest larger whole number to determine the number of verification samples necessary.

- **Step 2. Vertical Sampling:** The verification samples will be representative of the entire excavation depth. A composite sample will be collected along the excavated wall from six inches below ground surface to the base of the excavation, or six inches above the water table.

- **Step 3. Base of Excavation Sampling:** If the base of the excavated area is located above the groundwater table, a composite sample will be collected from the excavation bottom. Two verification samples will be collected for every 0.5-acre of exposed area. Where the base of the

excavated area extends to the groundwater table no samples will be collected from the base of that portion of the excavation.

- **Step 4. Analysis:** Each verification sample will be submitted for chemical analysis to determine concentrations of the constituents of concern.

- **Step 5. Statistical Confirmation:** In the event that the results of the verification soil data are greater than the ROD Soil Cleanup Levels, but less than the 1.0×10^{-4} RHE, a statistically–based procedure may be used to confirm satisfactory removal. The results of verification soil data will be added to the existing subsurface data set in each area. Using the expanded data set, subsurface representative exposure concentrations (RECs) in each exposure domain (delineated in Figure 2), as defined in Appendix 4-A of the FS, will be computed as the 95 percent upper confidence limit of the mean concentration (95% UCL). Ninety-five percent UCLs will be computed for each of the constituents of concern. The computed subsurface soil RECs will be compared to the 1.0×10^{-5} ROD Soil Cleanup Levels. In the event that the results of the statistical confirmation meet the ROD Soil Cleanup Levels, that portion of the excavation is complete and may be backfilled. In the event that the results of the statistical confirmation are greater than the ROD Soil Cleanup Levels, proceed to Step 6

- **Step 6. Excavation Expansion:** If verification analytical results are greater than the 1.0×10^{-4} RHE at any single location, the relevant portions of the excavated perimeter will be expanded. The expanded portions will be treated as new excavated areas, which will be subjected to the verification sampling procedures as described in Steps 1 through 6.

For small excavated areas, perimeters less than 50 lineal feet, a minimum of two composite samples will be collected. If the base of the excavated area is located above the groundwater table, a composite sample will be collected from the excavation bottom. A second sample will be collected as a composite from the excavation sidewalls. The samples will be subjected the verification sampling procedures as described above in Steps 2 through 6.

4.2 Soil Covers

The Marginal Zone encompasses areas associated with PAH and Arsenic concentrations between 1.0×10^{-5} and 1.0×10^{-6} excess carcinogenic risk, or arsenic concentrations above the 25 mg/kg protection of groundwater value. Soil covers are proposed over the Marginal Zone, which includes approximately two-thirds of the 36-acre Site (Figure 2).

Soil samples will be collected over the western portion of the Site to verify that the proposed soil cover extent meets the above requirements set forth in the ROD. Samples will be collected over

areas that were inaccessible during previous investigations, such as areas covered by the DSS and DSSS, or areas with insufficient data. Two sampling locations will be selected for every 0.5 acre of contaminated area.

Surface soil samples will be obtained at each location for classification, field screening and laboratory analysis for arsenic and the PAHs listed in Table 1. The soil cover design will be extended or modified as necessary based on the sampling results.

4.3 Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

This section discusses the ARARs identified in the 1999 ROD. These ARARs, the 1999 ROD, and the design concepts presented in this Preliminary Design will govern implementation of the soil remedial action. The soil remedial action is designed to meet all chemical, location, and action-specific ARARs. Chemical and location-specific ARARs are presented in Tables 5 and 6. Table 7 is a summary of the action-specific ARARs and includes a description of how the soil remedy addresses the ARARs. Many of the potential ARARs listed in the 1999 ROD are not ARARs because the remediation waste at the Site is not considered a hazardous waste. Appendix H presents the soil ARARs listed in the 1999 ROD that were either determined to not be ARARs in the ROD, or were so determined for the remedy described in this Preliminary Design. The Appendix H ARAR analysis is not included in Table 7.

The key ARARs for excavation and off-site disposal of soil and waste include the following:

- Clean Air Act requirements of 40 CFR 50, which define National Ambient Air Quality Standards (NAAQS)
- Occupational Safety and Health Act (OSHA) requirements of 29 CFR, Parts 1910 and 1926, which provide occupational and safety and health requirements for workers engaged in on-site field activities

4.3.1 Air Emissions

Air monitoring to determine attainment of the NAAQS may be required for particulate matter PM10 and possibly for settled particulate. NAAQS are based on the direct health effect of those pollutants to sensitive groups and take into consideration all sources of exposure to a given pollutant and establish ceilings that are not to be exceeded in the United States.

4.3.2 Safety

OSHA requirements include occupational and safety and health requirements for workers engaged in on-site field activities. A site-specific safety and health plan will be prepared by the contractor for review prior to mobilization to the Site. Workers are required to have appropriate training and be enrolled in a medical surveillance program. Air monitoring, safety meetings and inspections are just a few of the tasks required. Other documents that are required to be available on site include a written accident prevention program, safety program, emergency action plan, hazard communication program, MSDS sheets for all on-site chemicals, and fire protection program.

5.0 Preliminary Construction Plan

This section discusses the preliminary site layout and the general construction process for the remedial action. The existing Site conditions and remediation zones are shown on Figure 2 and the proposed Site plan during the remedial action is shown on Figure 3.

5.1 Preliminary Layout of Operations

A conceptual layout for Site operations during the remedial action is shown on Figure 3. The final layout of operations will be proposed by the contractor as a contract submittal for approval by the WCP Group. At a minimum, the contractor's plan must: (1) show that during the PRZ and ARZ removal, the exclusion zones will include the excavation areas (when contaminated materials are exposed) and staging and load out areas; (2) establish a decontamination area in the exclusion zone; and (3) Limit access to the exclusion zones, for instance by delineating the areas with temporary construction fencing and/or caution tape. Area boundaries (exclusion, staging, etc.) will be dynamic, in that as excavation and backfill is completed over portions of the Site temporary exclusion zone fences will be removed. These areas will then be considered clean for non-intrusive work, such as clean storage or clean material staging.

A conceptual plan for the location of clean storage, haul roads, and support offices is shown on Figure 3. The support offices are near the gated Site entrance, which is centrally positioned and near the PRZ and ARZ work areas. The clean storage area is located near the DSSS and is in an area where no remediation activity is scheduled.

5.2 Description of General Process

The planned remedial action will include excavation of soils located in the PRZ and the ARZ, and cover placement over the Marginal Zone. The volume of soil to be excavated from each area is presented in Table 2. The material from the PRZ and ARZ will be segregated and stockpiled on site, characterized, and depending upon characterization data, either: (1) transported off site for disposal in a RCRA Subtitle C waste facility (material that fails TCLP criteria); (2) transported off site for disposal in a RCRA Subtitle D waste facility (material that passes TCLP criteria but exceeds the ROD Soil Cleanup Levels); or (3) remain on site and be used as backfill (material that meets ROD Soil Cleanup Levels). The PRZ and ARZ excavations and Marginal Zone cover locations are shown on Figure 2. Excavations will be backfilled with soil from the DSSS and excavation material from the ARZ and PRZ that meets the ROD Soil Cleanup Levels. After backfilling, a vegetated soil cover will be constructed, with topsoil from an off-site source, over the Marginal Zone.

A preliminary outline of the technical specifications for the work is included in Appendix I.

5.2.1 Excavation

The excavation boundaries will be located by survey methods and staked prior to beginning excavation activities. The proposed excavation areas are based on the test trench logs, soil borings, and analytical sampling results from previous investigations (see Appendices A and B for data and Appendix D for logs from the Soil Pre-Design Study). It is planned that excavations will terminate at the groundwater table.

In general, areas to be excavated will be cleared and grubbed and any surface debris will be collected. Monitoring wells MW-9S and MW-9D are located within the ARZ excavation boundary and will be abandoned during site preparation activities.

It is anticipated that all of the excavations will be conducted with standard hydraulic excavation equipment using open cut methods. All of the excavations will be conducted in accordance with OSHA Excavation Standard 29 CFR Part 1926. The excavated contaminated materials will be stockpiled temporarily in staging areas, as shown on Figure 3. Debris will be segregated for appropriate management, as described in Section 5.2.5.

It is anticipated that the limiting production factors for excavation activities will be segregation and stockpiling of soil and the load out of soil from the staging area into trucks for off-site shipment. Potential limiting factors include daily landfill volume acceptance rates, waste characterization requirements, distance to the disposal facility, and truck availability. Other factors, which may control the pace of the excavation, include difficulties with debris management, odor or dust control problems, poor weather conditions, and the verification process.

As discussed in Section 4.0, verification samples will be collected and analyzed at the sidewalls and the results revisited prior to backfill activities. Based on the data and observations collected to date, the excavations are expected to be limited to the areas shown on Figure 2. However, excavations will progress until verification samples show that the applicable criteria have been reached.

The anticipated total excavation volume is approximately 35,000 CY (Table 2). Assuming an off-site shipment rate/disposal rate of 60 trucks per day, which would correspond to a daily excavation quantity of 550 CY per day, excavation and hauling activities could be complete in approximately three months. Allowing approximately one additional month for segregation and characterization of soil during excavation and verification sampling outcomes, the excavation activities may require approximately four to five months. There may also be periods during the winter when activities would be temporarily suspended for weather conditions.

5.2.2 Backfill

It is anticipated that the material shipped off site from the excavations will be replaced with backfill from the DSSS. The estimated quantity of material in the DSSS is 38,000 CY. Backfill will proceed simultaneously with the excavation but following verification of excavation completion. Backfill activities may be somewhat limited during the winter period in order to minimize placement of frozen soil and to assure adequate construction quality control. Final Site grades of backfilled areas will be similar to pre-excavation grades. The overall grades at the Site will remain nearly flat.

Borrow materials will be obtained from off-site sources as necessary to supplement the DSSS volume or for special circumstances. Clean concrete excavated on site may be used as backfill. Topsoil for the soil covers will be obtained off site.

5.2.3 Staging and Load Out

Soil will be stockpiled in staging areas in designated portions of the Site prior to transport to the disposal facility. In these areas, excavated materials will be blended as necessary for material handling characteristics, sampled for characterization, and eventually loaded into trucks for off-site disposal or backfilled on site.

Berms or drainage swales are to be constructed around all contaminated material staging areas to control run-on and runoff. To the extent practical, material to be shipped off-site will be staged in areas that will later be excavated. As excavation activities proceed to the staging area, the staging area will be deactivated (load out soil from existing stockpiles) and reestablished in a location near the remaining excavation. For material that will be shipped off site but must be staged in areas that will not be excavated, the staging areas will be lined with polyethylene sheeting.

Material that is not to be shipped off-site will be staged on the ground in areas that are not scheduled to be excavated. Clean debris will be staged in an area outside of the exclusion zone and sized, if necessary, for backfilling or disposal.

The excavated soil in the staging areas will be loaded into trucks for off-site transportation and disposal or backfill on site, according to the material characterization. In the conceptual plan on Figure 3, trucks will enter the Site through the southeast gated Site entrance. The trucks will remain on the haul roads adjacent to the exclusion zones for loading of soil from the staging areas, and thus will not require decontamination (except to manage incidental spillage during loading) when leaving the Site.

5.2.4 Water Management

Rainfall, runoff, and surface water will be encountered during the remedial action. Rainfall or standing water will be allowed to infiltrate and/or evaporate. In general, runoff will be diverted around the excavation and staging areas. Runoff will also be controlled to eliminate the potential for off-site migration of contaminants into the nearby storm sewers or surface water bodies.

Water from the decontamination activities will be collected, treated on site using particulate filtration and carbon filtration, and either discharged to an open excavation area or used during backfilling operations to enhance the compaction of the granular backfill materials. Protocols will be developed for sampling treated water to demonstrate adequacy of treatment. The adequacy of the treatment system will be demonstrated on the first batch of water, prior to release of the water. Subsequent batches of water will be treated and discharged without awaiting sample results.

5.2.5 Debris Management

Debris encountered during the excavation is to be segregated and stockpiled in a staging area. Expected types of debris include wood, chunks of buried pavement or concrete, reinforcing bar, scrap metal, glass, bricks, piping, etc. Debris may constitute 10 percent of the material excavated, much more in some areas. Intact concrete structures will remain in-place during excavation and excavation of soil and tar will proceed around the structure. However, concrete demolition debris will be excavated and sized.

All debris is to be crushed in order to meet landfill acceptance and backfill requirements. Criteria will be developed to determine if debris is suitable for backfill or will require off-site disposal. Debris that is considered contaminated will be disposed of with the ARZ and PRZ material. Debris that is not considered contaminated will be backfilled on site if suitable, recycled, or disposed of as demolition material. The details of these criteria and sampling/analysis procedures will be in the sampling and analysis plan. Debris that cannot be sized to meet the landfill requirement will be segregated and disposed of separately.

5.2.6 Emergency Procedures

The scope of a contingency plan will be discussed at the Soil Design Progress Meeting. The contingency plan is to address emergency issues that may occur during the Remedial Action. Potential emergency issues could include the following:

- Accident
- Buried drums

- Underground storage tanks
- Fire
- Severe weather, such as a tornado or severe electrical storm
- Biological hazards

The contingency plan will require that the U.S. EPA be notified in the event of any of the above incidents. The contractor will develop a health and safety plan for the Site and will address procedures for responding to accidents or similar emergencies. The contingency plan will address procedures for responding to any unidentified drums, containers, or other unexpected waste items encountered during excavation.

5.3 Preliminary Identification of Construction Quality Control

Design requirements will be developed for the following construction items:

- Off-site borrow materials and topsoil: testing of representative samples for contamination and for physical properties
- Compaction of backfill and soil covers
- Soil cover thickness verification (minimum thickness of six inches)
- Vegetation establishment
- Dust Control
- Odor Control

These requirements will be detailed in the sampling and analysis plan and the construction quality control plan.

5.4 Contracting Strategy

A competitive bidding process will be used to select a remedial action contractor. Performance based plans and technical specifications will be prepared for use in the competitive bidding process and for Remedial Action construction. A preliminary outline of the technical specifications for the work is included in Appendix I.

The selected remedial action contractor will be responsible for managing the waste material from excavation through off-site disposal. It will be the responsibility of the remedial action contractor to complete the specified tasks in accordance with applicable local, state, and federal regulations.

5.5 Preliminary Schedule

The preliminary schedule is summarized on Figure 4. The schedule has been structured to accommodate remedial action fieldwork beginning in the fall of 2003 with backfill, cover placement, and vegetation establishment in 2004. Fall/winter excavation is targeted in order to avoid congestion associated with the Public Beach located just east of the Site.

The schedule assumes the submittal and review schedule is maintained and there are no interruptions in the design progress. Consequently, approval of the soil final design by U.S. EPA is anticipated by June 18, 2003. The schedule also assumes that the bidding process will begin prior to U.S. EPA approval of the design. However, bids will not be due until after the U.S. EPA has approved the design, to allow for minor addendums to bid items as necessary.

Mobilization of the remedial action contractor is anticipated in the fall of 2003. The remedial action schedule includes the following key assumptions:

- Equipment mobilization and site preparation time of 6 weeks.
- The excavation volumes and excavation limits as summarized in Section 2.0
- An average load out and disposal of 550 CY (in place soil volume) per day
- The absence of significant delays or contingency plan events.

It is anticipated that the excavation work will be completed in the winter of 2003/2004. However, backfilling (frozen soil conditions may delay placement of the final three feet of backfill until spring), site restoration, soil cover, and seeding are likely to be performed in the spring of 2004. Conditions that may impose schedule delays include wet weather, snow and ice conditions, nesting birds, and other adverse circumstances.

6.0 External Relations

External relations presented in this section consist of 3 items: (1) access, (2) real estate, easement, and permit requirements, and (3) assistance with community relations for construction.

6.1 Access

The Site is owned by the City of Waukegan and by Larsen Marine. A provision of a future Consent Decree for implementation of the soil remedy design must assure access from the City of Waukegan and Larsen Marine Service, Inc., for all Remedial Action work.

6.2 Real Estate, Easement, and Permit Requirements

No real estate requirements have been identified for the soil remedy implementation at the Site.

Remediation work, including excavation of PAH and /or arsenic zone materials will extend east onto the parking and turfed areas near the former OMC IT building. This property is part of the Site, and is owned by the City of Waukegan.

Remediation work, including excavation of PAH zone materials, will extend south onto the parking area used by Bombardier, Inc. This property is part of the Site, and is owned by the City of Waukegan. Construction support activity may need to extend south of the City-owned property. The WCP Group will coordinate with Bombardier on this work, but does not expect to need to acquire a construction easement.

Excavation activities may encounter underground power supply lines serving Bombardier. Commonwealth Edison will be contacted to arrange safety and service supply continuity matters for the period when excavation will be near these lines.

Power supply lines to light standards in the excavation area will be disconnected, and disturbed lines will not be replaced.

No permits are required for the on-site work. The work will be conducted to meet the substantive requirements for fugitive particle matter (IAC 35 Subpart B, Part 212, Subpart K) and for odors (IAC 35 Subpart B, Part 245).

The contractor will be contractually required to conduct all off-site transportation and disposal activities in compliance with applicable rules and regulations, including acquisition of permits or approvals as required by law.

6.3 Community Relations

The WCP Group will cooperate with the U.S. EPA in the U.S. EPA's community relations activities. If so requested, the WCP Group will be prepared to assist U.S. EPA with construction progress updates at meetings of the Waukegan Harbor Citizen's Advisor Group.

The property owners at and immediately adjacent to the site are Larsen Marine, the City of Waukegan and Bombardier. They will be contacted to establish liaison for coordination of construction activities.

The WCP Group and the selected remediation contractor will exchange contact names and numbers with Larsen, the City, and Bombardier, including after-hours emergency contacts. During the construction project, the WCP Group will communicate schedules and anticipated activity and receive concerns through these contact people.

During the design work, following receipt of the EPA's comments on the Preliminary Design, the WCP Group will request meetings with Larsen Marine, Bombardier, and the City of Waukegan. The agenda for these meetings will include the likely extent of excavation, the constraints that should be observed by the Remedial Action contractor and by the property owners, scheduling of work, identification of liaisons, and specific concerns the property owners may have, such as odors, dust, traffic, and disruptions to their normal activities.

Tables

Table 1

ROD Soil Cleanup Levels
Waukegan Manufactured Gas and Coke Plant Site
Waukegan, Illinois

Chemical	Commercial/Industrial RHE[1] mg/kg[2]	Utility/Construction RHE mg/kg
Arsenic	2,050	940
Benzo(a)anthracene	1,500	1,160
Benzo(a)pyrene	150	116
Benzo(b)fluoranthene	1,500	1,160
Dibenzo(a,h)anthracene	150	116
Indeno(1,2,3-cd)pyrene	1,500	1,160
Dibenzofuran	NA	5,390
4-Methylphenol	NA	6,738
Napthalene	NA	48,556

[1] RHE - Representative high exposure
[2] mg/kg - milligram per kilogram

Table 2

Soil Preliminary Design Excavation Quantities and Assumptions
Waukegan Manufactured Gas and Coke Plant Site
Waukegan, Illinois

Remediation Zone	Volume (cy, in-place)	Weight (tons)
PAH		
PAH Soil	2,500	4,250
Tar/Tar Saturated Soil	26,000	44,200
Total PAH	28,500	48,450
Designated Soil Stockpile	4,000	6,800
Arsenic	6,000	10,200

Item	Assumption
In-place soil density	1.7 tons/cubic yard
Debris volume of excavated material	10% by weight
Soil volume expansion	28%

Table 3

Dredged Spoils Soil Stockpile (DSSS) Data Summary
Waukegan Manufactured Gas and Coke Plant Site
Waukegan, Illinois

(concentrations in mg/kg)

CHEMICAL	RHE	SB-3003 4.5-6.5' 10/1993	SB-3007 14.5-16.5' 10/1993	SB-3009 19.5-21.5' 10/1993	SB-3103 4.5-6.5' 10/1993	SB-3107 14.5-16.5' 10/1993	SB-3110 22-24' 10/1993	SB-237* 0-10' 07/2002	SB-238* 0-10' 07/2002	SB-239* 2.5-12.5' 07/2002
Cancer Risk: 1.0 x 10^{-6}										
Total PCBs	16.5	1.95 P	0.14	ND	ND	0.81P	0.038 J	0.13	0.17	ND
Arsenic	94	9.8 J	3.5 J	1.4 BJ	6.0 J	1.6 BJ	1.2 BJ	3.4	7.7	4
Benzene	238	ND (0.012)	ND (0.011)	ND (0.012)	ND (0.011)	ND (0.011)	ND (0.012)	ND (0.006)	ND (0.0083)	ND (0.0057)
Benzo(a)anthracene	116	15	ND (0.043)	ND (0.049)	0.16 J	0.39	ND (0.049)	0.35	1.4	1.6
Benzo(a)pyrene	11.6	13	ND (0.044)	ND (0.051)	0.15 J	0.3 J	ND (0.051)	ND (0.34)	1.4	1.4
Benzo(b)fluoranthene	116	19	ND (0.031)	ND (0.035)	0.18 J	0.41	ND (0.035)	0.43	1.9	1.8
Dibenzo(a,h)anthracene	11.6	1.5 J	ND (0.047)	ND (0.054)	0.035 J	0.075 J	ND (0.054)	ND (0.34)	ND (0.48)	ND (1.4)
Indeno(1,2,3,cd)pyrene	116	2.3 J	ND (0.043)	ND (0.05)	ND (0.081)	0.17 J	ND (0.05)	ND (0.34)	0.7	ND (1.4)
Non-Cancer Risk: HI=1										
Dibenzofuran	5,390	1 J	ND (0.041)	ND (0.047)	0.058 J	0.12 J	ND (0.047)	ND (0.34)	ND (0.48)	ND (1.4)
4-Methylphenol	6,738	NA	NA	NA	NA	NA	NA	ND (0.34)	ND (0.48)	ND (1.4)
Naphthalene	48,556	2.7 J	ND (0.046)	ND (0.053)	0.49	0.29 J	ND (0.053)	ND (0.34)	0.76	ND (1.4)

Footnotes:

ND: Not detected

NA: Not Analyzed

* VOC sample collected from 2-foot section of interval

RHE: Representative High Exposure

B: The reported value is less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection limit (IDL).

J: Associated value is qualified as an estimate. The value is considered acceptable and usable.

P: Greater than 25 percent difference for detected concentrations between primary and confirmation GC columns, result reported is the lower of the two values.

Note: The 1993 sample names are composed of the boring number (SB-30 or SB-31) and the sample sequence number (03, 07, etc.).

Table 3

Dredged Spoils Soil Stockpile (DSSS) Data Summary
Waukegan Manufactured Gas and Coke Plant Site
Waukegan, Illinois

(concentrations in mg/kg)

CHEMICAL	RHE	SB-240* 0-10.5' 07/2002	SB-241* 0-10' 07/2002	SB-242* 5-15' 07/2002	SB-243* 2-12' 07/2002	SB-244* 6-16' 07/2002	SB-245* 0-10' 07/2002	SB-246* 4-14' 07/2002
Cancer Risk: 1.0 x 10^{-6}								
Total PCBs	16.5	0.86	3.9	9.2	0.73	1.4	0.9	0.98
Arsenic	94	5.8	7	4.5	9.3	4	6.2	5.6
Benzene	238	ND (0.007)	ND (0.0088)	NDJ (0.013)	NDJ (0.0062)	NDJ (0.0081)	NDJ (0.0084)	ND (0.0067)
Benzo(a)anthracene	116	9.5	0.35	0.66	0.84	ND (0.34)	0.47	15
Benzo(a)pyrene	11.6	6.5	ND (0.35)	0.61	0.64	ND (0.34)	0.41	9.1
Benzo(b)fluoranthene	116	7.5	0.39	0.74	1	0.35	0.57	13
Dibenzo(a,h)anthracene	11.6	ND (2.7)	ND (0.35)	ND (0.35)	ND (0.34)	ND (0.34)	ND (0.34)	ND (7.3)
Indeno(1,2,3,cd)pyrene	116	ND (2.7)	ND (0.35)	0.35	0.38	ND (0.34)	ND (0.34)	ND (7.3)
Non-Cancer Risk: HI=1								
Dibenzofuran	5,390	ND (2.7)	ND (0.35)	0.61	ND (0.34)	ND (0.34)	ND (0.34)	ND (7.3)
4-Methylphenol	6,738	ND (2.2)	ND (0.35)	ND (0.35)	ND (0.34)	ND (0.34)	ND (0.34)	ND (7.3)
Naphthalene	48,556	ND (2.7)	ND (0.35)	2.3	0.59	ND (0.34)	ND (0.34)	ND (7.3)

Footnotes:

ND: Not detected

NA: Not Analyzed

* VOC sample collected from 2-foot section of interval

RHE: Representative High Exposure

B: The reported value is less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection limit (IDL).

J: Associated value is qualified as an estimate. The value is considered acceptable and usable.

P: Greater than 25 percent difference for detec ted concentrations between primary and confirmation GC columns, result reported is the lower of the two values.

Note: The 1993 sample names are composed of the boring number (SB-30 or SB-31) and the sample sequence number (03, 07, etc.).

Table 4

Disposal Options Cost Summary
Waukegan Manufactured Gas and Coke Plant Site
Waukegan, Illinois

Disposal/Treatment Method	Disposal $/ton	Transportation $/ton	Total T&D $/ton
Co-Burning - PA	$25-$40	$63	$88-$103
Co-Burning - UT	$25-$40	$60	$85-$100
Thermal desorption	$50-$65	$30-$35	$80-$100
Subtitle D Landfill			
Clean Harbors	$45	$15	$60
Waste Management	$26	$5	$31
Subtitle C Landfill			
Clean Harbors	$199	$55	$254
Waste Management (MGP TCLP Exempt)	$34	$20	$54
On-site Stabilization (geotechnical correction) of ARZ soil	--	--	$20-$30

Notes:

1. Co-burning transportation costs assume trucking to PA and rail to UT.
2. Total thermal desorption unit costs include testing and treatment as well as transportation and disposal.
3. Clean Harbors landfill transportation costs assume trucking to local Subtitle D facility and rail to out-of-state Subtitle C facility.
4. Waste Management transportation costs assume $100/load @ 20 tons/load (Subtitle D) and $300/load @ 20 tons/load (Subtitle C).
5. On-site stabilization assumes DSS~~8~~7 soil is used as structural soil addition.

Table 5

Chemical-Specific ARARs for Soil
Waukegan Manufactured Gas and Coke Plant Site
Waukegan, Illinois

Regulation	Requirement	ARAR Status	Analysis
	Soil and Groundwater		
35 Illinois Administrative Code, Part 742, Tiered Approach to Corrective Action Objectives (TACO)	TACO establishes a framework for determining soil cleanup standards, for developing groundwater quality objectives, and for establishing institutional controls.	To be considered.	Provides guidance for development of site-specific soil and groundwater remediation objectives. The soil remediation standards were developed using risk assessment procedures consistent with TACO Tier 3 requirements.
TSCA	Establishes requirements and thresholds for management of PCBs.	Relevant and appropriate.	TSCA is relevant and appropriate to defining the management of PCBs in soils. The Consent Decree for the OMC/Waukegan Harbor Site (see Location-Specific ARARs) establishes the relevant application of TSCA to this site.
CERCLA Guidance Land Use in the CERCLA Remedy Selection Process	Establishes appropriate considerations in defining future land use.	To be considered.	Provides guidance to U.S. EPA in selecting land use for remedy selection purposes. In the ROD U.S. EPA has selected industrial/commercial land use as the basis for site cleanup.

Table 6

Location-Specific ARARs for Soil
Waukegan Manufactured Gas and Coke Plant Site
Waukegan, Illinois

Location-Specific Concern	Requirement	Prerequisite	Citation	ARAR Status	Analysis
Consent Decree for the Outboard Marine Corporation/Waukegan Harbor site	Actions must be consistent with the Consent Decree and Record of Decision (as amended) for the Waukegan Harbor site	The Consent Decree became effective April 27, 1989.	Outboard Marine Corporation/Waukegan Harbor site court administered consent decree in the case of the United States of America and the People of the State of Illinois v. OMC	Potentially applicable	Establishes site use restrictions for operation of hazardous waste storage units, land transfer restrictions, and sets a PCB remediation standard of 50 mg/kg.

Table 7

Action-Specific ARARs for Soil
Waukegan Manufactured Gas and Coke Plant
Waukegan, Illinois

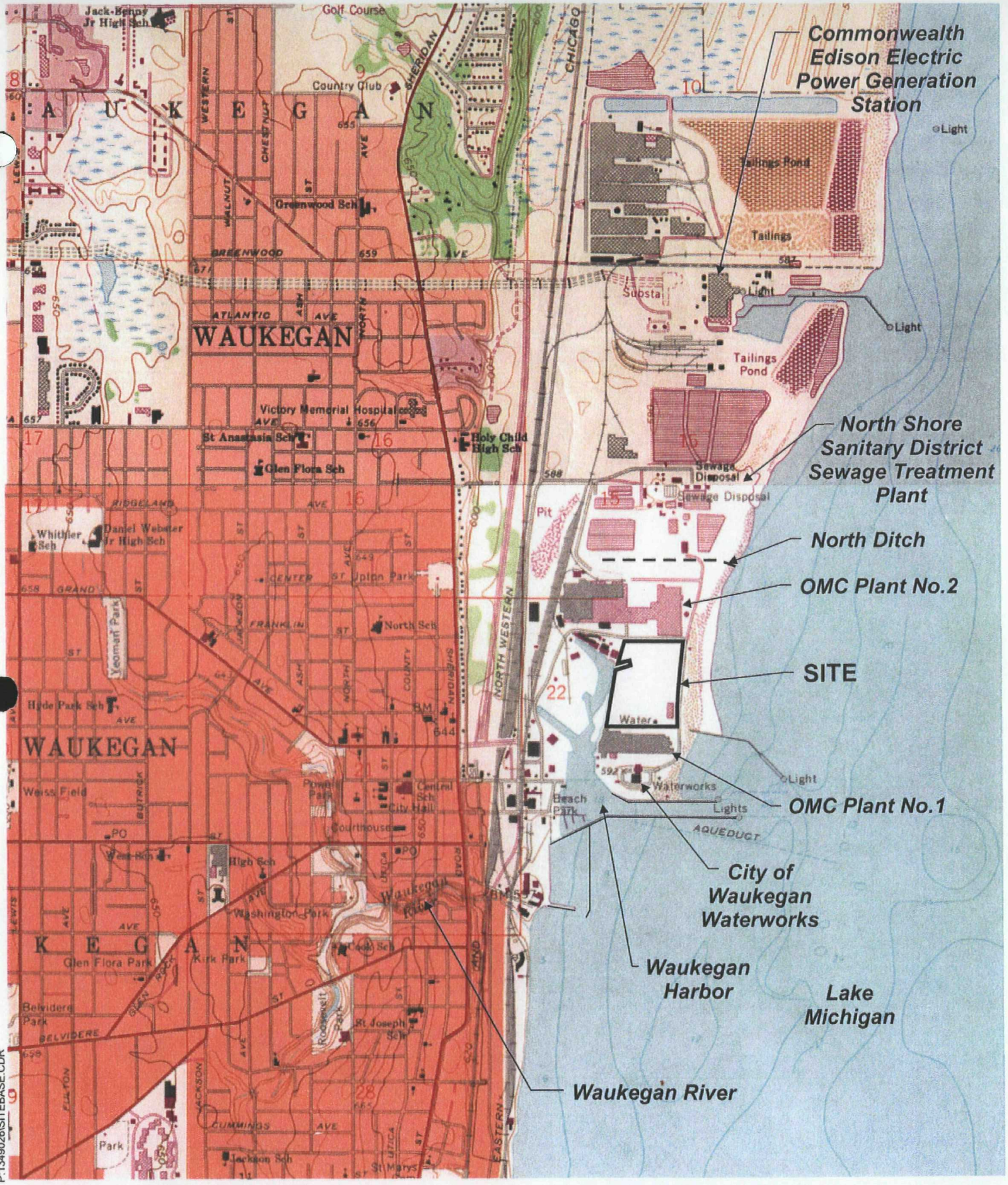
Regulations	ARAR Status	Analysis for ROD Remedial Action
Federal Requirements		
Clean Air Act		
National Ambient Air Quality Standards (NAAQS) Section 109 (40 CFR 50) NAAQS specify the maximum concentration of the pollutant, which is to be permitted in the ambient air, as averaged over a specified time period. NAAQS created for carbon monoxide, lead, nitrogen dioxide, particulate matter, ozone, and sulfur dioxide. Preconstruction review for new sources.	Relevant and appropriate to remedial actions that include emissions to the atmosphere. On-site CERCLA actions are exempt from permitting; however, the remedial action is obligated to comply with the substantive requirements of air regulations and emissions standards.	NAAQS exist for particulate matter (as PM10 and PM2.5) and may require monitoring to demonstrate compliance with the standard.
State Implementation Plan (SIP) Section 110 (40 CFR 51) Development of SIP for implementation, maintenance, and enforcement of NAAQS in air quality control regions. State sets requirements for emission sources in order to achieve NAAQS.	Not an ARAR. State air regulations developed under SIP.	Actions to satisfy the NAAQS will satisfy the SIP.
Occupational Safety and Health Act		
29 U.S.C. 651 29 CFR 1910 29 CFR 1910.126 General Industry Standards—Protection of worker health at hazardous waste operations. Requires training, protective equipment, proper handling of wastes, monitoring of employee health, and emergency procedures for workers at hazardous waste operations.	Applicable. OSHA applies to all workers on the site during construction and operation of remedial actions.	The remedial action contractor will prepare and enforce a health and safety plan for the site for construction activities, in accordance with these regulations.

Table 7

Action-Specific ARARs for Soil
Waukegan Manufactured Gas and Coke Plant
Waukegan, Illinois

Regulations	ARAR Status	Analysis for ROD Remedial Action
29 CFR 1926 Safety and health standard.	Potential ARAR. Applies to all workers.	The remedial action contractor will prepare and enforce a health and safety plan for the site for construction activities, in accordance with these regulations.
State Requirements		
Waste Disposal Illinois Adm. Code Title 35 Subtitle G Chapter 1		
Subchapter f Site remediation program. Development of risk-based remediation objectives.	May be relevant and appropriate for waste excavated. Risk based cleanup goals were developed in Chapter 3 of Feasibility Study.	Risk based cleanup goals were developed consistent with pertinent guidance and are being used in accordance with the 1999 ROD.
Subchapter I, Parts 807-810 Solid Waste and Special Waste Hauling	May be applicable to solid waste/special waste, possibly including wastewater sludge, stored on site prior to off-site disposal.	Off-site transport of PRZ and ARZ material from the site must comply with these regulations.
Air Pollution Illinois Adm. Code Title 35 Subtitle B		
Part 212, Subpart K (Fugitive Particulate Matter). Site construction activities would be subject to Sections 212.304 to .310 and .312 which relate to dust control.	Potential ARAR. Remedial action may generate fugitive dust. Rules require dust control for storage piles, on-site traffic, and processing equipment. An operating program (plan) is required and is to be designed for significant reduction of fugitive emissions.	The contractor will be required to prepare and execute a dust control plan.
Part 245 Odors May apply if pollutants have strong odors that are determined to be a nuisance.	Potential ARAR. Excavation of soil may create odors.	Conducting the PRZ excavation during cool weather will minimize nuisance odors.
Part 900 Noise: General Provisions; may apply if sustained noise intensity exceeds nuisance levels.	Potential ARAR. Excavation and truck transportation will generate noise.	Work is being performed in an industrial area. There are no residents, so no nuisance noise mitigation is anticipated.

Figures

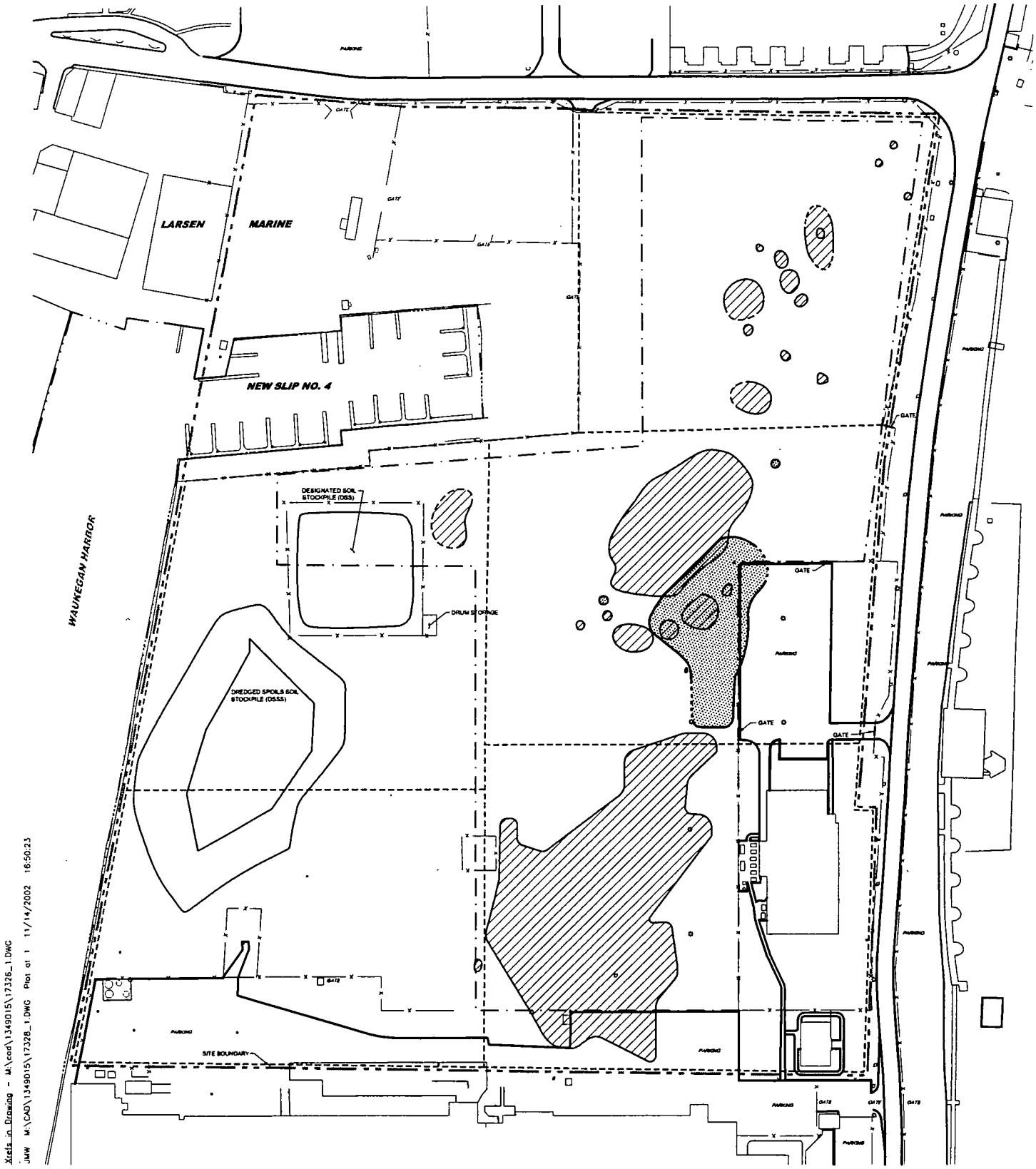


0 2000 4000

Scale in Feet

Figure 1

SITE LOCATION
Waukegan Manufactured Gas and Coke Plant



0 200 400

SCALE IN FEET

LEGEND

PAH REMEDIATION ZONE

ARSENIC REMEDIATION ZONE

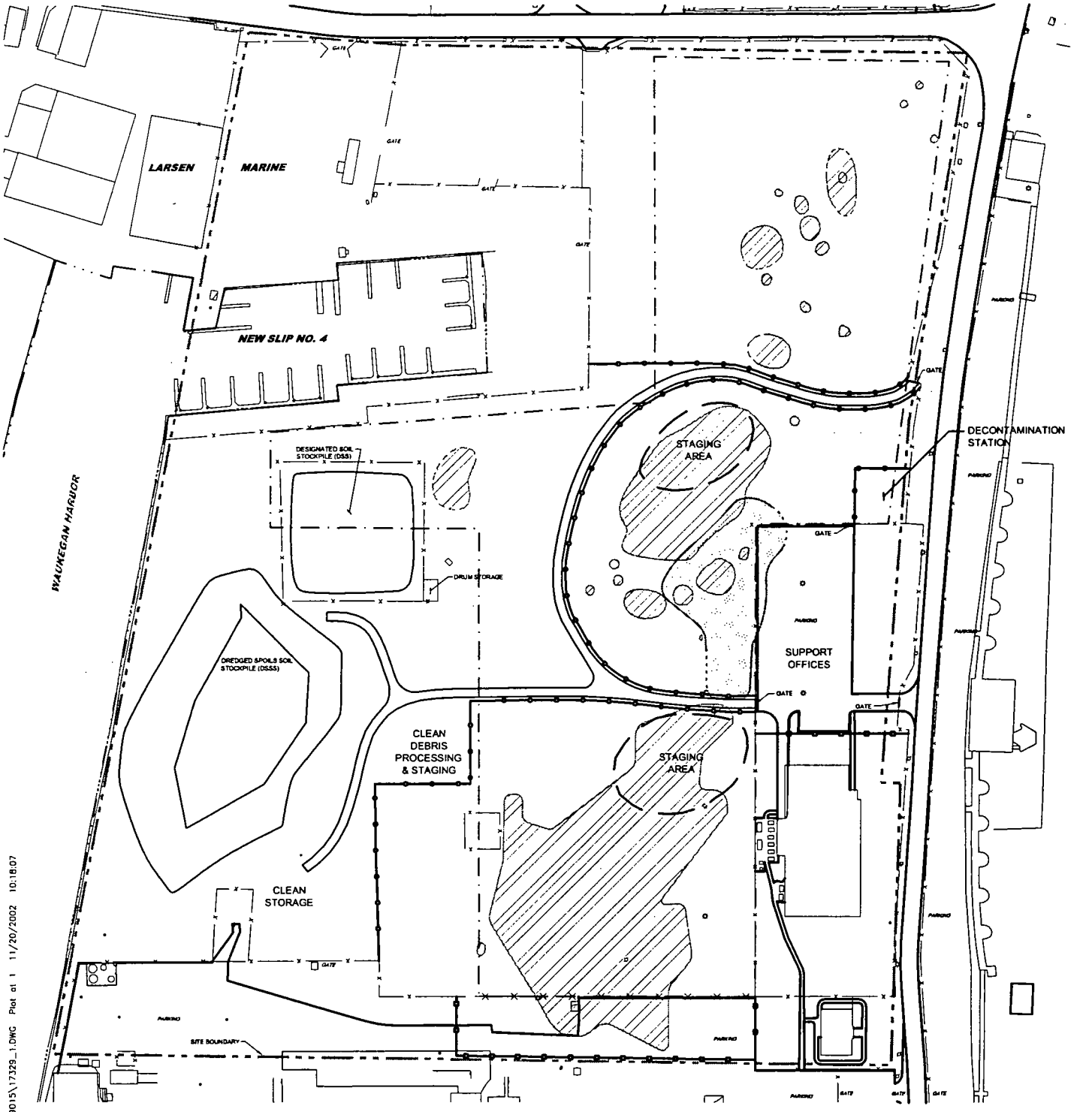
MARGINAL SOIL ZONE

5-ACRE DOMAINS

N

Figure 2

REMEDIATION ZONES
Waukegan Manufacturered Gas
and Coke Plant Site
Waukegan, Illinois



Xrefs in Drawing - M:\cad\1349015\17326_1.DWG
JMW M:\CAD\1349015\17329_1.DWG Plot at 1 11/20/2002 10:18:07

LEGEND

- PAH REMEDIATION ZONE
- ARSENIC REMEDIATION ZONE
- MARGINAL SOIL ZONE
- PROPOSED FENCELINE
- EXISTING FENCE TO BE REMOVED
- EXISTING FENCE TO REMAIN
- CONSTRUCTION FENCELINE
- 12' WIDE HAUL ROAD

N

0 200 400

SCALE IN FEET

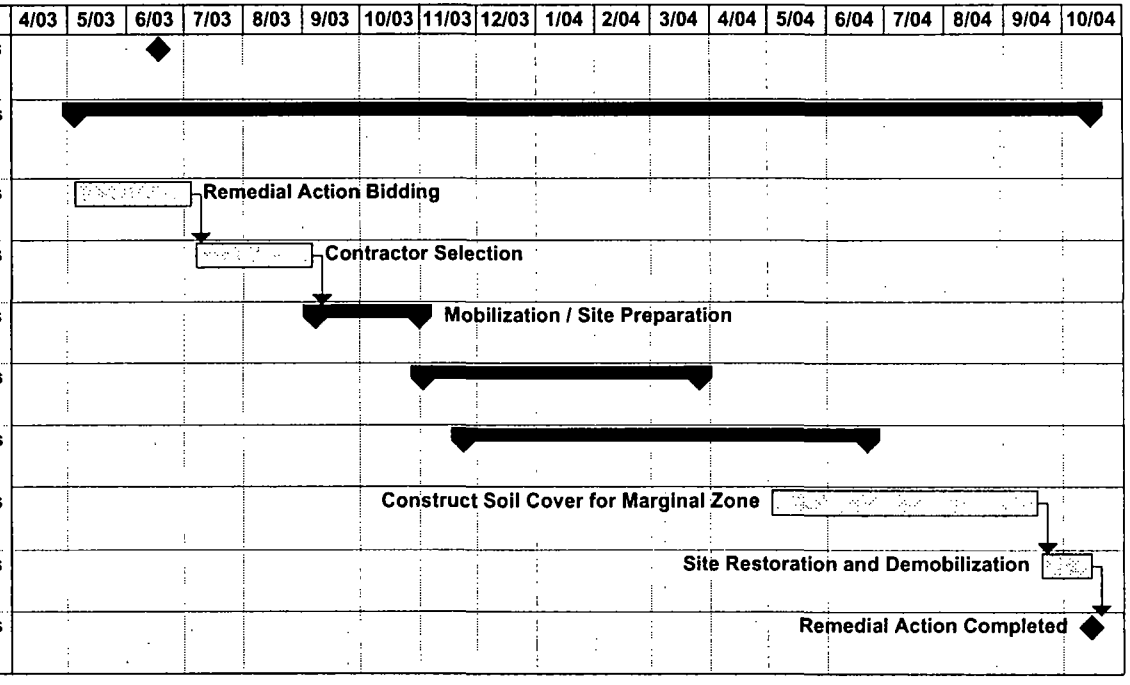
Figure 3

CONCEPTUAL SITE PLAN
Waukegan Manufacturered Gas and Coke Plant Site
Waukegan, Illinois

Figure 4

Preliminary Schedule for Soil Remedial Action
Waukegan Manufactured Gas and Coke Plant Site
Waukegan, Illinois

ID	Task Name	Duration
1	**EPA Approves Final Soil Remedial Design**	0 days
2	**Remedial Action**	**380 days**
3	Remedial Action Bidding	45 days
4	Contractor Selection	45 days
5	**Mobilization / Site Preparation**	40 days
11	**Excavate PRZ, ARZ**	**105 days**
17	**Backfill**	**151 days**
21	**Construct Soil Cover for Marginal Zone**	100 days
22	**Site Restoration and Demobilization**	20 days
23	**Remedial Action Completed**	0 days



Appendices

Appendix A

Soil Pre-Design Study Data

CONESTOGA-ROVERS
& ASSOCIATES

1811 Executive Drive, Suite O, Indianapolis, IN 46241
Telephone: 317-381-0677 Facsimile: 317-381-0670
www.CRAworld.com

September 13, 2002

Reference No. 019023-50

Mr. Kevin R. Adler
Remedial Project Manager
Superfund Division
U.S. Environmental Protection Agency - SR-6J
77 West Jackson Blvd.
Chicago, Illinois 60604

Dear Mr. Adler:

Re: Waste Characterization Plan
Waukegan Manufactured Gas and Coke Site
Waukegan, Illinois

OVERVIEW

The purpose of this letter is to provide the United States Environmental Protection Agency (U.S. EPA) with a plan for completing waste characterization activities associated the soil pre-design study. In accordance with Section 4.4.3 of the Soil Pre-Design Study Work Plan, this Waste Characterization Plan provides the soil pre-design analytical results, identifies the number of composite soil samples to be developed and analyzed, and identifies which of the samples collected during the soil pre-design study will be composited for waste characterization analysis.

Work completed during the soil pre-design study included a surface inspection for tar deposits, excavation of 53 test pits, and advancement of 33 soil borings to investigate Site soil (Figure 1). Samples were collected from multiple depth intervals and locations within selected test pits and soil borings. Samples collected were analyzed for arsenic and/or polynuclear aromatic hydrocarbons (PAHs). In addition, selected samples were analyzed for waste characterization analyses.

The locations of test pits excavated and soil borings advanced during the soil pre-design investigation are depicted on Drawing No. 1. Pre-design soil analytical data are provided in Table 1 (samples collected from test pits) and Table 2 (samples collected from soil borings). Waste characterization data obtained during the soil pre-design study are provided in Table 3. Figure 2 provides a summary of detected PAH concentrations above Record of Decision (ROD) cleanup levels. Figure 3 provides a summary of the arsenic analytical data.

Please feel free to contact me should you have any questions or comments on this matter.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Steven J. Wanner, L.P.G.

SJW/br/07
Encl.

c.c.: J. Keiser; CH2M Hill
P. Smith; CH2M Hill
E. Rednour; IEPA (2)
S. Matuszak; Peoples Energy
J. Langseth; Barr Engineering
J. Campbell; EMI
A. Van Norman; CRA
S. Castagneri; CRA
W. Pochron; CRA

NO	Revision	Date	Initial

0 40 80ft

LEGEND:

- EXISTING PROPERTY BOUNDARY
- EXISTING FENCE LINE
- EXISTING POWER POLE
- MW-7S — MONITORING WELL LOCATION AND IDENTIFIER
- SB-7 — SOIL BORING LOCATION AND IDENTIFIER (BY BARR)
- TT 02 — TEST TRENCH LOCATION AND IDENTIFIER (BY BARR)
- TP 100 — TEST PIT LOCATION AND IDENTIFIER (CRA)
- SB-208 — SOIL BORING LOCATION AND IDENTIFIER (BY CRA)
- DS 1 — SOIL BORING LOCATION AND IDENTIFIER (BY BARR)
- S-036 — SOIL SAMPLING LOCATION

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

Status	Date	Initial

WAUKEGAN, ILLINOIS

WAUKEGAN COKE SITE

TEST EXCAVATION, SOIL BORINGS AND SOIL SAMPLING LOCATIONS

CONESTOGA-ROVERS & ASSOCIATES

Source References:

Project Manager:	Reviewed By:	Date:	
A. VAN NORMAN	W. POCHRON	JULY 25, 2002	
Scale: as shown	Project NR: 19023-50	Report NR: ADLE009	Drawing NR: 1

19023 ADLE FORMAT COM01 SEP 18/2002

ROD SOIL CLEANUP LEVELS
WAUKEGAN MANFUCATURED GAS AND COKE PLANT SITE
WAUKEGAN, ILLINOIS

Chemical	Commercial/Industrial RHE mg/kg	Utility/Construction RHE mg/kg
Arsenic	2,050	940
Benzo(a)anthracene	1,500	1,180
Benzo(a)pyrene	150	118
Benzo(b)fluoranthene	1,500	1,180
Dibenzo(a,h)anthracene	150	118
Indeno(1,2,3-cd)pyrene	1,500	1,180
Dibenzofuran	NA	5,390
4-Methylphenol	NA	6,738
Naphthalene	NA	48,558

NO	Revision	Date	Initial

0 40 80ft

LEGEND:

- EXISTING PROPERTY BOUNDARY
- EXISTING FENCE LINE
- EXISTING POWER POLE
- MW-7S — MONITORING WELL LOCATION AND IDENTIFIER
- SB-7 — SOIL BORING LOCATION AND IDENTIFIER (BY BARR)
- TT 02 — TEST TRENCH LOCATION AND IDENTIFIER (BY BARR)
- TP 100 — TEST PIT LOCATION AND IDENTIFIER (CRA)
- SB-208 — SOIL BORING LOCATION AND IDENTIFIER (BY CRA) - NO PAH EXCEEDENCES
- DS 1 — SOIL BORING LOCATION AND IDENTIFIER (BY BARR) - NO PAH EXCEEDENCES
- S-036 — SOIL SAMPLING LOCATION
- S-023B — SOIL SAMPLING LOCATION WITH PAH EXCEEDENCE
- TAR OBSERVED OR EXCEEDENCE OF PAH SOIL CLEANUP LEVEL
- TP-133 (4-5.5 ft bgs) — SAMPLE LOCATION / SAMPLE INTERVAL FEET BELOW GROUND SURFACE
- S-094C — SAMPLE IDENTIFIER
- Naphthalene 230,000* — ANALYTE CONCENTRATION mg/kg; DETECTED COMPOUND
- * EXCEEDS CLEAN UP OBJECTIVE
- J THE ASSOCIATED VALUE IS AN ESTIMATED QUANTITY

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

Status	Date	Initial

WAUKEGAN, ILLINOIS

WAUKEGAN COKE SITE

PAH EXCEEDENCE IN SOIL

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:

Project Manager:	Reviewed By:	Date:	
A. VAN NORMAN	W. POCHRON	JULY 25, 2002	
Scale: as shown	Project NR: 19023-50	Report NR: ADLE009	Drawing NR: 2

19023 50\ANI PROPVEN CO002 SEP 04/2002

RDD SOIL CLEANUP LEVELS
WAUKEGAN MANFUCATURED GAS AND COKE PLANT SITE
WAUKEGAN, ILLINOIS

Chemical	Commercial/Industrial RHE mg/kg	Utility/Construction RHE mg/kg
Arsenic	2,050	940
Benzo(a)anthracene	1,500	1,180
Benzo(a)pyrene	150	118
Benzo(b)fluoranthene	1,500	1,180
Dibenzo(a,h)anthracene	150	118
Indeno(1,2,3-cd)pyrene	1,500	1,180
Dibenzofuran	NA	5,390
4-Methylphenol	NA	8,738
Naphthalene	NA	48,558

NO	Revision	Date	Initial

0 40 80ft

EXISTING PROPERTY BOUNDARY
EXISTING FENCE LINE
EXISTING POWER POLE
MW-7S MONITORING WELL LOCATION AND IDENTIFIER
SB-7 SOIL BORING LOCATION AND IDENTIFIER (BY BARR)
TT 02 TEST TRENCH LOCATION AND IDENTIFIER (BY BARR)
TP 100 TEST PIT LOCATION AND IDENTIFIER (CRA)
SB-208 SOIL BORING LOCATION AND IDENTIFIER (BY CRA)
DS 1 SOIL BORING LOCATION AND IDENTIFIER (BY BARR)
S-038 SOIL SAMPLING LOCATION
TP-107 ARSENIC SOIL SAMPLE LOCATION

SB-201	SAMPLE LOCATION
DEPTH S-202/S-203	SAMPLE IDENTIFIER
1-2 FT 11,300*	ARSENIC CONCENTRATION mg/kg
	SAMPLE INTERVAL FEET BELOW GROUND SURFACE

* EXCEEDS CLEAN UP OBJECTIVE

J THE ANALYTE WAS POSITIVELY IDENTIFIED; THE ASSOCIATED NUMERICAL VALUE IS THE APPROXIMATE CONCENTRATION OF THE ANALYTE IN THE SAMPLE

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

Status	Date	Initial

WAUKEGAN, ILLINOIS

WAUKEGAN COKE SITE

ARSENIC DISTRIBUTION IN SOIL

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:

Project Manager:	Reviewed By:	Date:	
A. VAN NORMAN	W. POCHRON	JULY 25, 2002	
Scale: as shown	Project No: 19023-50	Report No: ADLE009	Drawing No: 3

19023-50/ADLE009/DWG-0001 SEP 16/2002

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-100*	*TP-100*	*TP-100*	*TP-100*
CRA Sample I.D.				*6/3/2002*	*6/3/2002*	*6/3/2002*	*6/3/2002*
Sample Date				*S-060302-WP-001A*	*S-060302-WP-001B*	*S-060302-WP-001C*	*S-060302-WP-002A*
Sample Time				*12.20*	*12:25*	*12:25*	*12:28*
Test Pit Reference Location				*South End*	*South End*	*South End*	*South End*
Distance From Reference (feet)		*Commercial/Industrial RHE Criteria*	*Utility/Construction RHE Criteria*	*8*	*8*	*8*	*28*
Direction From Reference				*North*	*North*	*North*	*North*
Sample Interval (feet bgs)				*0-2 ft*	*2-4 ft*	*4-5.5 ft*	*0-2 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 76)	ND (0.39)	ND (0 38)	ND (0 34)
Benzo(a)anthracene	mg/Kg	1500	1160	4	1 6	1 7	ND (0 34)
Benzo(a)pyrene	mg/Kg	150	116	4 5	1.4	1 2	ND (0 34)
Benzo(b)fluoranthene	mg/Kg	1500	1160	8 8	2.1	1 8	0 37
Dibenz(a,h)anthracene	mg/Kg	150	116	1.2	ND (0 39)	ND (0 38)	ND (0 34)
Dibenzofuran	mg/Kg	NA	5390	ND (0.76)	ND (0 39)	0.38	ND (0.34)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	2 8	0 87	0 48	ND (0 34)
Naphthalene	mg/Kg	NA	48556	ND (0 76)	0 71	0 89	ND (0 34)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	86 7	85 1	85 8	97 1

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-100*	*TP-100*	*TP-100*	*TP-100*
CRA Sample I.D.				*6/3/2002*	*6/3/2002*	*6/3/2002*	*6/3/2002*
Sample Date				*S-060302-WP-002B*	*S-060302-WP-002C*	*S-060302-WP-003A*	*S-060302-WP-003B*
Sample Time				*12:30*	*12:32*	*12:35*	*12:37*
Test Pit Reference Location				*South End*	*South End*	*South End*	*South End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*28*	*28*	*40*	*40*
Direction From Reference		*RHE*	*RHE*	*North*	*North*	*North*	*North*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*2-4 ft*	*4-5.5 ft*	*0-2 ft*	*2-4 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (1 5)	ND (39)	ND (0 38)	ND (0.36)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (1 5)	ND (39)	ND (0 38)	ND (0 36)
Benzo(a)pyrene	mg/Kg	150	116	3 9	ND (39)	ND (0 38)	ND (0 36)
Benzo(b)fluoranthene	mg/Kg	1500	1160	5	ND (39)	ND (0.38)	ND (0 36)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (1 5)	ND (39)	ND (0 38)	ND (0 36)
Dibenzofuran	mg/Kg	NA	5390	ND (1.5)	ND (39)	ND (0 38)	ND (0 36)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	2 6	ND (39)	ND (0 38)	ND (0.36)
Naphthalene	mg/Kg	NA	48556	9 8	190	ND (0 38)	ND (0 36)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	85 2	85 7	87 7	92 8

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-100*	*TP-101*	*TP-101*	*TP-101*
CRA Sample I.D.				*6/3/2002*	*6/3/2002*	*6/3/2002*	*6/3/2002*
Sample Date				*S-060302-WP-003C*	*S-060302-WP-004A*	*S-060302-WP-004B*	*S-060302-WP-005A*
Sample Time				*12:39*	*14.00*	*14:02*	*14.05*
Test Pit Reference Location				*South End*	*South End*	*South End*	*South End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*40*	*12*	*12*	*45*
Direction From Reference		*RHE*	*RHE*	*North*	*North*	*North*	*North*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*4-5.5 ft*	*0-2 ft*	*2-4 ft*	*0-2 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0.43)	ND (1 8)	ND (0 74)	ND (0 37)
Benzo(a)anthracene	mg/Kg	1500	1160	0 74	6 2	2 5	0 46
Benzo(a)pyrene	mg/Kg	150	116	0 68	4 1	1 8	0 4
Benzo(b)fluoranthene	mg/Kg	1500	1160	0.96	8.9	3.9	0.77
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 43)	ND (1 8)	ND (0 74)	ND (0 37)
Dibenzofuran	mg/Kg	NA	5390	0 75	ND (1 8)	ND (0 74)	ND (0 37)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0 43)	2 5	1 3	ND (0 37)
Naphthalene	mg/Kg	NA	48556	3	1.9	0 74	ND (0 37)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	77 1	75 3	89.6	88 2

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-101*	*TP-101*	*TP-101*	*TP-101*
CRA Sample I.D.				*6/3/2002*	*6/3/2002*	*6/3/2002*	*6/3/2002*
Sample Date				*S-060302-WP-005B*	*S-060302-WP-006A*	*S-060302-WP-006B*	*S-060302-WP-007*
Sample Time				*14:07*	*14:12*	*14:14*	*14:15*
Test Pit Reference Location				*South End*	*South End*	*South End*	*South End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*45*	*90*	*90*	*90*
Direction From Reference		*RHE*	*RHE*	*North*	*North*	*North*	*North*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*2-4 ft*	*0-2 ft*	*2-4 ft*	*2-4 ft*
Comment							*Duplicate*
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (4.5)	ND (0 36)	ND (29)	ND (73)
Benzo(a)anthracene	mg/Kg	1500	1160	33	0 68	ND (29)	ND (73)
Benzo(a)pyrene	mg/Kg	150	116	24	0 63	ND (29)	ND (73)
Benzo(b)fluoranthene	mg/Kg	1500	1160	33	1.2	ND (29)	ND (73)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (4.5)	ND (0 36)	ND (29)	ND (73)
Dibenzofuran	mg/Kg	NA	5390	15	ND (0.36)	ND (29)	ND (73)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	9.7	0.52	ND (29)	ND (73)
Naphthalene	mg/Kg	NA	48556	24	ND (0 36)	150 J	670 J
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	73.0	92 5	89 9	90 8

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				TP-101	TP-102	TP-102	TP-102
CRA Sample I.D.				S-060302-WP-006C	S-060302-WP-010A	S-060302-WP-010B	S-060302-WP-011A
Sample Date				6/3/2002	6/3/2002	6/3/2002	6/3/2002
Sample Time				14:16	15:20	15:22	15 24
Test Pit Reference Location				South End	East End	East End	East End
Distance From Reference (feet)		Commercial/Industrial RHE Criteria	Utility/Construction RHE Criteria	90	4	4	39
Direction From Reference				North	West	West	West
Sample Interval (feet bgs)				4-6 ft	0-2 ft	2-4 ft	0-2 ft
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (190)	ND (9 7)	ND (0 6)	ND (0 4)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (190)	77	2 2	1 7
Benzo(a)pyrene	mg/Kg	150	116	ND (190)	67	1 7	1 7
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (190)	77	2.3	2 5
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (190)	10	ND (0 6)	ND (0 4)
Dibenzofuran	mg/Kg	NA	5390	ND (190)	ND (9.7)	ND (0 6)	ND (0 4)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (190)	29	0 82	0 85
Naphthalene	mg/Kg	NA	48556	2800	ND (9 7)	ND (0.6)	ND (0.4)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	67.9	85 0	54 9	82 0

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-102*	*TP-102*	*TP-102*	*TP-103*
CRA Sample I.D.				*6/3/2002*	*6/3/2002*	*6/3/2002*	*6/5/2002*
Sample Date				*S-060302-WP-011B*	*S-060302-WP-012A*	*S-060302-WP-012B*	*S-060502-WP-013A*
Sample Time				*15 26*	*15:28*	*15.30*	*08:42*
Test Pit Reference Location				*East End*	*East End*	*East End*	*East End*
Distance From Reference (feet)		Commercial/Industrial	Utility/Construction	*39*	*82*	*82*	*44*
Direction From Reference		*RHE*	*RHE*	*West*	*West*	*West*	*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*2-4 ft*	*0-2 ft*	*2-4 ft*	*0-2 ft*
Comment							
Parameter	*Unit*						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 62)	ND (2100)	ND (19)	ND (1 1)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (0 62)	ND (2100)	ND (19)	ND (1 1)
Benzo(a)pyrene	mg/Kg	150	116	ND (0 62)	ND (2100)	ND (19)	ND (1 1)
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (0 62)	ND (2100)	ND (19)	ND (1 1)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 62)	ND (2100)	ND (19)	ND (1.1)
Dibenzofuran	mg/Kg	NA	5390	ND (0 62)	ND (2100)	ND (19)	ND (1 1)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0 62)	ND (2100)	ND (19)	ND (1 1)
Naphthalene	mg/Kg	NA	48556	ND (0 62)	16000	160	11
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	53 6	78 6	84 6	74 2

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				TP-103	TP-103	TP-103	TP-104
CRA Sample I.D.				6/5/2002	6/5/2002	6/5/2002	6/5/2002
Sample Date				S-060502-WP-013B	S-060502-WP-014A	S-060502-WP-014B	S-060502-WP-015A
Sample Time				08:44	08:46	08:48	09:30
Test Pit Reference Location				East End	East End	East End	East End
Distance From Reference (feet)		Commercial/Industrial	Utility/Construction	44	62	62	13
Direction From Reference		RHE	RHE	West	West	West	West
Sample Interval (feet bgs)		Criteria	Criteria	2-4 ft	0-2 ft	2-4 ft	0-2 ft
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (13000)	ND (0 37)	ND (0.39)	ND (0 4)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (13000)	ND (0 37)	ND (0 39)	1.1
Benzo(a)pyrene	mg/Kg	150	116	ND (13000)	ND (0 37)	ND (0 39)	0 84
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (13000)	ND (0 37)	ND (0 39)	1 6
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (13000)	ND (0 37)	ND (0 39)	ND (0 4)
Dibenzofuran	mg/Kg	NA	5390	ND (13000)	ND (0.37)	ND (0 39)	ND (0 4)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (13000)	ND (0 37)	ND (0 39)	0 41
Naphthalene	mg/Kg	NA	48556	85000	ND (0 37)	0 6	0 56
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	51.7	88 8	85 4	83 5

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-104*	*TP-104*	*TP-104*	*TP-104*
CRA Sample I.D.				*6/5/2002*	*6/5/2002*	*6/5/2002*	*6/5/2002*
Sample Date				*S-060502-WP-015B*	*S-060502-WP-015C*	*S-060502-WP-016A*	*S-060502-WP-016B*
Sample Time				*09:32*	*09:34*	*09:36*	*09.38*
Test Pit Reference Location				*East End*	*East End*	*East End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*13*	*13*	*33*	*33*
Direction From Reference		*RHE*	*RHE*	*West*	*West*	*West*	*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*2-4 ft*	*4-6 ft*	*0-2 ft*	*2-4 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (33)	ND (33)	530	ND (9 4)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (33)	88	1900	40
Benzo(a)pyrene	mg/Kg	150	116	ND (33)	42	910	26
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (33)	65	1400	46
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (33)	ND (33)	ND (270)	ND (9 4)
Dibenzofuran	mg/Kg	NA	5390	ND (33)	61	2200	12
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (33)	ND (33)	330	13
Naphthalene	mg/Kg	NA	48556	270	260	13000	78
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	80 0	81 0	79 0	70.5

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-104*	*TP-105*	*TP-105*	*TP-105*
CRA Sample I.D				*6/5/2002*	*6/5/2002*	*6/5/2002*	*6/5/2002*
Sample Date				*S-060502-WP-016C*	*S-060502-WP-017A*	*S-060502-WP-018*	*S-060502-WP-019A*
Sample Time				*09.40*	*10:26*	*10:26*	*10:28*
Test Pit Reference Location				*East End*	*East End*	*East End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*33*	*10*	*10*	*92*
Direction From Reference		*RHE*	*RHE*	*West*	*West*	*West*	*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*4-6 ft*	*0-2 ft*	*0-2 ft*	*0-2 ft*
Comment						*Duplicate*	
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 62)	ND (0.41)	ND (0.41)	ND (0 49)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (0 62)	1 6	1 7	ND (0 49)
Benzo(a)pyrene	mg/Kg	150	116	ND (0 62)	1.1	1 3	ND (0 49)
Benzo(b)fluoranthene	mg/Kg	1500	1160	0.63	2 1	2.4	ND (0 49)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 62)	ND (0.41)	ND (0 41)	ND (0 49)
Dibenzofuran	mg/Kg	NA	5390	0 65	ND (0 41)	ND (0 41)	ND (0 49)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0 62)	0 56	0 6	ND (0 49)
Naphthalene	mg/Kg	NA	48556	4 9	1.7	1.3	ND (0 49)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	52.9	80.3	79 9	66 8

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				TP-105	TP-106	TP-106	TP-106
CRA Sample I.D.				6/5/2002	6/6/2002	6/6/2002	6/6/2002
Sample Date				S-060502-WP-019B	S-060602-WP-021A	S-060602-WP-021B	S-060602-WP-022A
Sample Time				10:30	08:45	08:47	08:50
Test Pit Reference Location				East End	South End	South End	South End
Distance From Reference (feet)		Commercial/Industrial RHE Criteria	Utility/Construction RHE Criteria	92	19	19	60
Direction From Reference				West	North	North	North
Sample Interval (feet bgs)				2-4 ft	0-2 ft	2-4 ft	0-2 ft
Comment							
Parameter	**Unit**						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	0 89	ND (1)	ND (0 45)	ND (0 45)
Benzo(a)anthracene	mg/Kg	1500	1160	0.61	2 5	ND (0 45)	2 9
Benzo(a)pyrene	mg/Kg	150	116	ND (0 49)	2 6	ND (0 45)	2 3
Benzo(b)fluoranthene	mg/Kg	1500	1160	0 7	3 2	ND (0 45)	3 3
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 49)	ND (1)	ND (0 45)	0 54
Dibenzofuran	mg/Kg	NA	5390	ND (0 49)	1 5	ND (0 45)	ND (0 45)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0 49)	1.5	ND (0 45)	1 2
Naphthalene	mg/Kg	NA	48556	0 62	8 9	ND (0 45)	1 1
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	67 2	80.7	72 8	72 6

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-106*	*TP-107*	*TP-107*	*TP-107*
CRA Sample I D.				*6/6/2002*	*6/6/2002*	*6/6/2002*	*6/6/2002*
Sample Date				*S-060602-WP-022B*	*S-060602-WP-023A*	*S-060602-WP-023B*	*S-060602-WP-024*
Sample Time				*08:52*	*09:25*	*09.27*	*09.30*
Test Pit Reference Location				*South End*	*South End*	*South End*	*South End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*60*	*4*	*4*	*34*
Direction From Reference		*RHE*	*RHE*	*North*	*North*	*North*	*North*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*2-4 ft*	*0-2 ft*	*2-3 5 ft*	*0-3 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 5)	0 99	ND (26000)	ND (0 45)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (0 5)	0 51	ND (26000)	ND (0 45)
Benzo(a)pyrene	mg/Kg	150	116	ND (0 5)	ND (0.4)	ND (26000)	ND (0 45)
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (0 5)	0 93	ND (26000)	ND (0 45)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 5)	ND (0 4)	ND (26000)	ND (0 45)
Dibenzofuran	mg/Kg	NA	5390	ND (0 5)	0.95	ND (26000)	ND (0 45)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0.5)	0.4	ND (26000)	ND (0 45)
Naphthalene	mg/Kg	NA	48556	ND (0 5)	11	310000	ND (0 45)
Metals							
Arsenic	mg/Kg	2050	940	-	-	14 6	-
General Chemistry							
Total Solids	%	NA	NA	65.7	83 2	ND (0 10)	72 6

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-107*	*TP-107*	*TP-107*	*TP-108*
CRA Sample I.D.				*6/6/2002*	*6/6/2002*	*6/6/2002*	*6/6/2002*
Sample Date				*S-060602-WP-025*	*S-060602-WP-026A*	*S-060602-WP-026B*	*S-060602-WP-027A*
Sample Time				*09:32*	*09:34*	*09.36*	*10·22*
Test Pit Reference Location				*South End*	*South End*	*South End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*34*	*69*	*69*	*5*
Direction From Reference		*RHE*	*RHE*	*North*	*North*	*North*	*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-3 ft*	*0-2 ft*	*2-3 ft*	*0-2 ft*
Comment				*Duplicate*			
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 44)	ND (4 4)	ND (2 6)	ND (14)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (0 44)	29	18	46
Benzo(a)pyrene	mg/Kg	150	116	ND (0 44)	19	10	28
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (0 44)	33	15	48
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 44)	5 2	2.6	ND (14)
Dibenzofuran	mg/Kg	NA	5390	ND (0 44)	ND (4 4)	ND (2 6)	ND (14)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0 44)	7.7	4 2	ND (14)
Naphthalene	mg/Kg	NA	48556	ND (0 44)	12	4.6	ND (14)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	75.0	75 9	64 2	96 5

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-108*	*TP-108*	*TP-108*	*TP-108*
CRA Sample I.D				*6/6/2002*	*6/6/2002*	*6/6/2002*	*6/6/2002*
Sample Date				*S-060602-WP-027B*	*S-060602-WP-027C*	*S-060602-WP-028A*	*S-060602-WP-028B*
Sample Time				*10:24*	*10:26*	*10:30*	*10.32*
Test Pit Reference Location				*East End*	*East End*	*East End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*5*	*5*	*30*	*30*
Direction From Reference		*RHE*	*RHE*	*West*	*West*	*West*	*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*2-4 ft*	*4-5.5 ft*	*0-2 ft*	*2-4 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (2 4)	ND (16)	ND (2 5)	ND (0.42)
Benzo(a)anthracene	mg/Kg	1500	1160	16	54	11	2 3
Benzo(a)pyrene	mg/Kg	150	116	13	39	7 1	1 9
Benzo(b)fluoranthene	mg/Kg	1500	1160	20	58	18	3
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (2 4)	ND (16)	ND (2 5)	ND (0 42)
Dibenzofuran	mg/Kg	NA	5390	ND (2 4)	ND (16)	ND (2 5)	ND (0 42)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	6 1	19	4 3	1
Naphthalene	mg/Kg	NA	48556	ND (2 4)	ND (16)	ND (2 5)	0 76
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	90.1	83 5	86 3	79 0

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-108*	*TP-109*	*TP-109*	*TP-109*
CRA Sample I.D.				*6/6/2002*	*6/6/2002*	*6/6/2002*	*6/6/2002*
Sample Date				*S-060602-WP-028C*	*S-060602-WP-030A*	*S-060602-WP-030B*	*S-060602-WP-030C*
Sample Time				*10 34*	*10.35*	*10:37*	*10:39*
Test Pit Reference Location				*East End*	*North End*	*North End*	*North End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*30*	*5*	*5*	*5*
Direction From Reference		*RHE*	*RHE*	*West*	*South*	*South*	*South*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*4-5.5 ft*	*0-2 ft*	*2-4 ft*	*4-5.5 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (38)	ND (4 5)	ND (46)	ND (9 6)
Benzo(a)anthracene	mg/Kg	1500	1160	370	18	270	54
Benzo(a)pyrene	mg/Kg	150	116	170	14	170	44
Benzo(b)fluoranthene	mg/Kg	1500	1160	260	21	250	76
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (38)	ND (4 5)	ND (46)	ND (9 6)
Dibenzofuran	mg/Kg	NA	5390	550	ND (4 5)	ND (46)	ND (9 6)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	78	7 2	81	18
Naphthalene	mg/Kg	NA	48556	ND (38)	ND (4 5)	ND (46)	ND (9 6)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	86.4	91 0	96 4	85 9

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-109*	*TP-109*	*TP-109*	*TP-110*
CRA Sample I.D.				*6/6/2002*	*6/6/2002*	*6/6/2002*	*6/6/2002*
Sample Date				*S-060602-WP-031A*	*S-060602-WP-031B*	*S-060602-WP-031C*	*S-060602-WP-032A*
Sample Time				*10:45*	*10:47*	*10:49*	*11:15*
Test Pit Reference Location				*North End*	*North End*	*North End*	*North End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*35*	*35*	*35*	*7*
Direction From Reference		*RHE*	*RHE*	*South*	*South*	*South*	*South*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-2 ft*	*2-4 ft*	*4-5 5 ft*	*0-2 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 4)	ND (0.34)	ND (50)	ND (0 39)
Benzo(a)anthracene	mg/Kg	1500	1160	0 46	1 6	350	1 8
Benzo(a)pyrene	mg/Kg	150	116	0.43	1.7	200	1 8
Benzo(b)fluoranthene	mg/Kg	1500	1160	0.66	2.6	360	3 1
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 4)	ND (0 34)	ND (50)	ND (0 39)
Dibenzofuran	mg/Kg	NA	5390	ND (0 4)	ND (0 34)	500	ND (0 39)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0 4)	0 71	78	0.78
Naphthalene	mg/Kg	NA	48556	ND (0 4)	ND (0 34)	ND (50)	ND (0 39)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	82.4	95.8	87 5	83 6

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-110*	*TP-110*	*TP-110*	*TP-110*
CRA Sample I.D.				*6/6/2002*	*6/6/2002*	*6/6/2002*	*6/6/2002*
Sample Date				*S-060602-WP-032B*	*S-060602-WP-032C*	*S-060602-WP-033A*	*S-060602-WP-033B*
Sample Time				*11:17*	*11:18*	*11:20*	*11:22*
Test Pit Reference Location				*North End*	*North End*	*North End*	*North End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*7*	*7*	*36*	*36*
Direction From Reference		*RHE*	*RHE*	*South*	*South*	*South*	*South*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*2-4 ft*	*4-5.5 ft*	*0-2 ft*	*2-4 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 34)	ND (0 39)	ND (0 41)	ND (0 43)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (0 34)	0.39	0 76	ND (0 43)
Benzo(a)pyrene	mg/Kg	150	116	ND (0 34)	0 4	0.78	ND (0 43)
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (0 34)	0.59	1.3	ND (0 43)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 34)	ND (0 39)	ND (0 41)	ND (0 43)
Dibenzofuran	mg/Kg	NA	5390	ND (0 34)	ND (0 39)	ND (0 41)	ND (0 43)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0 34)	ND (0.39)	ND (0 41)	ND (0 43)
Naphthalene	mg/Kg	NA	48556	ND (0.34)	ND (0 39)	ND (0 41)	ND (0 43)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	95.7	84 3	81 4	77 5

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-110*	*TP-111*	*TP-111*	*TP-112*
CRA Sample I.D.				*6/6/2002*	*6/6/2002*	*6/6/2002*	*6/6/2002*
Sample Date				*S-060602-WP-033C*	*S-060602-WP-035A*	*S-060602-WP-035B*	*S-060602-WP-036A*
Sample Time				*11:24*	*12:55*	*12:58*	*13:35*
Test Pit Reference Location				*North End*	*South End*	*South End*	*West End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*36*	*35*	*35*	*2*
Direction From Reference		*RHE*	*RHE*	*South*	*North*	*North*	*East*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*4-5 ft*	*0-2 ft*	*2-4 ft*	*0-2 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 44)	ND (0 4)	ND (0 44)	ND (0 43)
Benzo(a)anthracene	mg/Kg	1500	1160	1 2	1.8	2 7	0 49
Benzo(a)pyrene	mg/Kg	150	116	1 1	1 5	2	ND (0 43)
Benzo(b)fluoranthene	mg/Kg	1500	1160	1 7	2 2	3 4	0 54
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 44)	ND (0 4)	0 51	ND (0 43)
Dibenzofuran	mg/Kg	NA	5390	ND (0 44)	ND (0 4)	ND (0 44)	ND (0.43)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	0 45	0 61	0 81	ND (0 43)
Naphthalene	mg/Kg	NA	48556	4 4	ND (0 4)	0 56	0 81
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	75 1	83 1	74 5	76 6

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-112*	*TP-112*	*TP-112*	*TP-112*
CRA Sample I.D.				*6/6/2002*	*6/6/2002*	*6/6/2002*	*6/6/2002*
Sample Date				*S-060602-WP-036B*	*S-060602-WP-037A*	*S-060602-WP-037B*	*S-060602-WP-036*
Sample Time				*13:38*	*13:40*	*13:42*	*13:45*
Test Pit Reference Location				*West End*	*East End*	*East End*	
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*2*	*2*	*2*	
Direction From Reference		*RHE*	*RHE*	*East*	*West*	*West*	
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*2-4 ft*	*0-2 ft*	*2-4 ft*	
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 47)	ND (3 6)	7 8 J	1000
Benzo(a)anthracene	mg/Kg	1500	1160	ND (0 47)	18 J	14 J	620
Benzo(a)pyrene	mg/Kg	150	116	ND (0 47)	15	17 J	ND (510)
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (0 47)	21	26 J	650
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 47)	ND (3 6)	ND (5 4)	ND (510)
Dibenzofuran	mg/Kg	NA	5390	ND (0 47)	ND (3 6)	20 J	2300
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0 47)	5.5 J	6.8 J	ND (510)
Naphthalene	mg/Kg	NA	48556	ND (0 47)	ND (3 6)	10 J	4600
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	69 8	91.2	61 2	80 3

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-113*	*TP-113*	*TP-113*	*TP-113*
CRA Sample I.D.				*6/6/2002*	*6/6/2002*	*6/6/2002*	*6/6/2002*
Sample Date				*S-060602-WP-039A*	*S-060602-WP-039B*	*S-060602-WP-040A*	*S-060602-WP-041*
Sample Time				*14:24*	*14:26*	*14:28*	*14:30*
Test Pit Reference Location				*West End*	*West End*	*East End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*5*	*5*	*5*	*5*
Direction From Reference		*RHE*	*RHE*	*East*	*East*	*West*	*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-2 ft*	*2-4 ft*	*0-2 ft*	*0-2 ft*
Comment							*Duplicate*
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 39)	1 6	ND (2)	ND (0 79)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (0 39)	7 9 J	12 J	4 2 J
Benzo(a)pyrene	mg/Kg	150	116	ND (0.39)	5.9	7.7	2.7
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (0 39)	9 2	13 J	5 1 J
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0.39)	ND (1 6)	ND (2)	ND (0 79)
Dibenzofuran	mg/Kg	NA	5390	ND (0 39)	ND (1 6)	ND (2)	ND (0 79)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0.39)	1.9 J	2 4 J	1
Naphthalene	mg/Kg	NA	48556	ND (0 39)	2 3	ND (2)	ND (0 79)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	84 1	80 1	80 5	83 4

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-114*	*TP-115*	*TP-115*	*TP-116*
CRA Sample I.D.				*6/6/2002*	*6/6/2002*	*6/6/2002*	*6/6/2002*
Sample Date				*S-060602-WP-043A*	*S-060602-WP-044A*	*S-060602-WP-044B*	*S-060602-WP-045B*
Sample Time				*15:10*	*15:30*	*15:32*	*15.40*
Test Pit Reference Location				*South End*	*South End*	*South End*	*South End*
Distance From Reference (feet)		Commercial/Industrial	Utility/Construction	*5*	*5*	*5*	*5*
Direction From Reference		*RHE*	*RHE*	*North*	*North*	*North*	*North*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-2 ft*	*0-3 ft*	*3-5 ft*	*2-4 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 37)	ND (0.38)	ND (0 4)	ND (1 5)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (0 37)	ND (0 38)	ND (0 4)	7 8
Benzo(a)pyrene	mg/Kg	150	116	ND (0.37)	ND (0 38)	ND (0 4)	6 1
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (0 37)	ND (0 38)	ND (0 4)	9 2
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0.37)	ND (0 38)	ND (0 4)	ND (1 5)
Dibenzofuran	mg/Kg	NA	5390	ND (0 37)	ND (0 38)	ND (0.4)	ND (1 5)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0 37)	ND (0 38)	ND (0 4)	2.3
Naphthalene	mg/Kg	NA	48556	ND (0.37)	ND (0.38)	ND (0.4)	ND (1 5)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	89.1	86.1	82 2	87 0

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-117*	*TP-117*	*TP-117*	*TP-117*
CRA Sample I.D.				*6/6/2002*	*6/6/2002*	*6/6/2002*	*6/6/2002*
Sample Date				*S-060602-WP-046A*	*S-060602-WP-046B*	*S-060602-WP-046C*	*S-060602-WP-047B*
Sample Time				*16:20*	*16.22*	*16 24*	*16:26*
Test Pit Reference Location				*South End*	*South End*	*South End*	*South End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*10*	*10*	*10*	*25*
Direction From Reference		*RHE*	*RHE*	*North*	*North*	*North*	*North*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-2 ft*	*2-4 ft*	*4-6 ft*	*2-4 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (7.6)	ND (0 39)	ND (0 41)	ND (0 42)
Benzo(a)anthracene	mg/Kg	1500	1160	35	ND (0 39)	ND (0 41)	0 74
Benzo(a)pyrene	mg/Kg	150	116	33	ND (0 39)	ND (0 41)	0 77
Benzo(b)fluoranthene	mg/Kg	1500	1160	48	ND (0 39)	ND (0 41)	1
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (7 6)	ND (0 39)	ND (0 41)	ND (0 42)
Dibenzofuran	mg/Kg	NA	5390	ND (7.6)	ND (0 39)	ND (0 41)	ND (0 42)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	12	ND (0 39)	ND (0 41)	ND (0 42)
Naphthalene	mg/Kg	NA	48556	ND (7 6)	ND (0 39)	ND (0 41)	ND (0 42)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	86 9	83 6	80 0	78 7

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-117*	*TP-118A*	*TP-118A*	*TP-118A*
CRA Sample I.D.				*6/6/2002*	*6/7/2002*	*6/7/2002*	*6/7/2002*
Sample Date				*S-060602-WP-047C*	*S-060702-WP-049A*	*S-060702-WP-049B*	*S-060702-WP-049C*
Sample Time				*16.28*	*09:14*	*09:16*	*09:18*
Test Pit Reference Location				*South End*	*South End*	*South End*	*South End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*25*	*5*	*5*	*5*
Direction From Reference		*RHE*	*RHE*	*North*	*North*	*North*	*North*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*4-6 ft*	*0-2 ft*	*2-4 ft*	*4-5 5 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 4)	ND (0 35)	ND (0 39)	ND (0 53)
Benzo(a)anthracene	mg/Kg	1500	1160	0 4	ND (0 35)	0 96	ND (0 53)
Benzo(a)pyrene	mg/Kg	150	116	ND (0 4)	ND (0 35)	0 89	ND (0 53)
Benzo(b)fluoranthene	mg/Kg	1500	1160	0 56	ND (0 35)	1 3	ND (0 53)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 4)	ND (0 35)	ND (0 39)	ND (0 53)
Dibenzofuran	mg/Kg	NA	5390	ND (0 4)	ND (0 35)	ND (0 39)	ND (0 53)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0 4)	ND (0 35)	0 45	ND (0 53)
Naphthalene	mg/Kg	NA	48556	ND (0 4)	ND (0 35)	1	0 62
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	81 6	95 2	85 0	62 6

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-118A*	*TP-118A*	*TP-118A*	*TP-118A*
CRA Sample I.D.				*6/7/2002*	*6/7/2002*	*6/7/2002*	*6/7/2002*
Sample Date				*S-060702-WP-050A*	*S-060702-WP-051*	*S-060702-WP-050B*	*S-060702-WP-050C*
Sample Time				*09:20*	*09:26*	*09:22*	*09:24*
Test Pit Reference Location				*North End*	*North End*	*North End*	*North End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*5*	*5*	*5*	*5*
Direction From Reference		*RHE*	*RHE*	*South*	*South*	*South*	*South*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-2 ft*	*0-2 ft*	*2-4 ft*	*4-5.5 ft*
Comment					*Duplicate*		
Parameter	*Unit*						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 77)	ND (0.38)	ND (0 39)	ND (0 38)
Benzo(a)anthracene	mg/Kg	1500	1160	3 7	1 2	ND (0 39)	ND (0 38)
Benzo(a)pyrene	mg/Kg	150	116	2.5	0.85	ND (0.39)	ND (0 38)
Benzo(b)fluoranthene	mg/Kg	1500	1160	4.4	1.5	ND (0.39)	0 38
Dibenz(a,h)anthracene	mg/Kg	150	116	0 77	ND (0 38)	ND (0 39)	ND (0 38)
Dibenzofuran	mg/Kg	NA	5390	ND (0 77)	ND (0 38)	ND (0 39)	ND (0 38)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	1 4	0 56	ND (0 39)	ND (0 38)
Naphthalene	mg/Kg	NA	48556	2 1	0 49	ND (0 39)	ND (0 38)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	85 3	87 7	84 0	87 9

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-119*	*TP-119*	*TP-119*	*TP-120*
CRA Sample I.D.				*6/7/2002*	*6/7/2002*	*6/7/2002*	*6/7/2002*
Sample Date				*S-060702-WP-048A*	*S-060702-WP-048B*	*S-060702-WP-048C*	*S-060702-WP-054A*
Sample Time				*08:40*	*08:42*	*08:44*	*10:00*
Test Pit Reference Location				*East End*	*East End*	*East End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*5*	*5*	*5*	*5*
Direction From Reference		*RHE*	*RHE*	*West*	*West*	*West*	*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-2 ft*	*2-4 ft*	*4-6 ft*	*0-2 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 39)	ND (0 36)	ND (1 3)	ND (0 84)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (0 39)	ND (0.36)	5 2	3 8
Benzo(a)pyrene	mg/Kg	150	116	ND (0 39)	ND (0.36)	8 3	2.8
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (0 39)	0 39	9 3	4 7
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 39)	ND (0 36)	2 1	0 85
Dibenzofuran	mg/Kg	NA	5390	ND (0 39)	ND (0 36)	ND (1 3)	ND (0 84)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0 39)	ND (0.36)	6.1	1 5
Naphthalene	mg/Kg	NA	48556	ND (0 39)	ND (0 36)	4 5	ND (0 84)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	84 8	90 7	61 4	78 1

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-120*	*TP-120*	*TP-120*	*TP-120*
CRA Sample I.D.				*6/7/2002*	*6/7/2002*	*6/7/2002*	*6/7/2002*
Sample Date				*S-060702-WP-054B*	*S-060702-WP-054C*	*S-060702-WP-055A*	*S-060702-WP-055B*
Sample Time				*10.02*	*10:04*	*10.06*	*10.08*
Test Pit Reference Location				*East End*	*East End*	*West End*	*West End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*5*	*5*	*5*	*5*
Direction From Reference		*RHE*	*RHE*	*West*	*West*	*East*	*East*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*2-4 ft*	*4-5 5 ft*	*0-2 ft*	*2-4 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 38)	ND (0.38)	ND (11)	ND (1 1)
Benzo(a)anthracene	mg/Kg	1500	1160	1	0 43	85	8 1
Benzo(a)pyrene	mg/Kg	150	116	0 73	0 38	53	5
Benzo(b)fluoranthene	mg/Kg	1500	1160	0 98	0 53	65	6 6
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 38)	ND (0 38)	11	ND (1 1)
Dibenzofuran	mg/Kg	NA	5390	ND (0.38)	ND (0.38)	18	ND (1 1)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	0.4	ND (0.38)	23	2 1
Naphthalene	mg/Kg	NA	48556	ND (0 38)	ND (0 38)	25	1 3
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	87.6	86 8	76 4	75 9

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-120*	*TP-121*	*TP-121*	*TP-121*
CRA Sample I.D.				*6/7/2002*	*6/7/2002*	*6/7/2002*	*6/7/2002*
Sample Date				*S-060702-WP-055C*	*S-060702-WP-057A*	*S-060702-WP-058A*	*S-060702-WP-058B*
Sample Time				*10:10*	*11:10*	*11.12*	*11:14*
Test Pit Reference Location				*West End*	*East End*	*East End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*5*	*35*	*67*	*67*
Direction From Reference		*RHE*	*RHE*	*East*	*West*	*West*	*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*4-6 ft*	*0-2 ft*	*0-2 ft*	*2-4 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 42)	ND (1.7)	ND (9 5)	ND (9 4)
Benzo(a)anthracene	mg/Kg	1500	1160	0 58	5 9	52	45
Benzo(a)pyrene	mg/Kg	150	116	0.5	5.6	44	32
Benzo(b)fluoranthene	mg/Kg	1500	1160	0 6	6 6	57	43
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 42)	ND (1 7)	ND (9 5)	ND (9 4)
Dibenzofuran	mg/Kg	NA	5390	ND (0 42)	ND (1.7)	ND (9 5)	ND (9 4)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0 42)	3.1	16	15
Naphthalene	mg/Kg	NA	48556	ND (0 42)	ND (1 7)	ND (9 5)	ND (9.4)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	77 9	79 0	86 9	87 7

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-121*	*TP-121*	*TP-121*	*TP-121*
CRA Sample I.D.				*6/7/2002*	*6/7/2002*	*6/7/2002*	*6/7/2002*
Sample Date				*S-060702-WP-058C*	*S-060702-WP-059A*	*S-060702-WP-059B*	*S-060702-WP-059C*
Sample Time				*11:16*	*11.18*	*11:20*	*11:22*
Test Pit Reference Location				*East End*	*East End*	*East End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*67*	*93*	*93*	*93*
Direction From Reference		*RHE*	*RHE*	*West*	*West*	*West*	*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*4-6 ft*	*0-2 ft*	*2-4 ft*	*4-6 ft*
Comment							
Parameter	*Unit*						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (2 2)	ND (7 6)	ND (3 7)	ND (4 1)
Benzo(a)anthracene	mg/Kg	1500	1160	16	65	31	27
Benzo(a)pyrene	mg/Kg	150	116	10	44	24	19
Benzo(b)fluoranthene	mg/Kg	1500	1160	15	58	33	27
Dibenz(a,h)anthracene	mg/Kg	150	116	2 3	12	5 2	4 5
Dibenzofuran	mg/Kg	NA	5390	8 2	ND (7 6)	ND (3 7)	4 6
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	4 4	21	10	9 2
Naphthalene	mg/Kg	NA	48556	2 2	ND (7.6)	ND (3 7)	ND (4 1)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	76 4	86 3	89 9	79 8

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-122*	*TP-122*	*TP-122*	*TP-122*
CRA Sample I.D.				*6/7/2002*	*6/7/2002*	*6/7/2002*	*6/7/2002*
Sample Date				*S-060702-WP-061A*	*S-060702-WP-061B*	*S-060702-WP-062A*	*S-060702-WP-062B*
Sample Time				*13.26*	*13:28*	*13·22*	*13:24*
Test Pit Reference Location				*South End*	*South End*	*South End*	*South End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*38*	*38*	*5*	*5*
Direction From Reference		*RHE*	*RHE*	*North*	*North*	*North*	*North*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-2 ft*	*2-4 ft*	*0-2 ft*	*2-4 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 43)	ND (3 4)	ND (0 41)	ND (0.38)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (0 43)	15	3 3	3 7
Benzo(a)pyrene	mg/Kg	150	116	ND (0 43)	17	2 1	2 3
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (0.43)	23	3	3 3
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 43)	4 6	0 59	0 72
Dibenzofuran	mg/Kg	NA	5390	ND (0 43)	7 5	ND (0 41)	ND (0 38)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0 43)	12	1	1
Naphthalene	mg/Kg	NA	48556	ND (0.43)	17	ND (0 41)	0 75
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	77.0	65 5	80 1	87.8

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-122*	*TP-122*	*TP-122*	*TP-122*
CRA Sample I.D.				*6/7/2002*	*6/7/2002*	*6/7/2002*	*6/7/2002*
Sample Date				*S-060702-WP-064A*	*S-060702-WP-065*	*S-060702-WP-064B*	*S-060702-WP-064C*
Sample Time				*14:12*	*14:18*	*14:16*	*14:18*
Test Pit Reference Location				*South End*	*South End*	*South End*	*South End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*77*	*77*	*77*	*77*
Direction From Reference		*RHE*	*RHE*	*North*	*North*	*North*	*North*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-2 ft*	*0-2 ft*	*2-4 ft*	*4-5.5 ft*
Comment					*Duplicate*		
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (100)	ND (360)	ND (99)	ND (5 1)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (100)	ND (360)	ND (99)	26
Benzo(a)pyrene	mg/Kg	150	116	ND (100)	ND (360)	ND (99)	22
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (100)	ND (360)	ND (99)	33
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (100)	ND (360)	ND (99)	ND (5 1)
Dibenzofuran	mg/Kg	NA	5390	ND (100)	ND (360)	ND (99)	ND (5.1)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (100)	ND (360)	ND (99)	11
Naphthalene	mg/Kg	NA	48556	1100 J	2300 J	560	ND (5 1)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	81 1	90 9	83 1	81 1

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-123*	*TP-123*	*TP-123*	*TP-123*
CRA Sample I.D.				*6/7/2002*	*6/7/2002*	*6/7/2002*	*6/7/2002*
Sample Date				*S-060702-WP-068A*	*S-060702-WP-068B*	*S-060702-WP-069A*	*S-060702-WP-069B*
Sample Time				*15:00*	*15:02*	*15:04*	*15:06*
Test Pit Reference Location				*North End*	*North End*	*North End*	*North End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*5*	*5*	*32*	*32*
Direction From Reference		*RHE*	*RHE*	*South*	*South*	*South*	*South*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-2 ft*	*2-4 ft*	*0-2 ft*	*2-4 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (8 9)	ND (0.39)	ND (250)	ND (4 8)
Benzo(a)anthracene	mg/Kg	1500	1160	64	2 7	540	20
Benzo(a)pyrene	mg/Kg	150	116	55	1 6	280	19
Benzo(b)fluoranthene	mg/Kg	1500	1160	67	2 4	340	30
Dibenz(a,h)anthracene	mg/Kg	150	116	12	0.5	ND (250)	6
Dibenzofuran	mg/Kg	NA	5390	ND (8 9)	ND (0 39)	470	ND (4 8)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	25	0 91	ND (250)	11
Naphthalene	mg/Kg	NA	48556	ND (8.9)	1	1400	ND (4 8)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	92 4	83 8	88 4	85 3

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-123*	*TP-123*	*TP-125*	*TP-125*
CRA Sample I.D.				*6/7/2002*	*6/7/2002*	*6/10/2002*	*6/10/2002*
Sample Date				*S-060702-WP-070A*	*S-060702-WP-070B*	*S-061002-WP-072A*	*S-061002-WP-072B*
Sample Time				*15:08*	*15:10*	*09:10*	*09:12*
Test Pit Reference Location				*North End*	*North End*	*East End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*58*	*58*	*5*	*5*
Direction From Reference		*RHE*	*RHE*	*South*	*South*	*West*	*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-2 ft*	*2-4 ft*	*0-2 ft*	*2-4 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (2 8)	2200	ND (0 74)	ND (0 77)
Benzo(a)anthracene	mg/Kg	1500	1160	16	1100	2 5	2 4
Benzo(a)pyrene	mg/Kg	150	116	11	ND (660)	2 5	2 3
Benzo(b)fluoranthene	mg/Kg	1500	1160	17	670	3 6	3 3
Dibenz(a,h)anthracene	mg/Kg	150	116	2 9	ND (660)	ND (0 74)	ND (0.77)
Dibenzofuran	mg/Kg	NA	5390	ND (2 8)	670	ND (0 74)	ND (0 77)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	5 5	ND (660)	ND (0.74)	ND (0 77)
Naphthalene	mg/Kg	NA	48556	ND (2 8)	4400	ND (0 74)	ND (0 77)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	93 1	62 8	89 6	86 0

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				TP-125	TP-125	TP-125	TP-125
CRA Sample I D.				6/10/2002	6/10/2002	6/10/2002	6/10/2002
Sample Date				S-061002-WP-072C	S-061002-WP-073A	S-061002-WP-073B	S-061002-WP-073C
Sample Time				09:14	09:16	09.18	09.20
Test Pit Reference Location				East End	West End	West End	West End
Distance From Reference (feet)		Commercial/Industrial	Utility/Construction	5	5	5	5
Direction From Reference		RHE	RHE	West	East	East	East
Sample Interval (feet bgs)		Criteria	Criteria	4-5.5 ft	0-2 ft	2-4 ft	4-6 ft
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0.41)	ND (2 6)	ND (0 37)	ND (0 39)
Benzo(a)anthracene	mg/Kg	1500	1160	1.7	14	ND (0 37)	ND (0 39)
Benzo(a)pyrene	mg/Kg	150	116	1.9	12	ND (0 37)	ND (0 39)
Benzo(b)fluoranthene	mg/Kg	1500	1160	2.8	18	ND (0 37)	ND (0 39)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 41)	ND (2 6)	ND (0 37)	ND (0.39)
Dibenzofuran	mg/Kg	NA	5390	ND (0 41)	ND (2 6)	ND (0 37)	ND (0 39)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	0 55	5 4	ND (0 37)	ND (0 39)
Naphthalene	mg/Kg	NA	48556	ND (0.41)	ND (2 6)	ND (0 37)	ND (0 39)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	80.6	85 8	88 2	84 4

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-126*	*TP-126*	*TP-126*	*TP-126*
CRA Sample I.D.				*6/10/2002*	*6/10/2002*	*6/10/2002*	*6/10/2002*
Sample Date				*S-061002-WP-075A*	*S-061002-WP-077*	*S-061002-WP-075B*	*S-061002-WP-075C*
Sample Time				*10.05*	*10:05*	*10.07*	*10:09*
Test Pit Reference Location				*North End*	*North End*	*North End*	*North End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*15*	*15*	*15*	*15*
Direction From Reference		*RHE*	*RHE*	*South*	*South*	*South*	*South*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-2 ft*	*0-2 ft*	*2-4 ft*	*4-5 ft*
Comment					*Duplicate*		
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (4 4)	ND (1 5)	ND (0 36)	ND (0 41)
Benzo(a)anthracene	mg/Kg	1500	1160	17	5 8	ND (0 36)	ND (0 41)
Benzo(a)pyrene	mg/Kg	150	116	20	5 8	ND (0.36)	ND (0 41)
Benzo(b)fluoranthene	mg/Kg	1500	1160	24 J	7 4 J	ND (0 36)	ND (0 41)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (4 4)	ND (1 5)	ND (0 36)	ND (0 41)
Dibenzofuran	mg/Kg	NA	5390	ND (4 4)	ND (1 5)	ND (0 36)	ND (0 41)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	9.6	2 8	ND (0 36)	ND (0 41)
Naphthalene	mg/Kg	NA	48556	ND (4 4)	1 8	ND (0 36)	0 53
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	93 4	90 5	91 5	80 0

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-126*	*TP-126*	*TP-127*	*TP-127*
CRA Sample I.D				*6/10/2002*	*6/10/2002*	*6/10/2002*	*6/10/2002*
Sample Date				*S-061002-WP-076B*	*S-061002-WP-076C*	*S-061002-WP-079A*	*S-061002-WP-079B*
Sample Time				*10:12*	*10:14*	*11.38*	*11:40*
Test Pit Reference Location				*North End*	*North End*	*South End*	*South End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*43*	*43*	*8*	*8*
Direction From Reference		*RHE*	*RHE*	*South*	*South*	*North*	*North*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*2-4 ft*	*4-5 ft*	*0-2 ft*	*2-4 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (190)	ND (0 42)	ND (4 7)	ND (2 5)
Benzo(a)anthracene	mg/Kg	1500	1160	1400	ND (0 42)	15	18
Benzo(a)pyrene	mg/Kg	150	116	1000	ND (0.42)	34	13
Benzo(b)fluoranthene	mg/Kg	1500	1160	1200	ND (0 42)	39	15
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (190)	ND (0 42)	7 2	ND (2 5)
Dibenzofuran	mg/Kg	NA	5390	1000	ND (0 42)	ND (4 7)	27
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	310	ND (0 42)	17	4 2
Naphthalene	mg/Kg	NA	48556	1900	ND (0 42)	10	120
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	85 0	77.8	88 5	88 5

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-127*	*TP-127*	*TP-127*	*TP-127*
CRA Sample I.D.				*6/10/2002*	*6/10/2002*	*6/10/2002*	*6/10/2002*
Sample Date				*S-061002-WP-079C*	*S-061002-WP-080A*	*S-061002-WP-080B*	*S-061002-WP-080C*
Sample Time				*11.42*	*11:45*	*11:48*	*11:50*
Test Pit Reference Location				*South End*	*South End*	*South End*	*South End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*8*	*45*	*45*	*45*
Direction From Reference		*RHE*	*RHE*	*North*	*North*	*North*	*North*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*4-6 ft*	*0-2 ft*	*2-4 ft*	*4-6 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (190)	ND (1.5)	ND (150)	ND (370)
Benzo(a)anthracene	mg/Kg	1500	1160	520	3 2	ND (150)	ND (370)
Benzo(a)pyrene	mg/Kg	150	116	390	4 4	ND (150)	ND (370)
Benzo(b)fluoranthene	mg/Kg	1500	1160	410	5.2	ND (150)	ND (370)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (190)	ND (1 5)	ND (150)	ND (370)
Dibenzofuran	mg/Kg	NA	5390	620	ND (1 5)	ND (150)	ND (370)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (190)	2.4	ND (150)	ND (370)
Naphthalene	mg/Kg	NA	48556	1900	11	1500	3600
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	88 8	86 7	90 4	88 6

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-128*	*TP-128*	*TP-128*	*TP-128*
CRA Sample I.D.				*6/10/2002*	*6/10/2002*	*6/10/2002*	*6/10/2002*
Sample Date				*S-061002-WP-083A*	*S-061002-WP-083B*	*S-061002-WP-083C*	*S-061002-WP-084A*
Sample Time				*13 50*	*13:57*	*13:54*	*13:56*
Test Pit Reference Location				*West End*	*West End*	*West End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*13*	*13*	*13*	*0*
Direction From Reference		*RHE*	*RHE*	*East*	*East*	*East*	
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-2 ft*	*2-4 ft*	*4-6 ft*	*0-2 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (3 6)	ND (1 9)	ND (370)	ND (2 4)
Benzo(a)anthracene	mg/Kg	1500	1160	26	7 9	ND (370)	28
Benzo(a)pyrene	mg/Kg	150	116	19	6 6	ND (370)	22
Benzo(b)fluoranthene	mg/Kg	1500	1160	23	7 8	ND (370)	26
Dibenz(a,h)anthracene	mg/Kg	150	116	4 7	ND (1 9)	ND (370)	5 2
Dibenzofuran	mg/Kg	NA	5390	ND (3 6)	10	ND (370)	ND (2 4)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	11	2 9	ND (370)	11
Naphthalene	mg/Kg	NA	48556	ND (3 6)	4 9	2400	ND (2 4)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	90 6	87 5	88 2	90 1

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				TP-128	TP-128	TP-129	TP-129
CRA Sample I D.				6/10/2002	6/10/2002	6/10/2002	6/10/2002
Sample Date				S-061002-WP-084B	S-061002-WP-084C	S-061002-WP-085A	S-061002-WP-085B
Sample Time				13.58	13:59	14:20	14:22
Test Pit Reference Location				East End	East End	West End	West End
Distance From Reference (feet)		Commercial/Industrial	Utility/Construction	0	0	5	5
Direction From Reference		RHE	RHE			Easi	Easi
Sample Interval (feet bgs)		Criteria	Criteria	2-4 fi	4-6 fi	0-2 fi	2-4 fi
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 35)	ND (0.38)	ND (140)	ND (610)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (0 35)	ND (0 38)	ND (140)	ND (610)
Benzo(a)pyrene	mg/Kg	150	116	ND (0 35)	ND (0 38)	ND (140)	ND (610)
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (0.35)	ND (0 38)	ND (140)	ND (610)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 35)	ND (0 38)	ND (140)	ND (610)
Dibenzofuran	mg/Kg	NA	5390	ND (0 35)	ND (0 38)	ND (140)	ND (610)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0 35)	ND (0 38)	ND (140)	ND (610)
Naphthalene	mg/Kg	NA	48556	0.49	ND (0 38)	1500	5400
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	93 0	86 3	95 8	90 4

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-129*	*TP-130*	*TP-130*	*TP-130*
CRA Sample I.D.				*6/10/2002*	*6/11/2002*	*6/11/2002*	*6/11/2002*
Sample Date				*S-061002-WP-085C*	*S-061102-WP-087A*	*S-061102-WP-087B*	*S-061102-WP-087C*
Sample Time				*14:24*	*09:20*	*09:22*	*09:24*
Test Pit Reference Location				*West End*	*South End*	*South End*	*South End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*5*	*24*	*24*	*24*
Direction From Reference		*RHE*	*RHE*	*East*	*North*	*North*	*North*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*4-5 ft*	*0-2 ft*	*2-4 ft*	*4-5 5 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (390)	ND (0 7)	ND (29)	ND (65)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (390)	0 75	ND (29)	ND (65)
Benzo(a)pyrene	mg/Kg	150	116	ND (390)	1 7	ND (29)	ND (65)
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (390)	2.7	ND (29)	ND (65)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (390)	ND (0.7)	ND (29)	ND (65)
Dibenzofuran	mg/Kg	NA	5390	ND (390)	ND (0 7)	ND (29)	ND (65)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (390)	1 5	ND (29)	ND (65)
Naphthalene	mg/Kg	NA	48556	2600	3 4	200	500
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	85 4	94 1	91 9	67 9

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-130*	*TP-130*	*TP-130*	*TP-131*
CRA Sample I.D.				*6/11/2002*	*6/11/2002*	*6/11/2002*	*6/11/2002*
Sample Date				*S-061102-WP-088A*	*S-061102-WP-088B*	*S-061102-WP-088C*	*S-061102-WP-090A*
Sample Time				*09:26*	*09:28*	*09:30*	*10 00*
Test Pit Reference Location				*North End*	*North End*	*North End*	*South End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*0*	*0*	*0*	*18*
Direction From Reference		*RHE*	*RHE*				*North*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-2 ft*	*2-4 ft*	*4-6 ft*	*0-2 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 35)	ND (7)	ND (13)	ND (7 3)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (0 35)	ND (7)	ND (13)	28
Benzo(a)pyrene	mg/Kg	150	116	ND (0 35)	ND (7)	ND (13)	25
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (0.35)	ND (7)	ND (13)	40
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 35)	ND (7)	ND (13)	ND (7 3)
Dibenzofuran	mg/Kg	NA	5390	ND (0 35)	ND (7)	ND (13)	ND (7 3)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0 35)	ND (7)	ND (13)	13
Naphthalene	mg/Kg	NA	48556	ND (0 35)	ND (7)	68	ND (7 3)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	94.8	93 8	85 6	90 2

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-131*	*TP-131*	*TP-131*	*TP-133*
CRA Sample I D.				*6/11/2002*	*6/11/2002*	*6/11/2002*	*6/11/2002*
Sample Date				*S-061102-WP-090B*	*S-061102-WP-091B*	*S-061102-WP-090C*	*S-061102-WP-092A*
Sample Time				*10:02*	*00:00*	*10 04*	*12:38*
Test Pit Reference Location				*South End*	*South End*	*South End*	*West End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*18*	*18*	*18*	*6*
Direction From Reference		*RHE*	*RHE*	*North*	*North*	*North*	*East*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*2-4 ft*	*2-4 ft*	*4-5.5 ft*	*0-2 ft*
Comment					*Duplicate*		
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (7 4)	ND (7 5)	ND (3 9)	ND (10)
Benzo(a)anthracene	mg/Kg	1500	1160	46	46	14	ND (10)
Benzo(a)pyrene	mg/Kg	150	116	31	28	9 5	ND (10)
Benzo(b)fluoranthene	mg/Kg	1500	1160	44	32	15	ND (10)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (7.4)	ND (7 5)	ND (3 9)	ND (10)
Dibenzofuran	mg/Kg	NA	5390	37	31	11	ND (10)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	12	11	4 4	ND (10)
Naphthalene	mg/Kg	NA	48556	46	30	24	88
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	88 8	87 9	84 4	80 5

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-133*	*TP-133*	*TP-133*	*TP-133*
CRA Sample I.D				*6/11/2002*	*6/11/2002*	*6/11/2002*	*6/11/2002*
Sample Date				*S-061102-WP-092B*	*S-061102-WP-092C*	*S-061102-WP-093A*	*S-061102-WP-093B*
Sample Time				*12:40*	*12:42*	*12:45*	*12:47*
Test Pit Reference Location				*West End*	*West End*	*West End*	*West End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*6*	*6*	*24*	*24*
Direction From Reference		*RHE*	*RHE*	*East*	*East*	*East*	*East*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*2-4 ft*	*4-5 5 ft*	*0-2 ft*	*2-4 ft*
Comment							
Parameter	*Unit*						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (43)	ND (1)	ND (0 41)	ND (10)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (43)	ND (1)	1	16
Benzo(a)pyrene	mg/Kg	150	116	ND (43)	ND (1)	0.82	11
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (43)	ND (1)	1 6	12
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (43)	ND (1)	ND (0 41)	ND (10)
Dibenzofuran	mg/Kg	NA	5390	ND (43)	ND (1)	ND (0 41)	ND (10)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (43)	ND (1)	0 48	ND (10)
Naphthalene	mg/Kg	NA	48556	240	5 6	0 86	71
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	77.6	79.1	79 7	79 8

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-133*	*TP-133*	*TP-133*	*TP-133*
CRA Sample I.D.				*6/11/2002*	*6/11/2002*	*6/11/2002*	*6/11/2002*
Sample Date				*S-061102-WP-093C*	*S-061102-WP-094A*	*S-061102-WP-094B*	*S-061102-WP-094C*
Sample Time				*12:49*	*12:55*	*12:57*	*12:59*
Test Pit Reference Location				*West End*	*West End*	*West End*	*West End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*24*	*49*	*49*	*49*
Direction From Reference		*RHE*	*RHE*	*East*	*East*	*East*	*East*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*4-5.5 ft*	*0-2 ft*	*2-4 ft*	*4-5 5 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (6600)	ND (2 7)	ND (0 84)	ND (3500)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (6600)	13	1 6	ND (3500)
Benzo(a)pyrene	mg/Kg	150	116	ND (6600)	11	1 8	ND (3500)
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (6600)	19	3 3	ND (3500)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (6600)	3.4	ND (0 84)	ND (3500)
Dibenzofuran	mg/Kg	NA	5390	ND (6600)	ND (2 7)	ND (0.84)	ND (3500)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (6600)	6 4	1 2	ND (3500)
Naphthalene	mg/Kg	NA	48556	230000	9 4	4 8	230000
Metals							
Arsenic	mg/Kg	2050	940	116	-	-	-
General Chemistry							
Total Solids	%	NA	NA	ND (10 0)	82 5	78 8	28 2

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-134*	*TP-134*	*TP-134*	*TP-134*
CRA Sample I.D.				*6/11/2002*	*6/11/2002*	*6/11/2002*	*6/11/2002*
Sample Date				*S-061102-WP-097A*	*S-061102-WP-097B*	*S-061102-WP-097C*	*S-061102-WP-098A*
Sample Time				*13:41*	*13 43*	*13:45*	*13:48*
Test Pit Reference Location				*West End*	*West End*	*West End*	*West End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*5*	*5*	*5*	*22*
Direction From Reference		*RHE*	*RHE*	*East*	*East*	*East*	*East*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-2 ft*	*2-4 ft*	*4-5 ft*	*0-2 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (54)	ND (0 36)	ND (0 65)	ND (2 6)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (54)	1 J	6 1	7 9
Benzo(a)pyrene	mg/Kg	150	116	ND (54)	0 82 J	4 4	8 7
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (54)	1 4 J	6 2	17
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (54)	ND (0 36)	ND (0 65)	3
Dibenzofuran	mg/Kg	NA	5390	160	ND (0 36)	ND (0 65)	ND (2 6)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (54)	0 5 J	1 4	5 8
Naphthalene	mg/Kg	NA	48556	1300	0 66	ND (0 65)	4 2
Metals							
Arsenic	mg/Kg	2050	940	32 2	1210	121	47 1
General Chemistry							
Total Solids	%	NA	NA	81 8	92 2	67 2	83 1

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-134*	*TP-134*	*TP-134*	*TP-135*
CRA Sample I.D.				*6/11/2002*	*6/11/2002*	*6/11/2002*	*6/11/2002*
Sample Date				*S-061102-WP-098B*	*S-061102-WP-098C*	*S-061102-WP-099C*	*S-061102-WP-101A*
Sample Time				*13:50*	*13 51*	*13:53*	*14:15*
Test Pit Reference Location				*West End*	*West End*	*East End*	*West End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*22*	*22*	*5*	*5*
Direction From Reference		*RHE*	*RHE*	*East*	*East*	*West*	*East*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*2-4 ft*	*4-6 ft*	*4-6 ft*	*0-2 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (4 2)	3 2	ND (0 97)	ND (0 75)
Benzo(a)anthracene	mg/Kg	1500	1160	12	ND (2)	5	3 4 J
Benzo(a)pyrene	mg/Kg	150	116	9.6	ND (2)	3.4	3 4
Benzo(b)fluoranthene	mg/Kg	1500	1160	14	ND (2)	6.5	5.2
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (4 2)	ND (2)	ND (0 97)	ND (0 75)
Dibenzofuran	mg/Kg	NA	5390	ND (4 2)	ND (2)	ND (0 97)	ND (0 75)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	5 1	ND (2)	2	1 5
Naphthalene	mg/Kg	NA	48556	35	17	2	1 3
Metals							
Arsenic	mg/Kg	2050	940	175	630	467	906
General Chemistry							
Total Solids	%	NA	NA	78 4	84 2	68 4	88 5

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-135*	*TP-135*	*TP-135*	*TP-136*
CRA Sample I.D.				*6/11/2002*	*6/11/2002*	*6/11/2002*	*6/11/2002*
Sample Date				*S-061102-WP-101B*	*S-061102-WP-102A*	*S-061102-WP-103A*	*S-061102-WP-104A*
Sample Time				*14:16*	*14:18*	*14:18*	*14.50*
Test Pit Reference Location				*West End*	*East End*	*East End*	*West End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*5*	*5*	*5*	*3*
Direction From Reference		*RHE*	*RHE*	*East*	*West*	*West*	*East*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*2-4 ft*	*0-2 ft*	*0-2 ft*	*0-2 ft*
Comment						*Duplicate*	
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 41)	ND (0 4)	ND (0 75)	ND (5)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (0 41)	2 2	3 4	37
Benzo(a)pyrene	mg/Kg	150	116	ND (0.41)	1 7	2 4	17
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (0 41)	3.1	4 4	28
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 41)	0 52	ND (0 75)	ND (5)
Dibenzofuran	mg/Kg	NA	5390	ND (0 41)	0.4	ND (0.75)	ND (5)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0 41)	0 89	1 3	6
Naphthalene	mg/Kg	NA	48556	0 48	1 7	1 2	ND (5)
Metals							
Arsenic	mg/Kg	2050	940	273	64 2 J	35 8 J	-
General Chemistry							
Total Solids	%	NA	NA	79 9	83 2	88 4	82 1

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				TP-136	TP-136	TP-136	TP-137
CRA Sample I.D				6/11/2002	6/11/2002	6/11/2002	6/12/2002
Sample Date				S-061102-WP-104B	S-061102-WP-105A	S-061102-WP-105B	S-061202-WP-0106A
Sample Time				14.51	14:53	14.55	08:50
Test Pit Reference Location				West End	East End	East End	South End
Distance From Reference (feet)		Commercial/Industrial	Utility/Construction	3	3	3	5
Direction From Reference		RHE	RHE	East	West	West	North
Sample Interval (feet bgs)		Criteria	Criteria	2-4 ft	0-2 ft	2-4 ft	0-2 ft
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 46)	ND (0 39)	ND (1 9)	ND (4)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (0 46)	1 4	11	ND (4)
Benzo(a)pyrene	mg/Kg	150	116	ND (0 46)	1.1	8 1	ND (4)
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (0 46)	2 1	10	ND (4)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 46)	ND (0 39)	ND (1 9)	ND (4)
Dibenzofuran	mg/Kg	NA	5390	ND (0 46)	ND (0 39)	3 6	ND (4)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0 46)	0 64	2 6	ND (4)
Naphthalene	mg/Kg	NA	48556	0 46	ND (0 39)	5 8	ND (4)
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	71 4	83 6	71 2	82 5

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-137*	*TP-138*	*TP-138*	*TP-138*
CRA Sample I.D.				*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*
Sample Date				*S-061202-WP-0107A*	*S-061202-WP-0108A*	*S-061202-WP-0108B*	*S-061202-WP-0108C*
Sample Time				*08.50*	*09:15*	*09:18*	*09.20*
Test Pit Reference Location				*South End*	*North End*	*North End*	*North End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*5*	*4*	*4*	*4*
Direction From Reference		*RHE*	*RHE*	*North*	*South*	*South*	*South*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-2 ft*	*0-2 ft*	*2-4 ft*	*4-5 ft*
Comment				*Duplicate*			
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (20)	ND (0 81)	0 58	17
Benzo(a)anthracene	mg/Kg	1500	1160	26	3 5	1 3	ND (16)
Benzo(a)pyrene	mg/Kg	150	116	21	3 3	1	ND (16)
Benzo(b)fluoranthene	mg/Kg	1500	1160	32	5.3	1.2	ND (16)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (20)	ND (0 81)	ND (0 44)	ND (16)
Dibenzofuran	mg/Kg	NA	5390	ND (20)	0 9	ND (0 44)	ND (16)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (20)	1 4	0 52	ND (16)
Naphthalene	mg/Kg	NA	48556	ND (20)	5.5	1 2	35
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	-
General Chemistry							
Total Solids	%	NA	NA	83.3	81 8	75 4	42 5

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-140*	*TP-140*	*TP-140*	*TP-141*
CRA Sample I.D.				*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*
Sample Date				*S-061202-WP-0110A*	*S-061202-WP-0110B*	*S-061202-WP-0110C*	*S-061202-WP-0112A*
Sample Time				*10:40*	*10:42*	*10.44*	*12:15*
Test Pit Reference Location				*South End*	*South End*	*South End*	*South End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*5*	*5*	*5*	*10*
Direction From Reference		*RHE*	*RHE*	*North*	*North*	*North*	*North*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-2 ft*	*2-4 ft*	*4-5.5 ft*	*0-2 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (8 6)	ND (26)	27	32
Benzo(a)anthracene	mg/Kg	1500	1160	ND (8 6)	ND (26)	ND (19)	ND (8 1)
Benzo(a)pyrene	mg/Kg	150	116	ND (8 6)	ND (26)	ND (19)	ND (8 1)
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (8 6)	ND (26)	ND (19)	ND (8 1)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (8 6)	ND (26)	ND (19)	ND (8 1)
Dibenzofuran	mg/Kg	NA	5390	ND (8 6)	ND (26)	ND (19)	ND (8 1)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (8 6)	ND (26)	ND (19)	ND (8 1)
Naphthalene	mg/Kg	NA	48556	ND (8 6)	ND (26)	150	57
Metals							
Arsenic	mg/Kg	2050	940	-	-	-	22 6
General Chemistry							
Total Solids	%	NA	NA	76 9	63 9	43 5	81 2

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-141*	*TP-141*	*TP-141*	*TP-142*
CRA Sample I.D.				*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*
Sample Date				*S-061202-WP-0112B*	*S-061202-WP-0113A*	*S-061202-WP-0113B*	*S-061202-WP-0115A*
Sample Time				*12:17*	*12:25*	*12:27*	*13:20*
Test Pit Reference Location				*South End*	*North End*	*North End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*10*	*0*	*0*	*2*
Direction From Reference		*RHE*	*RHE*	*North*			*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*2-4 ft*	*0-2 ft*	*2-4 ft*	*0-2 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	33	ND (40)	ND (8 6)	0 59
Benzo(a)anthracene	mg/Kg	1500	1160	ND (31)	ND (40)	ND (8 6)	2 2
Benzo(a)pyrene	mg/Kg	150	116	ND (31)	ND (40)	ND (8 6)	2 3
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (31)	ND (40)	ND (8.6)	3.9
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (31)	ND (40)	ND (8 6)	ND (0 41)
Dibenzofuran	mg/Kg	NA	5390	110	ND (40)	ND (8 6)	0 71
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (31)	ND (40)	ND (8 6)	0 72
Naphthalene	mg/Kg	NA	48556	2200	ND (40)	75	2
Metals							
Arsenic	mg/Kg	2050	940	256	534	369	947
General Chemistry							
Total Solids	%	NA	NA	53 1	82 5	76 9	80 0

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-142*	*TP-142*	*TP-142*	*TP-142*
CRA Sample I.D.				*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*
Sample Date				*S-061202-WP-0115B*	*S-061202-WP-0116A*	*S-061202-WP-0116B*	*S-061202-WP-0117A*
Sample Time				*13:22*	*13:24*	*13:26*	*13:30*
Test Pit Reference Location				*East End*	*East End*	*East End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*2*	*27*	*27*	*51*
Direction From Reference		*RHE*	*RHE*	*West*	*West*	*West*	*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*2-4 ft*	*0-2 ft*	*2-4 ft*	*0-2 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 41)	ND (0.37)	ND (0 43)	ND (19)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (0 41)	1 7	ND (0 43)	ND (19)
Benzo(a)pyrene	mg/Kg	150	116	ND (0.41)	1 3	ND (0 43)	ND (19)
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (0 41)	2.4	ND (0.43)	ND (19)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 41)	ND (0 37)	ND (0 43)	ND (19)
Dibenzofuran	mg/Kg	NA	5390	ND (0 41)	ND (0 37)	ND (0 43)	ND (19)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0 41)	0 68	ND (0 43)	ND (19)
Naphthalene	mg/Kg	NA	48556	ND (0 41)	1 1	ND (0.43)	ND (19)
Metals							
Arsenic	mg/Kg	2050	940	21.4	141	135	464
General Chemistry							
Total Solids	%	NA	NA	80.0	88 3	77 5	85 5

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-142*	*TP-142*	*TP-143*	*TP-143*
CRA Sample I D.				*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*
Sample Date				*S-061202-WP-0118A*	*S-061202-WP-0117B*	*S-061202-WP-0119A*	*S-061202-WP-0119B*
Sample Time				*13:30*	*13:32*	*14 46*	*14.48*
Test Pit Reference Location				*East End*	*East End*	*East End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*51*	*51*	*5*	*5*
Direction From Reference		*RHE*	*RHE*	*West*	*West*	*West*	*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-2 ft*	*2-4 ft*	*0-2 ft*	*2-4 ft*
Comment				*Duplicate*			
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (20)	17	ND (1 5)	ND (3 8)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (20)	19 J	1 5	ND (3 8)
Benzo(a)pyrene	mg/Kg	150	116	ND (20)	9 8	1 7	ND (3 8)
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (20)	17	3 2	ND (3 8)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (20)	ND (9.3)	ND (1 5)	ND (3 8)
Dibenzofuran	mg/Kg	NA	5390	ND (20)	61 J	1 6	ND (3 8)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (20)	ND (9 3)	1 7	ND (3 8)
Naphthalene	mg/Kg	NA	48556	ND (20)	1100	11	32
Metals							
Arsenic	mg/Kg	2050	940	-	225	251	150
General Chemistry							
Total Solids	%	NA	NA	81.9	71 0	88 9	87 5

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-143*	*TP-143*	*TP-143*	*TP-143*
CRA Sample I.D.				*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*
Sample Date				*S-061202-WP-0119C*	*S-061202-WP-0120A*	*S-061202-WP-0120B*	*S-061202-WP-0120C*
Sample Time				*14:50*	*14:52*	*14.54*	*14:56*
Test Pit Reference Location				*East End*	*West End*	*West End*	*West End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*5*	*5*	*5*	*5*
Direction From Reference		*RHE*	*RHE*	*West*	*East*	*East*	*East*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*4-5 ft*	*0-2 ft*	*2-4 ft*	*4-6 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (20)	ND (35)	ND (7 3)	ND (41)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (20)	ND (35)	ND (7 3)	ND (41)
Benzo(a)pyrene	mg/Kg	150	116	ND (20)	ND (35)	ND (7 3)	ND (41)
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (20)	ND (35)	ND (7.3)	ND (41)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (20)	ND (35)	ND (7 3)	ND (41)
Dibenzofuran	mg/Kg	NA	5390	66	ND (35)	73 J	ND (41)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (20)	ND (35)	ND (7 3)	ND (41)
Naphthalene	mg/Kg	NA	48556	1500	200	2700	380
Metals							
Arsenic	mg/Kg	2050	940	92 8	71 9	220	16 6
General Chemistry							
Total Solids	%	NA	NA	82 8	94 1	90 1	80 7

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-144*	*TP-144*	*TP-144*	*TP-144*
CRA Sample I.D.				*6/13/2002*	*6/13/2002*	*6/13/2002*	*6/13/2002*
Sample Date				*S-061302-WP-0122A*	*S-061302-WP-0123A*	*S-061302-WP-0122B*	*S-061302-WP-0124A*
Sample Time				*08:25*	*08:25*	*08:33*	*08 32*
Test Pit Reference Location				*East End*	*East End*	*East End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*4*	*4*	*4*	*18*
Direction From Reference		*RHE*	*RHE*	*West*	*West*	*West*	*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-2 ft*	*0-2 ft*	*2-4 ft*	*0-2 ft*
Comment					*Duplicate*		
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (2 5)	ND (2 6)	ND (1 8)	-
Benzo(a)anthracene	mg/Kg	1500	1160	5 7	11	6 7	-
Benzo(a)pyrene	mg/Kg	150	116	7 1	12	6 8	-
Benzo(b)fluoranthene	mg/Kg	1500	1160	12	17	11	-
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (2 5)	3 6	1.8	-
Dibenzofuran	mg/Kg	NA	5390	3 8	3 6	2 2	-
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	5 9	8 6	4 8	-
Naphthalene	mg/Kg	NA	48556	18	16	12	-
Metals							
Arsenic	mg/Kg	2050	940	1290 J	1850 J	1200 J	250 J
General Chemistry							
Total Solids	%	NA	NA	86 9	83 7	72 9	89 9

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-144*	*TP-144*	*TP-144*	*TP-145*
CRA Sample I.D.				*6/13/2002*	*6/13/2002*	*6/13/2002*	*6/13/2002*
Sample Date				*S-061302-WP-0124B*	*S-061302-WP-0124C*	*S-061302-WP-0125C*	*S-061302-WP-0127A*
Sample Time				*08:34*	*08:36*	*08:40*	*09.18*
Test Pit Reference Location				*East End*	*East End*	*West End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*18*	*18*	*28*	*0*
Direction From Reference		*RHE*	*RHE*	*West*	*West*	*East*	
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*2-4 ft*	*4-5 ft*	*4-5 ft*	*0-2 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	-	-	ND (99)	-
Benzo(a)anthracene	mg/Kg	1500	1160	-	-	ND (99)	-
Benzo(a)pyrene	mg/Kg	150	116	-	-	ND (99)	-
Benzo(b)fluoranthene	mg/Kg	1500	1160	-	-	ND (99)	-
Dibenz(a,h)anthracene	mg/Kg	150	116	-	-	ND (99)	-
Dibenzofuran	mg/Kg	NA	5390	-	-	ND (99)	-
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	-	-	ND (99)	-
Naphthalene	mg/Kg	NA	48556	-	-	730	-
Metals							
Arsenic	mg/Kg	2050	940	8010 J	3150 J	-	712 J
General Chemistry							
Total Solids	%	NA	NA	74 7	88 2	83 2	85 4

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-145*	*TP-145*	*TP-145*	*TP-145*
CRA Sample I.D.				*6/13/2002*	*6/13/2002*	*6/13/2002*	*6/13/2002*
Sample Date				*S-061302-WP-0127B*	*S-061302-WP-0127C*	*S-061302-WP-0128A*	*S-061302-WP-0128B*
Sample Time				*09.20*	*09:22*	*09.40*	*09.42*
Test Pit Reference Location				*East End*	*East End*	*East End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*0*	*0*	*37*	*37*
Direction From Reference		*RHE*	*RHE*			*West*	*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*2-4 ft*	*4-5 5 ft*	*0-2 ft*	*2-4 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	-	-	ND (0 39)	ND (0.38)
Benzo(a)anthracene	mg/Kg	1500	1160	-	-	ND (0 39)	1 3
Benzo(a)pyrene	mg/Kg	150	116	-	-	ND (0 39)	1 2
Benzo(b)fluoranthene	mg/Kg	1500	1160	-	-	ND (0 39)	2
Dibenz(a,h)anthracene	mg/Kg	150	116	-	-	ND (0 39)	ND (0 38)
Dibenzofuran	mg/Kg	NA	5390	-	-	ND (0 39)	ND (0 38)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	-	-	ND (0 39)	0.79
Naphthalene	mg/Kg	NA	48556	-	-	ND (0 39)	0 45
Metals							
Arsenic	mg/Kg	2050	940	6100 J	649 J	167 J	194 J
General Chemistry							
Total Solids	%	NA	NA	74 5	77.7	85 4	86 3

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-145*	*TP-145*	*TP-145*	*TP-145*
CRA Sample I.D.				*6/13/2002*	*6/13/2002*	*6/13/2002*	*6/13/2002*
Sample Date				*S-061302-WP-0128C*	*S-061302-WP-0129A*	*S-061302-WP-0129B*	*S-061302-WP-0129C*
Sample Time				*09:44*	*10:04*	*10:07*	*10:10*
Test Pit Reference Location				*East End*	*East End*	*East End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*37*	*64*	*64*	*64*
Direction From Reference		*RHE*	*RHE*	*West*	*West*	*West*	*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*4-5.5 ft*	*0-2 ft*	*2-4 ft*	*4-5.5 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (67)	ND (0.37)	ND (2 6)	ND (110)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (67)	1 9	ND (2 6)	120
Benzo(a)pyrene	mg/Kg	150	116	ND (67)	1.6	ND (2 6)	ND (110)
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (67)	2 4	ND (2 6)	ND (110)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (67)	0 53	ND (2 6)	ND (110)
Dibenzofuran	mg/Kg	NA	5390	ND (67)	0 4	ND (2 6)	200
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (67)	1.2	ND (2.6)	ND (110)
Naphthalene	mg/Kg	NA	48556	550	1.7	19	1100
Metals							
Arsenic	mg/Kg	2050	940	1880 J	149 J	93 9 J	467 J
General Chemistry							
Total Solids	%	NA	NA	48.9	88.3	86 0	75.6

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-146*	*TP-146*	*TP-146*	*TP-146*
CRA Sample I.D.				*6/13/2002*	*6/13/2002*	*6/13/2002*	*6/13/2002*
Sample Date				*S-061302-WP-0130A*	*S-061302-WP-0130B*	*S-061302-WP-0130C*	*S-061302-WP-0131A*
Sample Time				*10:33*	*10:35*	*10:37*	*11:30*
Test Pit Reference Location				*East End*	*East End*	*East End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*4*	*4*	*4*	*33*
Direction From Reference		*RHE*	*RHE*	*West*	*West*	*West*	*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-2 ft*	*2-4 ft*	*4-6 ft*	*0-2 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	-	-	-	-
Benzo(a)anthracene	mg/Kg	1500	1160	-	-	-	-
Benzo(a)pyrene	mg/Kg	150	116	-	-	-	-
Benzo(b)fluoranthene	mg/Kg	1500	1160	-	-	-	-
Dibenz(a,h)anthracene	mg/Kg	150	116	-	-	-	-
Dibenzofuran	mg/Kg	NA	5390	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	-	-	-	-
Naphthalene	mg/Kg	NA	48556	-	-	-	-
Metals							
Arsenic	mg/Kg	2050	940	101 J	652 J	3050 J	168 J
General Chemistry							
Total Solids	%	NA	NA	79.8	65 0	60 8	82 4

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-146*	*TP-146*	*TP-146*	*TP-146*
CRA Sample I.D.				*6/13/2002*	*6/13/2002*	*6/13/2002*	*6/13/2002*
Sample Date				*S-061302-WP-0131B*	*S-061302-WP-0132A*	*S-061302-WP-0132B*	*S-061302-WP-0132C*
Sample Time				*10:42*	*11:04*	*11:07*	*11.10*
Test Pit Reference Location				*East End*	*East End*	*East End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*33*	*87*	*87*	*87*
Direction From Reference		*RHE*	*RHE*	*West*	*West*	*West*	*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*3- ft*	*0-2 ft*	*2-4 ft*	*4-5 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	-	ND (16)	ND (2100)	ND (5000)
Benzo(a)anthracene	mg/Kg	1500	1160	-	ND (16)	ND (2100)	ND (5000)
Benzo(a)pyrene	mg/Kg	150	116	-	ND (16)	ND (2100) [400]	ND (5000) (1700)
Benzo(b)fluoranthene	mg/Kg	1500	1160	-	ND (16)	ND (2100)	ND (5000)
Dibenz(a,h)anthracene	mg/Kg	150	116	-	ND (16)	ND (2100)	ND (5000)
Dibenzofuran	mg/Kg	NA	5390	-	ND (16)	ND (2100)	ND (5000)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	-	ND (16)	ND (2100)	ND (5000)
Naphthalene	mg/Kg	NA	48556	-	110	10000	43000
Metals							
Arsenic	mg/Kg	2050	940	535 J	102 J	206 J	1940 J
General Chemistry							
Total Solids	%	NA	NA	52 7	81.4	77 2	65.9

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-147*	*TP-147*	*TP-147*	*TP-147*
CRA Sample I.D.				*6/13/2002*	*6/13/2002*	*6/13/2002*	*6/13/2002*
Sample Date				*S-061302-WP-0136B*	*S-061302-WP-0137A*	*S-061302-WP-0138A*	*S-061302-WP-0137B*
Sample Time				*12:43*	*13.02*	*13.02*	*13 06*
Test Pit Reference Location				*East End*	*East End*	*East End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*4*	*40*	*40*	*40*
Direction From Reference		*RHE*	*RHE*	*West*	*West*	*West*	*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*2-4 ft*	*0-2 ft*	*0-2 ft*	*2-4 ft*
Comment						*Duplicate*	
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 51)	ND (0 43)	ND (0.43)	ND (0 68)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (0 51)	1 7	1 8	0 7
Benzo(a)pyrene	mg/Kg	150	116	ND (0 51)	1 7	1.8	ND (0.68)
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (0 51)	2.5	4	ND (0.68)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 51)	0.52	0 69	ND (0 68)
Dibenzofuran	mg/Kg	NA	5390	ND (0 51)	0.62	0 68	4 1
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0 51)	1 1	1 5	ND (0 68)
Naphthalene	mg/Kg	NA	48556	ND (0 51)	3 9	4.9	81
Metals							
Arsenic	mg/Kg	2050	940	816 J	82 6 J	91 2 J	1270 J
General Chemistry							
Total Solids	%	NA	NA	64 4	77 1	76 0	48 8

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-148*	*TP-148*	*TP-148*	*TP-150*
CRA Sample I.D.				*6/13/2002*	*6/13/2002*	*6/13/2002*	*6/14/2002*
Sample Date				*S-061302-WP-0142A*	*S-061302-WP-0142B*	*S-061302-WP-0142C*	*S-061402-WP-0144A*
Sample Time				*14:08*	*14:10*	*14:12*	*09.00*
Test Pit Reference Location				*East End*	*East End*	*East End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*4*	*4*	*4*	*5*
Direction From Reference		*RHE*	*RHE*	*West*	*West*	*West*	*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*0-2 ft*	*2-4 ft*	*4-5.5 ft*	*0-2 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (0 38)	ND (0 39)	ND (3 8)	ND (0.4)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (0 38)	ND (0 39)	ND (3 8)	0 75
Benzo(a)pyrene	mg/Kg	150	116	ND (0.38)	ND (0.39)	ND (3.8)	0.62
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (0 38)	ND (0.39)	ND (3.8)	1
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0 38)	ND (0 39)	ND (3 8)	ND (0 4)
Dibenzofuran	mg/Kg	NA	5390	ND (0 38)	ND (0 39)	ND (3 8)	ND (0 4)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0.38)	ND (0 39)	ND (3.8)	ND (0.4)
Naphthalene	mg/Kg	NA	48556	ND (0 38)	ND (0 39)	24	ND (0 4)
Metals							
Arsenic	mg/Kg	2050	940	129 J	163 J	34 3 J	369
General Chemistry							
Total Solids	%	NA	NA	87 4	83.6	87 2	83 4

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				*TP-150*	*TP-150*	*TP-150*	*TP-151*
CRA Sample I.D.				*6/14/2002*	*6/14/2002*	*6/14/2002*	*6/14/2002*
Sample Date				*S-061402-WP-0144B*	*S-061402-WP-0145A*	*S-061402-WP-0145B*	*S-061402-WP-0146A*
Sample Time				*09:02*	*09:04*	*09.06*	*09:40*
Test Pit Reference Location				*East End*	*West End*	*West End*	*East End*
Distance From Reference (feet)		*Commercial/Industrial*	*Utility/Construction*	*5*	*5*	*5*	*5*
Direction From Reference		*RHE*	*RHE*	*West*	*East*	*East*	*West*
Sample Interval (feet bgs)		*Criteria*	*Criteria*	*2-4 ft*	*0-2 ft*	*2-4 ft*	*0-2 ft*
Comment							
Parameter	***Unit***						
Semi-Volatiles							
4-Methylphenol	mg/Kg	NA	6738	ND (11)	ND (2 7)	ND (2300)	ND (0 38)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (11)	4.7	ND (2300)	ND (0 38)
Benzo(a)pyrene	mg/Kg	150	116	ND (11)	3	ND (2300)	ND (0 38)
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (11)	5 5	ND (2300)	ND (0 38)
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (11)	ND (2 7)	ND (2300)	ND (0 38)
Dibenzofuran	mg/Kg	NA	5390	ND (11)	ND (2 7)	ND (2300)	ND (0 38)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (11)	ND (2.7)	ND (2300)	ND (0.38)
Naphthalene	mg/Kg	NA	48556	64	17	17000	ND (0 38)
Metals							
Arsenic	mg/Kg	2050	940	3260	59.5	32 3	838
General Chemistry							
Total Solids	%	NA	NA	61.8	80 1	72 7	86.1

TABLE 1

ANALYTICAL RESULTS SUMMARY - TEST PITS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT

Sample Source				TP-151	TP-151	TP-151
CRA Sample I.D.				6/14/2002	6/14/2002	6/14/2002
Sample Date				S-061402-WP-0147A	S-061402-WP-0146B	S-061402-WP-0148A
Sample Time				09:40	09:42	10:05
Test Pit Reference Location				East End	East End	East End
Distance From Reference (feet)		Commercial/Industrial	Utility/Construction	5	5	41
Direction From Reference		RHE	RHE	West	West	West
Sample Interval (feet bgs)		Criteria	Criteria	0-2 ft	2-4 ft	0-2 ft
Comment				Duplicate		
Parameter	***Unit***					
Semi-Volatiles						
4-Methylphenol	mg/Kg	NA	6738	ND (0.38)	ND (10)	ND (1.8)
Benzo(a)anthracene	mg/Kg	1500	1160	ND (0.38)	53 J	7 8
Benzo(a)pyrene	mg/Kg	150	116	ND (0 38)	37 J	6 8
Benzo(b)fluoranthene	mg/Kg	1500	1160	ND (0.38)	60 J	10
Dibenz(a,h)anthracene	mg/Kg	150	116	ND (0.38)	ND (10)	ND (1.8)
Dibenzofuran	mg/Kg	NA	5390	ND (0 38)	21 J	ND (1 8)
Indeno(1,2,3-cd)pyrene	mg/Kg	1500	1160	ND (0.38)	12 J	3.2
Naphthalene	mg/Kg	NA	48556	ND (0.38)	22	ND (1 8)
Metals						
Arsenic	mg/Kg	2050	940	771	266	43 0
General Chemistry						
Total Solids	%	NA	NA	86.3	63 4	73 2

Notes:
J - The associated value is an estimated quantity. (Inorganics)
J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample (Organics)
ND - Non-detect at associated value
- - Not applicable.

TABLE 2

ANALYTICAL RESULTS SUMMARY - SOIL BORINGS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
WAUKEGAN, ILLINOIS

			Sample Source	*SB-200*	*SB-200*	*SB-201*	*SB-201*	*SB-202*	*SB-202*
			CRA Sample I.D.	*6/11/2002*	*6/11/2002*	*6/11/2002*	*6/11/2002*	*6/11/2002*	*6/11/2002*
			Sample Date	*S-061102-WP-200*	*S-061102-WP-201*	*S-061102-WP-202*	*S-061102-WP-203*	*S-061102-WP-204*	*S-061102-WP-205*
			Sample Time	*09:10*	*09:15*	*09:40*	*09:45*	*10:05*	*10:15*
		Commercial/ Industrial RHE Criteria	*Utility/ Construction RHE Criteria*						
				1-2 ft	*2-4 ft*	*1-2 ft*	*2-4 ft*	*1-2 ft*	*2-3.5 ft*
Parameter	*Unit*								
Semi-Volatiles									
4-Methylphenol	mg/kg	NA	6738	-	-	-	-	-	-
Benzo(a)anthracene	mg/kg	1500	1160	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	150	116	-	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	1500	1160	-	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	150	116	-	-	-	-	-	-
Dibenzofuran	mg/kg	NA	5390	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	1500	1160	-	-	-	-	-	-
Naphthalene	mg/kg	NA	48556	-	-	-	-	-	-
Metals									
Arsenic	mg/kg	2050	940	223	583	11300	1630	3140	3570
General Chemistry									
Total Solids	%	NA	NA	67.6	75 7	78.8	75.7	96 5	78 0

TABLE 2

ANALYTICAL RESULTS SUMMARY - SOIL BORINGS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
WAUKEGAN, ILLINOIS

			Sample Source	*SB-203*	*SB-203*	*SB-203*	*SB-204*	*SB-204*	*SB-205*
			CRA Sample I.D.	*6/11/2002*	*6/11/2002*	*6/11/2002*	*6/11/2002*	*6/11/2002*	*6/11/2002*
			Sample Date	*S-061102-WP-206*	*S-061102-WP-207*	*S-061102-WP-208*	*S-061102-WP-210*	*S-061102-WP-211*	*S-061102-WP-213*
			Sample Time	*10:25*	*10.27*	*10:30*	*12:15*	*12·20*	*12:40*
		Commercial/ Industrial	*Utility/ Construction*						
		RHE	RHE						
		Criteria	*Criteria*	*1-2 ft*	*1-2 ft*	*2-4 ft*	*1-2 ft*	*2-3 ft*	*1-2 ft*
					Duplicate				
Parameter	*Unit*								
Semi-Volatiles									
4-Methylphenol	mg/kg	NA	6738	-	-	-	-	-	-
Benzo(a)anthracene	mg/kg	1500	1160	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	150	116	-	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	1500	1160	-	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	150	116	-	-	-	-	-	-
Dibenzofuran	mg/kg	NA	5390	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	1500	1160	-	-	-	-	-	-
Naphthalene	mg/kg	NA	48556	-	-	-	-	-	-
Metals									
Arsenic	mg/kg	2050	940	8.1	6 7	53.2	32 5	1620	191
General Chemistry									
Total Solids	%	NA	NA	88 6	82.1	84 4	74 8	77 6	84 9

TABLE 2

ANALYTICAL RESULTS SUMMARY - SOIL BORINGS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
WAUKEGAN, ILLINOIS

			Sample Source	*SB-205*	*SB-206*	*SB-206*	*SB-207*	*SB-207*	*SB-208*
			CRA Sample I.D.	*6/11/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*
			Sample Date	*S-061102-WP-214*	*S-061202-WP-215*	*S-061202-WP-216*	*S-061202-WP-217*	*S-061202-WP-218*	*S-061202-WP-219*
			Sample Time	*12:45*	*09:15*	*09:18*	*09:25*	*09:30*	*09:37*
		Commercial/ Industrial	*Utility/ Construction*						
		RHE	*RHE*						
		Criteria	*Criteria*	*2-3.5 ft*	*1-2 ft*	*2-4 ft*	*1-2 ft*	*2-3 ft*	*1-2 ft*
Parameter	*Unit*								
Semi-Volatiles									
4-Methylphenol	mg/kg	NA	6738	-	ND (0 39)	ND (0 41)	ND (0 39)	ND (250)	ND (0 37)
Benzo(a)anthracene	mg/kg	1500	1160	-	ND (0 39)	ND (0 41)	ND (0 39)	2900	ND (0 37)
Benzo(a)pyrene	mg/kg	150	116	-	ND (0 39)	ND (0 41)	ND (0 39)	2300	ND (0.37)
Benzo(b)fluoranthene	mg/kg	1500	1160	-	ND (0 39)	ND (0 41)	ND (0 39)	3100	ND (0 37)
Dibenz(a,h)anthracene	mg/kg	150	116	-	ND (0 39)	ND (0 41)	ND (0 39)	320	ND (0 37)
Dibenzofuran	mg/kg	NA	5390	-	ND (0 39)	ND (0.41)	ND (0 39)	ND (250)	ND (0 37)
Indeno(1,2,3-cd)pyrene	mg/kg	1500	1160	-	ND (0 39)	ND (0 41)	ND (0 39)	910	ND (0 37)
Naphthalene	mg/kg	NA	48556	-	ND (0 39)	ND (0 41)	ND (0 39)	ND (250)	ND (0 37)
Metals									
Arsenic	mg/kg	2050	940	147	-	-	-	-	-
General Chemistry									
Total Solids	%	NA	NA	80 9	84.7	80.2	84 4	58.4	88 3

TABLE 2

ANALYTICAL RESULTS SUMMARY - SOIL BORINGS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
WAUKEGAN, ILLINOIS

			Sample Source	*SB-208*	*SB-209*	*SB-210*	*SB-210*	*SB-211*	*SB-211*
			CRA Sample I.D.	*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*
			Sample Date	*S-061202-WP-220*	*S-061202-WP-222*	*S-061202-WP-223*	*S-061202-WP-224*	*S-061202-WP-225*	*S-061202-WP-226*
			Sample Time	*09:40*	*09:58*	*10:20*	*10:30*	*10:40*	*10 45*
		Commercial/ Industrial RHE Criteria	*Utility/ Construction RHE Criteria*	*2-3.5 ft*	*2-3 ft*	*1-2 ft*	*5-6 ft*	*1-2 ft*	*3-5 ft*
Parameter	*Unit*								
Semi-Volatiles									
4-Methylphenol	mg/kg	NA	6738	ND (0 38)	ND (5400)	ND (180)	ND (4)	ND (0 38)	ND (0 38)
Benzo(a)anthracene	mg/kg	1500	1160	ND (0 38)	ND (5400)	1100	4 1	ND (0 38)	ND (0 38)
Benzo(a)pyrene	mg/kg	150	116	ND (0 38)	ND (5400)	720	ND (4)	ND (0.38)	ND (0.38)
Benzo(b)fluoranthene	mg/kg	1500	1160	ND (0 38)	ND (5400)	1000	ND (4)	ND (0 38)	ND (0 38)
Dibenz(a,h)anthracene	mg/kg	150	116	ND (0 38)	ND (5400)	ND (180)	ND (4)	ND (0 38)	ND (0 38)
Dibenzofuran	mg/kg	NA	5390	ND (0 38)	ND (5400)	640	4 2	ND (0.38)	ND (0 38)
Indeno(1,2,3-cd)pyrene	mg/kg	1500	1160	ND (0 38)	ND (5400)	330	ND (4)	ND (0 38)	ND (0.38)
Naphthalene	mg/kg	NA	48556	ND (0 38)	29000	1400	23	ND (0 38)	0 85
Metals									
Arsenic	mg/kg	2050	940	-	-	-	-	-	-
General Chemistry									
Total Solids	%	NA	NA	86 2	86.0	90 1	82 7	86.4	87 4

ANALYTICAL RESULTS SUMMARY - SOIL BORINGS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
WAUKEGAN, ILLINOIS

			Sample Source	*SB-212*	*SB-212*	*SB-212*	*SB-213*	*SB-214*	*SB-214*
			CRA Sample I.D.	*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*
			Sample Date	*S-061202-WP-227*	*S-061202-WP-228*	*S-061202-WP-229*	*S-061202-WP-230*	*S-061202-WP-231*	*S-061202-WP-232*
			Sample Time	*11:00*	*11:03*	*11:05*	*11:15*	*12:35*	*12:40*
		Commercial/ Industrial	*Utility/ Construction*						
		RHE	*RHE*						
		Criteria	*Criteria*	*1-3 ft*	*1-3 ft*	*3-5 ft*	*1-3 ft*	*1-3 ft*	*4-5 ft*
					Duplicate				
Parameter	***Unit***								
Semi-Volatiles									
4-Methylphenol	mg/kg	NA	6738	ND (4 4)	ND (9 3)	ND (8 1)	ND (35)	ND (93)	0 99
Benzo(a)anthracene	mg/kg	1500	1160	12	26	10	170	510	0.47
Benzo(a)pyrene	mg/kg	150	116	7 8	18	ND (8 1)	130	410	0 48
Benzo(b)fluoranthene	mg/kg	1500	1160	11	25	9 2	170	590	0.86
Dibenz(a,h)anthracene	mg/kg	150	116	ND (4 4)	ND (9 3)	ND (8.1)	ND (35)	ND (93)	ND (0 43)
Dibenzofuran	mg/kg	NA	5390	5 7	12	9.8	40	290	0 9
Indeno(1,2,3-cd)pyrene	mg/kg	1500	1160	ND (4 4)	ND (9.3)	ND (8.1)	52	170	ND (0 43)
Naphthalene	mg/kg	NA	48556	41 J	77 J	65	ND (35)	270	2 5
Metals									
Arsenic	mg/kg	2050	940	-	-	-	-	-	-
General Chemistry									
Total Solids	%	NA	NA	93 0	88.5	81.5	94.1	88 3	76 1

TABLE 2

ANALYTICAL RESULTS SUMMARY - SOIL BORINGS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
WAUKEGAN, ILLINOIS

			Sample Source	*SB-215*	*SB-215*	*SB-216*	*SB-217*	*SB-218*	*SB-218*
			CRA Sample I.D.	*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*
			Sample Date	*S-061202-WP-233*	*S-061202-WP-234*	*S-061202-WP-235*	*S-061202-WP-237*	*S-061202-WP-238*	*S-061202-WP-239*
			Sample Time	*12:47*	*12:50*	*13:10*	*13:30*	*13:40*	*13:45*
		Commercial/ Industrial RHE Criteria	*Utility/ Construction RHE Criteria*	*1-3 ft*	*4-5 ft*	*4-5 ft*	*2-4 ft*	*2-2.5 ft*	*4.5-5 5 ft*
Parameter	*Unit*								
Semi-Volatiles									
4-Methylphenol	mg/kg	NA	6738	ND (0 39)	ND (0.77)	ND (2)	ND (0 55)	ND (3 5)	ND (20)
Benzo(a)anthracene	mg/kg	1500	1160	ND (0 39)	ND (0.77)	ND (2)	ND (0 55)	13	110
Benzo(a)pyrene	mg/kg	150	116	ND (0 39)	ND (0 77)	ND (2)	ND (0 55)	11	84
Benzo(b)fluoranthene	mg/kg	1500	1160	ND (0.39)	ND (0.77)	ND (2)	ND (0.55)	13	110
Dibenz(a,h)anthracene	mg/kg	150	116	ND (0 39)	ND (0.77)	ND (2)	ND (0 55)	ND (3 5)	ND (20)
Dibenzofuran	mg/kg	NA	5390	ND (0 39)	0 84	4 2	ND (0.55)	7 5	110
Indeno(1,2,3-cd)pyrene	mg/kg	1500	1160	ND (0.39)	ND (0.77)	ND (2)	ND (0.55)	4 9	34
Naphthalene	mg/kg	NA	48556	ND (0 39)	5	15	ND (0 55)	18	ND (20)
Metals									
Arsenic	mg/kg	2050	940	-	-	-	-	-	-
General Chemistry									
Total Solids	%	NA	NA	84 3	85 8	82.1	59.7	95 6	82 1

ANALYTICAL RESULTS SUMMARY - SOIL BORINGS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
WAUKEGAN, ILLINOIS

			Sample Source	*SB-219*	*SB-219*	*SB-220*	*SB-220*	*SB-220*	*SB-221*
			CRA Sample I.D.	*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*
			Sample Date	*S-061202-WP-240*	*S-061202-WP-241*	*S-061202-WP-242*	*S-061202-WP-243*	*S-061202-WP-244*	*S-061202-WP-245*
			Sample Time	*14:00*	*14:05*	*14:15*	*14:20*	*14:25*	*14:35*
		Commercial/ Industrial	*Utility/ Construction*						
		RHE	*RHE*						
		Criteria	*Criteria*	*2-4 ft*	*4-6 ft*	*1-3 ft*	*3-5 ft*	*3-5 ft*	*1.5-3.5 ft*
								Duplicate	
Parameter	*Unit*								
Semi-Volatiles									
4-Methylphenol	mg/kg	NA	6738	ND (0 41)	3 4	ND (0 38)	ND (0 38)	ND (0 38)	ND (0 38)
Benzo(a)anthracene	mg/kg	1500	1160	ND (0 41)	ND (0 45)	ND (0 38)	ND (0 38)	ND (0 38)	ND (0 38)
Benzo(a)pyrene	mg/kg	150	116	ND (0.41)	ND (0 45)	ND (0 38)	ND (0 38)	ND (0 38)	ND (0 38)
Benzo(b)fluoranthene	mg/kg	1500	1160	0.46	ND (0.45)	ND (0.38)	ND (0.38)	0 73	ND (0 38)
Dibenz(a,h)anthracene	mg/kg	150	116	ND (0.41)	ND (0 45)	ND (0.38)	ND (0 38)	ND (0 38)	ND (0 38)
Dibenzofuran	mg/kg	NA	5390	ND (0 41)	ND (0.45)	ND (0 38)	ND (0 38)	ND (0 38)	ND (0 38)
Indeno(1,2,3-cd)pyrene	mg/kg	1500	1160	ND (0 41)	ND (0 45)	ND (0 38)	ND (0 38)	ND (0 38)	ND (0 38)
Naphthalene	mg/kg	NA	48556	ND (0 41)	2 7	0 59	ND (0 38)	ND (0 38)	ND (0 38)
Metals									
Arsenic	mg/kg	2050	940	-	-	-	-	-	-
General Chemistry									
Total Solids	%	NA	NA	80 7	73 2	86 3	86 2	85 7	85 9

TABLE 2

ANALYTICAL RESULTS SUMMARY - SOIL BORINGS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
WAUKEGAN, ILLINOIS

			Sample Source	*SB-222*	*SB-222*	*SB-223*	*SB-223*	*SB-224*	*SB-224*
			CRA Sample I.D.	*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*	*6/12/2002*
			Sample Date	S-061202-WP-246	S-061202-WP-247	S-061202-WP-249	S-061202-WP-250	S-061202-WP-251	S-061202-WP-252
			Sample Time	*14:50*	*14:55*	*15:10*	*15:15*	*15:25*	*15.30*
		Commercial/ Industrial RHE Criteria	*Utility/ Construction RHE Criteria*	*1-2 ft*	*3-5 ft*	*1-3 ft*	*3-5 ft*	*1 5-3 ft*	*3-4.5 ft*
Parameter	*Unit*								
Semi-Volatiles									
4-Methylphenol	mg/kg	NA	6738	ND (0 41)	ND (0 45)	ND (94)	ND (200)	ND (4 8)	ND (7.7)
Benzo(a)anthracene	mg/kg	1500	1160	ND (0 41)	ND (0 45)	140	ND (200)	5.8	ND (7.7)
Benzo(a)pyrene	mg/kg	150	116	ND (0.41)	ND (0 45)	ND (94)	ND (200)	ND (4 8)	ND (7 7)
Benzo(b)fluoranthene	mg/kg	1500	1160	ND (0 41)	ND (0 45)	130	ND (200)	6 2	ND (7 7)
Dibenz(a,h)anthracene	mg/kg	150	116	ND (0 41)	ND (0 45)	ND (94)	ND (200)	ND (4 8)	ND (7 7)
Dibenzofuran	mg/kg	NA	5390	ND (0 41)	ND (0 45)	130	250	ND (4 8)	ND (7 7)
Indeno(1,2,3-cd)pyrene	mg/kg	1500	1160	ND (0.41)	ND (0.45)	ND (94)	ND (200)	ND (4 8)	ND (7 7)
Naphthalene	mg/kg	NA	48556	ND (0.41)	ND (0 45)	980	1500	39	43
Metals									
Arsenic	mg/kg	2050	940	-	-	-	-	-	-
General Chemistry									
Total Solids	%	NA	NA	80 6	73 5	70 0	67 2	86 7	85 7

TABLE 2

ANALYTICAL RESULTS SUMMARY - SOIL BORINGS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
WAUKEGAN, ILLINOIS

			Sample Source	*SB-225*	*SB-225*	*SB-226*	*SB-226*	*SB-227*	*SB-228*
			CRA Sample I.D.	*6/12/2002*	*6/12/2002*	*6/14/2002*	*6/14/2002*	*6/14/2002*	*6/14/2002*
			Sample Date	*S-061202-WP-253*	*S-061202-WP-254*	*S-061402-WP-255*	*S-061402-WP-256*	*S-061402-WP-257*	*S-061402-WP-258*
			Sample Time	*15:35*	*15:40*	*08:25*	*08:30*	*08.40*	*08:50*
		Commercial/ Industrial RHE Criteria	*Utility/ Construction RHE Criteria*	*1-3 ft*	*4-5 ft*	*1-3 ft*	*3-5 ft*	*2-4 ft*	*1.5-3.5 ft*
Parameter	*Unit*								
Semi-Volatiles									
4-Methylphenol	mg/kg	NA	6738	ND (0 41)	ND (4 5)	ND (2)	ND (0 41)	ND (0 38)	ND (0 41)
Benzo(a)anthracene	mg/kg	1500	1160	0 98	13	3.5	ND (0 41)	ND (0 38)	ND (0 41)
Benzo(a)pyrene	mg/kg	150	116	1	9 6	2 7	ND (0 41)	ND (0 38)	ND (0 41)
Benzo(b)fluoranthene	mg/kg	1500	1160	1 7	14	4 8	ND (0.41)	ND (0 38)	0 56
Dibenz(a,h)anthracene	mg/kg	150	116	ND (0 41)	ND (4 5)	ND (2)	ND (0.41)	ND (0.38)	ND (0 41)
Dibenzofuran	mg/kg	NA	5390	ND (0 41)	22	ND (2)	ND (0.41)	ND (0 38)	ND (0 41)
Indeno(1,2,3-cd)pyrene	mg/kg	1500	1160	0 59	ND (4 5)	ND (2)	ND (0 41)	ND (0 38)	ND (0 41)
Naphthalene	mg/kg	NA	48556	0 45	33	ND (2)	ND (0.41)	ND (0 38)	ND (0 41)
Metals									
Arsenic	mg/kg	2050	940	-	-	-	-	-	-
General Chemistry									
Total Solids	%	NA	NA	79 6	73 9	66 2	81.4	86 8	80.9

TABLE 2

ANALYTICAL RESULTS SUMMARY - SOIL BORINGS
SOIL PRE-DESIGN STUDY SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
WAUKEGAN, ILLINOIS

			Sample Source	*SB-229*	*SB-230*	*SB-231*	*SB-231*	*SB-232*
			CRA Sample I.D.	*6/14/2002*	*6/14/2002*	*6/14/2002*	*6/14/2002*	*6/14/2002*
			Sample Date	*S-061402-WP-259*	*S-061402-WP-260*	*S-061402-WP-261*	*S-061402-WP-262*	*S-061402-WP-263*
			Sample Time	*09:05*	*09:20*	*09:40*	*09:45*	*10:10*
		Commercial/ Industrial RHE Criteria	*Utility/ Construction RHE Criteria*	*1-3 ft*	*2-4 ft*	*1-3 ft*	*4-5 ft*	*2-4 ft*
Parameter	*Unit*							
Semi-Volatiles								
4-Methylphenol	mg/kg	NA	6738	ND (0 38)	ND (7 7)	ND (2 4)	ND (26)	1 6
Benzo(a)anthracene	mg/kg	1500	1160	ND (0 38)	38	3 1	100	3 5
Benzo(a)pyrene	mg/kg	150	116	ND (0 38)	29	ND (2 4)	71	2 7
Benzo(b)fluoranthene	mg/kg	1500	1160	ND (0 38)	42	3.2	96	4 1
Dibenz(a,h)anthracene	mg/kg	150	116	ND (0 38)	ND (7.7)	ND (2 4)	ND (26)	0 46
Dibenzofuran	mg/kg	NA	5390	ND (0 38)	16	ND (2 4)	93	ND (0 4)
Indeno(1,2,3-cd)pyrene	mg/kg	1500	1160	ND (0.38)	13	ND (2.4)	31	1 3
Naphthalene	mg/kg	NA	48556	0 53	ND (7 7)	15	220	1 9
Metals								
Arsenic	mg/kg	2050	940	-	-	-	-	-
General Chemistry								
Total Solids	%	NA	NA	85.7	85.7	93.5	79.3	82 2

Notes:
J - The associated value is an estimated quantity. (Inorganics)
J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample (Organics)
ND - Non-detect at associated value
- - Not applicable

ANALYTICAL RESULTS SUMMARY
WASTE CHARACTERIZATION SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
WAUKEGAN, ILLINOIS

		Designated Soil Stockpile Samples				PAH Soil Investigation Zone 6		
Sample Location		*SB-233*	*SB-234*	*SB-235*	*SB-236*	*TP-121*	*TP-124*	*TP-127*
Sample ID		*S-061402-WP-264*	*S-061402-WP-266*	*S-061402-WP-268*	*S-061402-WP-270*	*S-060702-WP-060*	*S-061002-WP-071*	*S-061002-WP-081*
Sample Date		*6/14/2002*	*6/14/2002*	*6/14/2002*	*6/14/2002*	*6/7/2002*	*6/10/2002*	*6/10/2002*
Sample Time		*11:42*	*12:01*	*12 13*	*00:00*	*11.35*	*08 17*	*11 55*
Sample Type		Soil	Soil	Soil	Soil	Soil	Tar	Tar-Saturated Sand
Parameter	*Unit*							
TCLP Volatiles								
1,1-Dichloroethene	mg/L	ND (0 070)	ND (0 070)	ND (0 070)	ND (0 070)	ND (0 070)	ND (0 47)	ND (0 47)
1,2-Dichloroethane	mg/L	ND (0 025)	ND (0 025)	ND (0 025)	ND (0 025)	ND (0 025)	ND (0 17)	ND (0 17)
2-Butanone	mg/L	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 33)	ND (0 33)
Benzene	mg/L	ND (0 025)	ND (0 025)	ND (0 025)	ND (0 025)	0 11	1.5	1 8
Carbon tetrachloride	mg/L	ND (0 025)	ND (0 025)	ND (0 025)	ND (0.025)	ND (0 025)	ND (0 17)	ND (0 17)
Chlorobenzene	mg/L	ND (0 025)	ND (0 025)	ND (0 025)	ND (0 025)	ND (0 025)	ND (0 17)	ND (0 17)
Chloroform (Trichloromethane)	mg/L	ND (0 025)	ND (0 025)	ND (0 025)	ND (0 025)	ND (0 025)	ND (0 17)	ND (0 17)
Tetrachloroethene	mg/L	ND (0 070)	ND (0 070)	ND (0 070)	ND (0 070)	ND (0 070)	ND (0 47)	ND (0 47)
Trichloroethene	mg/L	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 33)	ND (0 33)
Vinyl chloride	mg/L	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 33)	ND (0 33)
TCLP Semi-Volatiles								
1,4-Dichlorobenzene	mg/L	ND (0 050)	ND (0 050)	ND (0.050)	ND (0 050)	ND (0 20)	ND (20)	ND (0 25)
2,4,5-Trichlorophenol	mg/L	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 20)	ND (20)	ND (0 25)
2,4,6-Trichlorophenol	mg/L	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 20)	ND (20)	ND (0 25)
2,4-Dinitrotoluene	mg/L	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 050)	ND (0.20)	ND (20)	ND (0 25)
2-Methylphenol	mg/L	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 050)	0 33	ND (20)	ND (0 25)
3&4-Methylphenol	mg/L	ND (0 10)	ND (0 10)	ND (0 10)	ND (0 10)	ND (0 40)	ND (40)	ND (0 50)
Hexachlorobenzene	mg/L	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 20)	ND (20)	ND (0 25)
Hexachlorobutadiene	mg/L	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 20)	ND (20)	ND (0 25)
Hexachloroethane	mg/L	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 050)	ND (0 20)	ND (20)	ND (0 25)
Nitrobenzene	mg/L	ND (0 050)	ND (0 050)	ND (0.050)	ND (0.050)	ND (0 20)	ND (20)	ND (0 25)
Pentachlorophenol	mg/L	ND (0 10)	ND (0 10)	ND (0 10)	ND (0 10)	ND (0 40)	ND (40)	ND (0 50)
Pyridine	mg/L	ND (0 10)	ND (0 10)	ND (0 10)	ND (0 10)	ND (0 40)	ND (40)	ND (0 50)
TCLP Metals								
Arsenic	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Barium	mg/L	ND (10 0)	ND (10 0)	ND (10 0)	ND (10 0)	ND (10 0)	ND (10 0)	ND (10 0)
Cadmium	mg/L	ND (0 10)	ND (0 10)	ND (0 10)	ND (0 10)	ND (0 10)	ND (0 10)	ND (0 10)
Chromium	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0 50)	ND (0.50)
Lead	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0 50)	ND (0.50)
Mercury	mg/L	ND (0 0020)	ND (0.0020)	ND (0 0020)	ND (0 0020)	ND (0 0020)	ND (0 0020)	ND (0 0020)
Selenium	mg/L	ND (0 25)	ND (0 25)	ND (0 25)	ND (0 25)	ND (0 25)	ND (0 25)	ND (0 25)
Silver	mg/L	ND (0.50)	ND (0 50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0 50)	ND (0 50)
PCBs								
Aroclor-1016 (PCB-1016)	ug/Kg	ND (340)	ND (3600)	ND (34)	ND (34)	ND (96)	ND (430)	ND (38)
Aroclor-1221 (PCB-1221)	ug/Kg	ND (340)	ND (3600)	ND (34)	ND (34)	ND (96)	ND (430)	ND (38)
Aroclor-1232 (PCB-1232)	ug/Kg	ND (340)	ND (3600)	ND (34)	ND (34)	ND (96)	ND (430)	ND (38)
Aroclor-1242 (PCB-1242)	ug/Kg	ND (340)	ND (3600)	ND (34)	ND (34)	ND (96)	ND (430)	ND (38)
Aroclor-1248 (PCB-1248)	ug/Kg	4400	41000	230	220	660	ND (430)	ND (38)
Aroclor-1254 (PCB-1254)	ug/Kg	ND (340)	ND (3600)	ND (34)	ND (34)	ND (96)	ND (430)	ND (38)
Aroclor-1260 (PCB-1260)	ug/Kg	550	5300	37	57	100	ND (430)	ND (38)
TCLP Pesticides								
Chlordane	mg/L	ND (0.0050)	ND (0 0050)	ND (0.0050)	ND (0.0050)	ND (0 0050)	ND (0.0050)	ND (0 0050)
Endrin	mg/L	ND (0.00050)	ND (0 00050)	ND (0 00050)	ND (0.00050)	ND (0 00050)	ND (0 00050)	ND (0 00050)
gamma-BHC (Lindane)	mg/L	ND (0 00050)	ND (0 00050)	ND (0 00050)	ND (0.00050)	ND (0 00050)	ND (0 00050)	ND (0 00050)
Heptachlor epoxide	mg/L	ND (0 00050)	ND (0.00050)	ND (0 00050)	ND (0.00050)	ND (0 00050)	ND (0 00050)	ND (0 00050)
Heptachlor	mg/L	ND (0 00050)	ND (0 00050)	ND (0 00050)	ND (0 00050)	ND (0 00050)	0 0019	ND (0 00050)
Methoxychlor	mg/L	ND (0.0010)	ND (0 0010)	ND (0.0010)	ND (0.0010)	ND (0 0010)	ND (0 0010)	ND (0 0010)
Toxaphene	mg/L	ND (0 020)	ND (0 020)	ND (0 020)	ND (0 020)	ND (0 020)	ND (0 020)	ND (0 020)
TCLP Herbicides								
2,4,5-TP (Silvex)	mg/L	ND (0 10)	ND (0 10)	ND (0 10)	ND (0 10)	ND (0 10)	ND (0 10)	ND (0 10)
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0 50)
General Chemistry								
Ignitability	deg f	180 >	180 >	180 >	180 >	180 >	180 >	180 >
Paint filter	%	NEG	NEG	NEG	NEG	NEG	NEG	NEG
pH Corrosivity	S U	8 0	7 9	8 1	8 3	7 3	7 9	8.5
Reactive Cyanide	mg/Kg	ND (200)	ND (200)	ND (200)	ND (200)	ND (200)	ND (200)	ND (200)
Reactive Sulfide	mg/Kg	ND (200)	ND (200)	ND (200)	ND (200)	ND (200)	ND (200)	ND (200)
Sulfate	mg/Kg	704	1280	871	174	56 9	39 2	ND (11 6)
Sulfide	mg/Kg	ND (5.2)	ND (5 4)	ND (5 1)	62 6	ND (14 6)	ND (12 9)	46 5
Total Solids	%	95 9	92 3	98.2	95.8	68 6	77.5	86 0

TABLE 3

ANALYTICAL RESULTS SUMMARY
WASTE CHARACTERIZATION SAMPLING
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
WAUKEGAN, ILLINOIS

		Arsenic Zone		
Sample Location		*TP-141*	*TP-146*	*TP-147*
Sample ID		S-061202-WP-0114	S-061302-WP-0133	S-061302-WP-0139
Sample Date		6/12/2002	6/13/2002	6/13/2002
Sample Time		12 30	11 10	13 20
Sample Type		*Coal Fines/Pond Deposits*	*Pond Deposit*	*Tar/Pond Deposit*
Parameter	*Unit*			
TCLP Volatiles				
1,1-Dichloroethene	mg/L	ND (0 070)	ND (0 070)	ND (0 070)
1,2-Dichloroethane	mg/L	ND (0 025)	ND (0 025)	ND (0 025)
2-Butanone	mg/L	ND (0 050)	ND (0 050)	ND (0 050)
Benzene	mg/L	0 073	ND (0 025)	0 26
Carbon tetrachloride	mg/L	ND (0 025)	ND (0 025)	ND (0 025)
Chlorobenzene	mg/L	ND (0 025)	ND (0 025)	ND (0 025)
Chloroform (Trichloromethane)	mg/L	ND (0 025)	ND (0 025)	ND (0 025)
Tetrachloroethene	mg/L	ND (0 070)	ND (0 070)	ND (0 070)
Trichloroethene	mg/L	ND (0 050)	ND (0 050)	ND (0 050)
Vinyl chloride	mg/L	ND (0 050)	ND (0 050)	ND (0 050)
TCLP Semi-Volatiles				
1,4-Dichlorobenzene	mg/L	ND (0 25)	ND (0 050)	ND (10)
2,4,5-Trichlorophenol	mg/L	ND (0 25)	ND (0 050)	ND (10)
2,4,6-Trichlorophenol	mg/L	ND (0 25)	ND (0 050)	ND (10)
2,4-Dinitrotoluene	mg/L	ND (0 25)	ND (0 050)	ND (10)
2-Methylphenol	mg/L	ND (0 25)	ND (0 050)	ND (10)
3&4-Methylphenol	mg/L	ND (0.50)	ND (0 10)	23
Hexachlorobenzene	mg/L	ND (0 25)	ND (0 050)	ND (10)
Hexachlorobutadiene	mg/L	ND (0 25)	ND (0 050)	ND (10)
Hexachloroethane	mg/L	ND (0 25)	ND (0 050)	ND (10)
Nitrobenzene	mg/L	ND (0.25)	ND (0 050)	ND (10)
Pentachlorophenol	mg/L	ND (0.50)	ND (0 10)	ND (20)
Pyridine	mg/L	ND (0.50)	ND (0 10)	ND (20)
TCLP Metals				
Arsenic	mg/L	ND (0.50)	ND (0.50)	ND (0 50)
Barium	mg/L	ND (10 0)	ND (10.0)	ND (10.0)
Cadmium	mg/L	ND (0 10)	ND (0 10)	ND (0 10)
Chromium	mg/L	ND (0.50)	ND (0.50)	ND (0 50)
Lead	mg/L	ND (0.50)	ND (0.50)	ND (0.50)
Mercury	mg/L	ND (0 0020)	ND (0.0020)	ND (0 0020)
Selenium	mg/L	ND (0 25)	ND (0 25)	ND (0 25)
Silver	mg/L	ND (0 50)	ND (0.50)	ND (0.50)
PCBs				
Aroclor-1016 (PCB-1016)	ug/Kg	ND (63)	ND (62)	ND (44)
Aroclor-1221 (PCB-1221)	ug/Kg	ND (63)	ND (62)	ND (44)
Aroclor-1232 (PCB-1232)	ug/Kg	ND (63)	ND (62)	ND (44)
Aroclor-1242 (PCB-1242)	ug/Kg	ND (63)	ND (62)	ND (44)
Aroclor-1248 (PCB-1248)	ug/Kg	ND (63)	ND (62)	ND (44)
Aroclor-1254 (PCB-1254)	ug/Kg	ND (63)	ND (62)	ND (44)
Aroclor-1260 (PCB-1260)	ug/Kg	ND (63)	ND (62)	ND (44)
TCLP Pesticides				
Chlordane	mg/L	ND (0 0050)	ND (0.0050)	ND (0 010)
Endrin	mg/L	ND (0 00050)	ND (0 00050)	ND (0 0010)
gamma-BHC (Lindane)	mg/L	ND (0.00050)	ND (0.00050)	ND (0.0010)
Heptachlor epoxide	mg/L	ND (0.00050)	ND (0.00050)	ND (0 0010)
Heptachlor	mg/L	ND (0 00050)	ND (0.00050)	ND (0 0010)
Methoxychlor	mg/L	ND (0.0010)	ND (0.0010)	ND (0 0020)
Toxaphene	mg/L	ND (0 020)	ND (0 020)	ND (0.040)
TCLP Herbicides				
2,4,5-TP (Silvex)	mg/L	ND (0 10)	ND (0 10)	ND (0 10)
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/L	ND (0.50)	ND (0.50)	ND (0.50)
General Chemistry				
Ignitability	deg f	180 >	180 >	180 >
Paint filter	%	NEG	NEG	NEG
pH Corrosivity	S U	6 1	1.3	7 6
Reactive Cyanide	mg/Kg	ND (200)	ND (200)	ND (200)
Reactive Sulfide	mg/Kg	ND (200)	ND (200)	ND (200)
Sulfate	mg/Kg	394	15200	456
Sulfide	mg/Kg	228	37.8	ND (6 6)
Total Solids	%	52 7	53 0	75.8

Notes,

> - Greater than.

ND - Non-detect at associated value

NEG - Ne

TABLE 4

SUMMARY OF COMPOSITE SOIL SAMPLE LOCATIONS
SOIL PRE DESIGN STUDY
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
WAUKEGAN, ILLINOIS

PAH Areas	*Composite Sample Number*	*Sample Location*	*Pre-Design Samples to be Composited*
PAH SIZ-1 [1]	CS-001	TP-104	S-060502-WP-016 A
		TP-103	S-060502-WP-013 A,B
PAH SIZ-3	CS-002	TP-109	S-060602-WP-030 B,C
		TP-108	S-060602-WP-028 B,C
		TP-109	S-060602-WP-031 B,C
PAH SIZ-7	CS-003	TP-112	S-060602-WP-037 A,B
		TP-112	S-060602-WP-038
		SB-207	S-061202-WP-0217
		SB-207	S-061202-WP-0218
		SB-210	S-061202-WP-0223
		SB-210	S-061202-WP-0224
		TP-123	S-060702-WP-069 A,B
PAH SIZ-5&6	CS-004	TP-127	S-061002-WP-079 B,C
		TP-130	S-061102-WP-087 A,B,C
		TP-143	S-061202-WP-0120 A,B,C
		TP-124	S-061002-WP-060
PAH SIZ-4	CS-005	TP-135	S-061102-WP-0102 A
		TP-137	S-061202-WP-0106 A
		TP-142	S-061202-WP-0117 A,B
		TP-150	S-061402-WP-0145 A,B
Arsenic Area As SIZ	CS-006	TP-144	S-061302-WP-0122 A,B
		TP-146	S-061302-WP-0132 A,B,C
		TP-147	S-061302-WP-0137 A,B
		SB-202	S-061102-WP-0205
		SB-204	S-061102-WP-0210
		SB-204	S-061102-WP-0211
Naphthalene Areas	CS-007	TP-107	S-060602-WP-023B
		TP-133	S-061102-WP-093C

[1] PAH SIZ-1 - Refers in general to the Soil Investigation Zones identified in the Soil Pre-Design Work Plan dated March 2002.

CONESTOGA-ROVERS
& ASSOCIATES

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October 16, 2002

Reference No. 019023-50

Mr. Kevin R. Adler
Remedial Project Manager
Superfund Division
U.S. Environmental Protection Agency - SR-6J
77 West Jackson Blvd.
Chicago, Illinois 60604

VIA ELECTRONIC MAIL
AND
FIRST CLASS MAIL

Dear Mr. Adler:

Re: Response to Comments
Soil Characterization Plan
Waukegan Manufactured Gas & Coke Plant Site
Waukegan, Illinois

We are in receipt of the comments provided by the U.S. Environmental Protection Agency (U.S. EPA or Agency). The comments were provided by electronic mail on October 1, 2002. The attached provides responses to the Agency's comments and proposed modifications to the Waste Characterization Plan based on the comments received. The Agency's comments are reiterated below in italics followed by our response.

U.S. EPA Comment

1. *How were the samples (collected in June) preserved such that the analytical holding times for the PAH analysis have not been exceeded?*

Response

The soil samples have been held by the project laboratory in the lab's sample storage coolers. Since collection during the soil pre-design study, the samples have been maintained at this location in the containers in which they were originally placed. Although the holding times have been exceeded for the polyaromatic hydrocarbons (PAHs), we do not expect any significant degradation of these compounds in the interim period between sample collection and waste characterization analysis. The intent of the waste characterization data is for use during Soil Remedial Design (RD) to assist with the selection of appropriate soil management options, not to determine the final status of the soil. We understand that additional data may be required during implementation of the remedy and this will be addressed during the Soil RD.

U.S. EPA Comment

2. *The waste characterization sample CS-001 is proposed to be a composite of three test pit samples. One of these samples (TP-103 S-060502-WP-013A) did not contain detectable PAH concentrations and the naphthalene concentration was 11 mg/kg, far less than the cleanup standard of 48,556 mg/kg. It is unclear as to why is this relatively uncontaminated soil sample would be included in the composite waste characterization sample as it would result in a diluted TCLP concentration.*

   Comment 2 is applicable to nearly all the remaining proposes composite samples. In essence the proposed composite samples were selected based on the approach of obtaining an average representation of each remediation target area for the purpose of determining whether the soil is a RCRA characteristic waste. This approach would not result in the RCRA classification of a thin lens of heavily contaminated soil (say a one-foot thick lens of black heavily contaminated soil), but rather assumes this soil will be intermixed with surrounding soil that is marginally contaminated. U.S. EPA's general policy has been to minimize the effects of dilution prior to characterizing wastes. Note the RCRA classification will also affect whether LDRs for contaminated soil are applicable to the soil prior to land disposal.

Response

The intent of the additional analyses in the Waste Characterization Plan is to obtain data from soil that is representative of the bulk of the material that will need to be managed during soil remediation. As summarized in Table 3 of the Waste Characterization Plan, some analytical data on the most heavily impacted soil (tar, tar-saturated sand, industrial pond deposits, and tar/industrial pond deposit mixture) have already been obtained during the soil pre-design study. We are now attempting to obtain analytical data from the soil, as it is likely to exist once it is excavated and stockpiled.

From a practical standpoint, it may be possible to segregate some of the soil containing elevated arsenic concentrations due to its distinct visual character. This is also true of the soil at two locations containing very elevated naphthalene concentrations. However, although it may be possible to segregate some of tar deposits at the Site, test pit observations indicate that tar deposits are present at various depths over much of the soil remediation zones and these deposits occur somewhat randomly. While we are aware of the U.S. EPA's policy with respect to dilution of wastes, it is likely that it will not be possible to effectively segregate the tar deposits from the soil over much of the remediation areas.

With respect to the Land Disposal Restrictions (LDRs), the soil is manufactured gas plant waste and not subject to the LDRs. In the Association of Battery Recyclers, Inc. v. U.S. EPA, 203 F.3d 1047 (D.C. Cir. 2000) case, the court vacated the Phase IV LDRs with respect to the use of the Toxicity Characteristic Leaching Procedure (TCLP) to determine whether manufactured gas plant (MGP) remediation waste exhibits the characteristic of toxicity. In response to the judicial decision, U.S. EPA and Illinois Environmental Protection Agency (IEPA) have amended their regulations to reflect the fact that use of the TCLP test is not allowed to determine whether MGP waste is hazardous (see 40 C.F.R. § 261.24 and 35 Ill. Adm. Code §721.124).

With respect to the three soil samples proposed for CS-001, the intent is to generate data that is as representative of the soil to be excavated as possible. Because it is not possible to visually distinguish between the elevated PAH soil and non-elevated PAH soil at these locations, the composite characterization sample is meant to approximate the likely character of the soil to be excavated from this location for Soil RD purposes.

U.S. EPA Comment

3. *The soil sample from TP-124 is proposed to be included in composite sample CS-003 for PAH SIZ 5 & 6 yet this test pit is in the PAH SIZ -7 area.*

Response

In Table 4, the sample from TP-124 is shown to be included in composite sample CS-004. Based on the results of the soil pre-design work, we do not view SIZs 5, 6, and 7 to be distinctly different in character either chemically or physically. Most likely, soil from these areas will likely be commingled during remedial activities. As a result, the intent of including the sample from TP-124 was to commingle some tar-containing soil with the other soil in this remediation area to form a sample that would be representative of excavated soil from this area.

U.S. EPA Comment

4. *Sample location TP-147 S-061302-WP-0137 is labeled on Drawing 3 as WP-138.*

Response

The data summarized on Figure 3 are correct, if not entirely clear. There was a sample and a duplicate sample collected from the 0 to 2-foot depth interval from the middle of test pit TP-147 (samples WP-137 and WP-138). The sample and duplicate sample result for arsenic for the 0 to 2-foot depth interval are shown on Figure 3 in the text box labeled TP-147.

We trust that these responses adequately address the Agency's comments. Please feel free to contact me with any questions.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Steven J. Wanner

SJW/sw/8

c.c.: J. Campbell, EMI
S. Matuszak, Peoples Energy
J. Langseth, Barr Engineering

ANALYTICAL REPORT

PROJECT NO. 019023-15/50

WAUKEGAN COKE

Lot #: A2J250333

Steve Castagneri

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8615 W. Bryn Mawr
Chicago, IL 60631

SEVERN TRENT LABORATORIES, INC.

Amy L. McCormick
Project Manager

November 15, 2002

CASE NARRATIVE

A2J250333

The following report contains the analytical results for seven solid samples submitted to STL North Canton by Conestoga-Rovers & Associates, Inc. from the Waukegan Coke Site, project number 019023-15/50. The samples were originally received June 6, 7, 8, 11, 12, 13, 14, and 15, 2002, according to documented sample acceptance procedures. Additional analyses were requested October 22, 2002.

STL utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the analytical methods summary page in accordance with the methods indicated. Preliminary results were provided to Julie Czech, Steve Wanner, and Jim Langseth on November 8, 2002, and to Steve Castagneri on November 8 and 11, 2002. A summary of QC data for these analyses is included at the rear of the report.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

Sample CS-001 was comprised of 61.15 grams of WP-016A, 65.0 grams of WP-013A, and 81.34 grams of WP-013B. Sample CS-002 was comprised of 70 grams each of WP-030B, WP-030C, WP-028B, WP-028C, WP-031B, and WP-031C. Sample CS-003 was comprised of 50 grams each of WP-037A, WP-037B, WP-038, WP-0217, WP-0218, WP-0223, WP-0224, WP069A, and WP-069B. Sample CS-004 was comprised of 40 grams each of WP-079B, WP-079C, WP-087A, WP-087B, WP-087C, WP-0120A, WP-0120B, WP-0120C, and WP-038. Sample CS-005 was comprised of 45 grams each of WP-0102A, WP-0106A, WP-0117A, WP-0117B, WP-0145A, and WP-0145B. Sample CS-006 was comprised of 40 grams each of WP-0122A, WP-0122B, WP-0132A, WP-0132B, WP-0132C, WP-0137A, WP-0137B, WP-0205, WP-0210, and WP-0211. Sample CS-007 was comprised of 54.0 grams of WP-023B and 146.59 grams of WP-093C. Samples CS-001, CS-005, and CS-007 required additional sample volume to complete requested analyses. Samples CS-001 and CS-007 were consumed during the original composite. The second composite for sample CS-005 was comprised of 58 grams each of samples WP-0102A, WP-0107A, WP-0117A, WP-0117B, WP-0145A, and WP-0145B.

SUPPLEMENTAL QC INFORMATION

GC/MS SEMIVOLATILES

Sample CS-007 had elevated reporting limits due to TICs.

GC SEMIVOLATILES - 8082

Surrogate recoveries were outside acceptance limits in sample CS-001. The sample was consumed; therefore, corrective action could not be initiated.

Samples CS-003 and CS-004 had elevated reporting limits due to matrix interferences.

QUALITY CONTROL ELEMENTS OF SW-846 METHODS

STL North Canton conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. STL North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

- Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed below.)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals
Methylene chloride	Phthalate Esters	Copper
Acetone		Iron
2-Butanone		Zinc
		Lead*

- *for analyses run on TJA Trace ICP, ICPMS or GFAA only*

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.

QUALITY CONTROL ELEMENTS OF SW-846 METHODS
(Continued)

- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable. The acceptance criteria do not apply to samples that are diluted for organics if the native sample amount is 4x the concentration of the spike.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepped and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepped and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide, PCB, PAH, and Herbicide methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria.

STL North Canton Certifications and Approvals:

Alabama (#41170), California (#2157), Connecticut (#PH-0590), Florida (#E87225), Illinois (#100439), Kansas (#E10336), Kentucky (#90021), Massachusetts (#M-OH048), Maryland (#272), Minnesota (#39-999-348), Missouri (#6090), New Jersey (#74001), New York (#10975), North Dakota (#R-156), Ohio (#6090), OhioVAP (#CL0024), Pennsylvania (#68-340), Rhode Island (#237), South Carolina (#92007001, #92007002, #92007003), Tennessee (#02903), West Virginia (#210), Wisconsin (#999518190),NAVY, ARMY, USDA Soil Permit, ACIL Seal of Excellence – Participating Lab Status Award (#82)

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ANALYTICAL METHODS SUMMARY

A2J250333

PARAMETER	ANALYTICAL METHOD
Chlorinated Herbicides by GC	SW846 8151A
Corrosivity	SW846 9045C
Inductively Coupled Plasma (ICP) Metals	SW846 6010B
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470A
Organochlorine Pesticides	SW846 8081A
Paint Filter Test	SW846 9095A
Pensky-Martens Method for Determining Ignitability	SW846 1010
PCBs by SW-846 8082	SW846 8082
Reactive Cyanide	SW846 7.3.3
Reactive Sulfide	SW846 7.3.4
Semivolatile Organic Compounds by GC/MS	SW846 8270C
Total Residue as Percent Solids	MCAWW 160.3 MOD
Volatile Organics by GC/MS	SW846 8260B

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

A2J250333

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FATMK	001	CS-001	10/22/02	
FATMM	002	CS-002	10/22/02	
FATMQ	003	CS-003	10/22/02	
FATMR	004	CS-004	10/29/02	
FATMX	005	CS-005	10/22/02	
FATM1	006	CS-006	10/22/02	
FATM4	007	CS-007	10/22/02	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-001

TCLP GC/MS Volatiles

Lot-Sample #...: A2J250333-001 **Work Order #...:** FATMK1AA **Matrix.....:** SO
Date Sampled...: 10/22/02 **Date Received..:** 10/22/02
Leach Date.....: 10/30/02 **Prep Date.....:** 11/02/02 **Analysis Date..:** 11/02/02
Leach Batch #..: P230206 **Prep Batch #...:** 2305335
Dilution Factor: 28.57
% Moisture.....: 30 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	0.71	mg/L
Carbon tetrachloride	ND	0.71	mg/L
Chlorobenzene	ND	0.71	mg/L
Chloroform	ND	0.71	mg/L
1,2-Dichloroethane	ND	0.71	mg/L
1,1-Dichloroethylene	ND	2.0	mg/L
Methyl ethyl ketone	ND	1.4	mg/L
Tetrachloroethylene	ND	2.0	mg/L
Trichloroethylene	ND	1.4	mg/L
Vinyl chloride	ND	1.4	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	99	(59 - 138)
1,2-Dichloroethane-d4	111	(61 - 130)
Toluene-d8	93	(60 - 143)
4-Bromofluorobenzene	92	(47 - 158)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

Elevated reporting limits due to TICs

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-001

TCLP GC/MS Semivolatiles

Lot-Sample #...:	A2J250333-001	**Work Order #...:**	FATMK1AD	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Leach Date.....:	10/29/02	**Prep Date.....:**	10/30/02	**Analysis Date..:**	11/02/02
Leach Batch #..:	P230213	**Prep Batch #...:**	2303245		
Dilution Factor:	12.5				
% Moisture.....:	30	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
o-Cresol	**0.84**	**0.62**	**mg/L**
m-Cresol & p-Cresol	**1.3**	**1.2**	**mg/L**
1,4-Dichlorobenzene	ND	0.62	mg/L
2,4-Dinitrotoluene	ND	0.62	mg/L
Hexachlorobenzene	ND	0.62	mg/L
Hexachlorobutadiene	ND	0.62	mg/L
Hexachloroethane	ND	0.62	mg/L
Nitrobenzene	ND	0.62	mg/L
Pentachlorophenol	ND	1.2	mg/L
Pyridine	ND	1.2	mg/L
2,4,5-Trichloro-phenol	ND	0.62	mg/L
2,4,6-Trichloro-phenol	ND	0.62	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	80 DIL	(32 - 112)
2-Fluorobiphenyl	80 DIL	(30 - 110)
Terphenyl-d14	81 DIL	(10 - 144)
Phenol-d5	74 DIL	(10 - 113)
2-Fluorophenol	59 DIL	(13 - 110)
2,4,6-Tribromophenol	74 DIL	(21 - 122)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-001

TCLP GC Semivolatiles

Lot-Sample #...:	A2J250333-001	**Work Order #...:**	FATMK1AE	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Leach Date.....:	10/29/02	**Prep Date.....:**	10/30/02	**Analysis Date..:**	10/31/02
Leach Batch #..:	P230213	**Prep Batch #...:**	2303246		
Dilution Factor:	1				
% Moisture.....:	30	**Method.....:**	SW846 8081A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chlordane (technical)	ND	0.0050	mg/L
Endrin	ND	0.00050	mg/L
Heptachlor	ND	0.00050	mg/L
Heptachlor epoxide	ND	0.00050	mg/L
Lindane	ND	0.00050	mg/L
Methoxychlor	ND	0.0010	mg/L
Toxaphene	ND	0.020	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	88	(31 - 115)
Tetrachloro-m-xylene	76	(47 - 110)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-001

GC Semivolatiles

Lot-Sample #...: A2J250333-001 **Work Order #...:** FATMK1AR **Matrix.....:** SO
Date Sampled...: 10/22/02 **Date Received..:** 10/22/02
Prep Date.....: 10/27/02 **Analysis Date..:** 10/29/02
Prep Batch #...: 2300146
Dilution Factor: 1
% Moisture.....: 30 **Method.....:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	47	ug/kg
Aroclor 1221	ND	47	ug/kg
Aroclor 1232	ND	47	ug/kg
Aroclor 1242	ND	47	ug/kg
Aroclor 1248	ND	47	ug/kg
Aroclor 1254	ND	47	ug/kg
Aroclor 1260	ND	47	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	30 *	(31 - 127)
Decachlorobiphenyl	22 *	(23 - 141)

NOTE(S):

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-001

TCLP GC Semivolatiles

Lot-Sample #...:	A2J250333-001	**Work Order #...:**	FATMK1AF	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Leach Date.....:	10/29/02	**Prep Date.....:**	10/30/02	**Analysis Date..:**	11/03/02
Leach Batch #..:	P230213	**Prep Batch #...:**	2303248		
Dilution Factor:	1				
% Moisture.....:	30	**Method.....:**	SW846 8151A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	0.50	mg/L
2,4,5-TP (Silvex)	ND	0.10	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4-Dichlorophenylacetic acid	88	(37 - 116)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-001

TCLP Metals

Lot-Sample #...: A2J250333-001 **Matrix.....:** SO
Date Sampled...: 10/22/02 **Date Received..:** 10/22/02
Leach Date.....: 10/29/02 **Leach Batch #..:** P230213

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 2304118						
Arsenic	ND	0.50	mg/L	SW846 6010B	10/31/02	FATMK1AG
		Dilution Factor: 1				
Barium	ND	10.0	mg/L	SW846 6010B	10/31/02	FATMK1AH
		Dilution Factor: 1				
Cadmium	ND	0.10	mg/L	SW846 6010B	10/31/02	FATMK1AJ
		Dilution Factor: 1				
Chromium	ND	0.50	mg/L	SW846 6010B	10/31/02	FATMK1AK
		Dilution Factor: 1				
Lead	ND	0.50	mg/L	SW846 6010B	10/31/02	FATMK1AL
		Dilution Factor: 1				
Selenium	ND	0.25	mg/L	SW846 6010B	10/31/02	FATMK1AM
		Dilution Factor: 1				
Silver	ND	0.50	mg/L	SW846 6010B	10/31/02	FATMK1AN
		Dilution Factor: 1				
Mercury	ND	0.0020	mg/L	SW846 7470A	10/31/02	FATMK1AP
		Dilution Factor: 1				

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-001

General Chemistry

Lot-Sample #...: A2J250333-001 Work Order #...: FATMK Matrix.....: SO
Date Sampled...: 10/22/02 Date Received..: 10/22/02
% Moisture.....: 30

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Corrosivity	7.5		No Units	SW846 9045C	10/29/02	2302623
		Dilution Factor: 1				
Paint Filter Test	NEG	0.10	%	SW846 9095A	10/29/02	2302622
		Dilution Factor: 1				
Percent Solids	70.2	10.0	%	MCAWW 160.3 MOD	10/28-10/29/02	2301509
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

NEG Negative

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-002

TCLP GC/MS Volatiles

Lot-Sample #...: A2J250333-002 **Work Order #...:** FATMM1AC **Matrix.....:** SO
Date Sampled...: 10/22/02 **Date Received..:** 10/22/02
Leach Date.....: 10/30/02 **Prep Date.....:** 11/02/02 **Analysis Date..:** 11/02/02
Leach Batch #..: P230206 **Prep Batch #...:** 2305335
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	0.025	mg/L
Carbon tetrachloride	ND	0.025	mg/L
Chlorobenzene	ND	0.025	mg/L
Chloroform	ND	0.025	mg/L
1,2-Dichloroethane	ND	0.025	mg/L
1,1-Dichloroethylene	ND	0.070	mg/L
Methyl ethyl ketone	ND	0.050	mg/L
Tetrachloroethylene	ND	0.070	mg/L
Trichloroethylene	ND	0.050	mg/L
Vinyl chloride	ND	0.050	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	96	(59 - 138)
1,2-Dichloroethane-d4	105	(61 - 130)
Toluene-d8	92	(60 - 143)
4-Bromofluorobenzene	92	(47 - 158)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-002

TCLP GC/MS Semivolatiles

Lot-Sample #...:	A2J250333-002	**Work Order #...:**	FATMM2AE	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Leach Date.....:	10/29/02	**Prep Date.....:**	11/05/02	**Analysis Date..:**	11/06/02
Leach Batch #..:	P230213	**Prep Batch #...:**	2309104		
Dilution Factor:	1				
% Moisture.....:	10	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
o-Cresol	ND	0.050	mg/L
m-Cresol & p-Cresol	ND	0.10	mg/L
1,4-Dichlorobenzene	ND	0.050	mg/L
2,4-Dinitrotoluene	ND	0.050	mg/L
Hexachlorobenzene	ND	0.050	mg/L
Hexachlorobutadiene	ND	0.050	mg/L
Hexachloroethane	ND	0.050	mg/L
Nitrobenzene	ND	0.050	mg/L
Pentachlorophenol	ND	0.10	mg/L
Pyridine	ND	0.10	mg/L
2,4,5-Trichloro-phenol	ND	0.050	mg/L
2,4,6-Trichloro-phenol	ND	0.050	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	65	(32 - 112)
2-Fluorobiphenyl	67	(30 - 110)
Terphenyl-d14	90	(10 - 144)
Phenol-d5	29	(10 - 113)
2-Fluorophenol	38	(13 - 110)
2,4,6-Tribromophenol	67	(21 - 122)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-002

TCLP GC Semivolatiles

Lot-Sample #...:	A2J250333-002	**Work Order #...:**	FATMM1AF	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Leach Date.....:	10/29/02	**Prep Date.....:**	10/30/02	**Analysis Date..:**	10/31/02
Leach Batch #..:	P230213	**Prep Batch #...:**	2303246		
Dilution Factor:	1				
% Moisture.....:	10	**Method.....:**	SW846 8081A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chlordane (technical)	ND	0.0050	mg/L
Endrin	ND	0.00050	mg/L
Heptachlor	ND	0.00050	mg/L
Heptachlor epoxide	ND	0.00050	mg/L
Lindane	ND	0.00050	mg/L
Methoxychlor	ND	0.0010	mg/L
Toxaphene	ND	0.020	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	90	(31 - 115)
Tetrachloro-m-xylene	77	(47 - 110)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-002

GC Semivolatiles

Lot-Sample #...:	A2J250333-002	**Work Order #...:**	FATMM1AT	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Prep Date.....:	10/27/02	**Analysis Date..:**	10/29/02		
Prep Batch #...:	2300146				
Dilution Factor:	1				
% Moisture.....:	10	**Method.....:**	SW846 8082		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	37	ug/kg
Aroclor 1221	ND	37	ug/kg
Aroclor 1232	ND	37	ug/kg
Aroclor 1242	ND	37	ug/kg
Aroclor 1248	ND	37	ug/kg
Aroclor 1254	ND	37	ug/kg
Aroclor 1260	ND	37	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	106	(31 - 127)
Decachlorobiphenyl	94	(23 - 141)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-002

TCLP GC Semivolatiles

Lot-Sample #...:	A2J250333-002	**Work Order #...:**	FATMM1AG	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Leach Date.....:	10/29/02	**Prep Date.....:**	10/30/02	**Analysis Date..:**	11/03/02
Leach Batch #..:	P230213	**Prep Batch #...:**	2303248		
Dilution Factor:	1				
% Moisture.....:	10	**Method.....:**	SW846 8151A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	0.50	mg/L
2,4,5-TP (Silvex)	ND	0.10	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4-Dichlorophenylacetic acid	80	(37 - 116)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-002

TCLP Metals

Lot-Sample #...: A2J250333-002 **Matrix.....:** SO
Date Sampled...: 10/22/02 **Date Received..:** 10/22/02
Leach Date.....: 10/29/02 **Leach Batch #..:** P230213

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 2304118						
Arsenic	ND	0.50	mg/L	SW846 6010B	10/31/02	FATMM1AH
		Dilution Factor: 1				
Barium	ND	10.0	mg/L	SW846 6010B	10/31/02	FATMM1AJ
		Dilution Factor 1				
Cadmium	ND	0.10	mg/L	SW846 6010B	10/31/02	FATMM1AK
		Dilution Factor: 1				
Chromium	ND	0.50	mg/L	SW846 6010B	10/31/02	FATMM1AL
		Dilution Factor: 1				
Lead	ND	0.50	mg/L	SW846 6010B	10/31/02	FATMM1AM
		Dilution Factor: 1				
Selenium	ND	0.25	mg/L	SW846 6010B	10/31/02	FATMM1AN
		Dilution Factor: 1				
Silver	ND	0.50	mg/L	SW846 6010B	10/31/02	FATMM1AP
		Dilution Factor: 1				
Mercury	ND	0.0020	mg/L	SW846 7470A	10/31/02	FATMM1AQ
		Dilution Factor. 1				

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-002

General Chemistry

Lot-Sample #...: A2J250333-002 **Work Order #...:** FATMM **Matrix.....:** SO
Date Sampled...: 10/22/02 **Date Received..:** 10/22/02
% Moisture.....: 10

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Corrosivity	**8.4**		**No Units**	**SW846 9045C**	**10/29/02**	**2302623**
		Dilution Factor: 1				
Flashpoint	**>180**		**deg F**	**SW846 1010**	**10/30/02**	**2303385**
		Dilution Factor: 1				
Paint Filter Test	**NEG**	**0.10**	**%**	**SW846 9095A**	**10/29/02**	**2302622**
		Dilution Factor: 1				
Percent Solids	**89.8**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/28-10/29/02**	**2301509**
		Dilution Factor: 1				
Reactive Cyanide	ND	200	mg/kg	SW846 7.3.3	10/31/02	2304480
		Dilution Factor: 1				
Reactive Sulfide	ND	200	mg/kg	SW846 7.3.4	10/31/02	2304479
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit
NEG Negative

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-003

TCLP GC/MS Volatiles

Lot-Sample #...:	A2J250333-003	**Work Order #...:**	FATMQ1AC	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Leach Date.....:	10/30/02	**Prep Date.....:**	11/02/02	**Analysis Date..:**	11/02/02
Leach Batch #..:	P230206	**Prep Batch #...:**	2305335		
Dilution Factor:	4				
% Moisture.....:	26	**Method.....:**	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	0.10	mg/L
Carbon tetrachloride	ND	0.10	mg/L
Chlorobenzene	ND	0.10	mg/L
Chloroform	ND	0.10	mg/L
1,2-Dichloroethane	ND	0.10	mg/L
1,1-Dichloroethylene	ND	0.28	mg/L
Methyl ethyl ketone	ND	0.20	mg/L
Tetrachloroethylene	ND	0.28	mg/L
Trichloroethylene	ND	0.20	mg/L
Vinyl chloride	ND	0.20	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(59 - 138)
1,2-Dichloroethane-d4	108	(61 - 130)
Toluene-d8	91	(60 - 143)
4-Bromofluorobenzene	92	(47 - 158)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

Elevated reporting limits due to TICs

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-003

TCLP GC/MS Semivolatiles

Lot-Sample #...:	A2J250333-003	**Work Order #...:**	FATMQ1AE	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Leach Date.....:	10/29/02	**Prep Date.....:**	10/30/02	**Analysis Date..:**	11/02/02
Leach Batch #..:	P230213	**Prep Batch #...:**	2303245		
Dilution Factor:	40				
% Moisture.....:	26	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
o-Cresol	ND	2.0	mg/L
m-Cresol & p-Cresol	**4.4**	**4.0**	**mg/L**
1,4-Dichlorobenzene	ND	2.0	mg/L
2,4-Dinitrotoluene	ND	2.0	mg/L
Hexachlorobenzene	ND	2.0	mg/L
Hexachlorobutadiene	ND	2.0	mg/L
Hexachloroethane	ND	2.0	mg/L
Nitrobenzene	ND	2.0	mg/L
Pentachlorophenol	ND	4.0	mg/L
Pyridine	**4.0**	**4.0**	**mg/L**
2,4,5-Trichloro-phenol	ND	2.0	mg/L
2,4,6-Trichloro-phenol	ND	2.0	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	85 DIL	(32 - 112)
2-Fluorobiphenyl	85 DIL	(30 - 110)
Terphenyl-d14	82 DIL	(10 - 144)
Phenol-d5	80 DIL	(10 - 113)
2-Fluorophenol	57 DIL	(13 - 110)
2,4,6-Tribromophenol	0.0 DIL,*	(21 - 122)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes

* Surrogate recovery is outside stated control limits

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-003

TCLP GC Semivolatiles

Lot-Sample #...:	A2J250333-003	**Work Order #...:**	FATMQ1AF	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Leach Date.....:	10/29/02	**Prep Date.....:**	10/30/02	**Analysis Date..:**	10/31/02
Leach Batch #..:	P230213	**Prep Batch #...:**	2303246		
Dilution Factor:	1				
% Moisture.....:	26	**Method.....:**	SW846 8081A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chlordane (technical)	ND	0.0050	mg/L
Endrin	ND	0.00050	mg/L
Heptachlor	ND	0.00050	mg/L
Heptachlor epoxide	ND	0.00050	mg/L
Lindane	ND	0.00050	mg/L
Methoxychlor	ND	0.0010	mg/L
Toxaphene	ND	0.020	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	109	(31 - 115)
Tetrachloro-m-xylene	101	(47 - 110)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-003

GC Semivolatiles

Lot-Sample #...: A2J250333-003 **Work Order #...:** FATMQ1AT **Matrix.....:** SO
Date Sampled...: 10/22/02 **Date Received..:** 10/22/02
Prep Date.....: 10/27/02 **Analysis Date..:** 10/29/02
Prep Batch #...: 2300146
Dilution Factor: 10
% Moisture.....: 26 **Method.....:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	440	ug/kg
Aroclor 1221	ND	440	ug/kg
Aroclor 1232	ND	440	ug/kg
Aroclor 1242	ND	440	ug/kg
Aroclor 1248	ND	440	ug/kg
Aroclor 1254	ND	440	ug/kg
Aroclor 1260	ND	440	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	0.0 DIL,*	(31 - 127)
Decachlorobiphenyl	0.0 DIL,*	(23 - 141)

NOTE(S):

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

* Surrogate recovery is outside stated control limits

Results and reporting limits have been adjusted for dry weight

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-003

TCLP GC Semivolatiles

Lot-Sample #...:	A2J250333-003	**Work Order #...:**	FATMQ1AG	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Leach Date.....:	10/29/02	**Prep Date.....:**	10/30/02	**Analysis Date..:**	11/03/02
Leach Batch #..:	P230213	**Prep Batch #...:**	2303248		
Dilution Factor:	1				
% Moisture.....:	26	**Method.....:**	SW846 8151A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	0.50	mg/L
2,4,5-TP (Silvex)	ND	0.10	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4-Dichlorophenylacetic acid	88	(37 - 116)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-003

TCLP Metals

Lot-Sample #...: A2J250333-003 **Matrix.....:** SO
Date Sampled...: 10/22/02 **Date Received..:** 10/22/02
Leach Date.....: 10/29/02 **Leach Batch #..:** P230213

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 2304118						
Arsenic	ND	0.50	mg/L	SW846 6010B	10/31/02	FATMQ1AH
		Dilution Factor: 1				
Barium	ND	10.0	mg/L	SW846 6010B	10/31/02	FATMQ1AJ
		Dilution Factor: 1				
Cadmium	ND	0.10	mg/L	SW846 6010B	10/31/02	FATMQ1AK
		Dilution Factor: 1				
Chromium	ND	0.50	mg/L	SW846 6010B	10/31/02	FATMQ1AL
		Dilution Factor: 1				
Lead	ND	0.50	mg/L	SW846 6010B	10/31/02	FATMQ1AM
		Dilution Factor: 1				
Selenium	ND	0.25	mg/L	SW846 6010B	10/31/02	FATMQ1AN
		Dilution Factor: 1				
Silver	ND	0.50	mg/L	SW846 6010B	10/31/02	FATMQ1AP
		Dilution Factor: 1				
Mercury	ND	0.0020	mg/L	SW846 7470A	10/31/02	FATMQ1AQ
		Dilution Factor: 1				

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-003

General Chemistry

Lot-Sample #...: A2J250333-003 **Work Order #...:** FATMQ **Matrix.....:** SO
Date Sampled...: 10/22/02 **Date Received..:** 10/22/02
% Moisture.....: 26

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Corrosivity	7.3		**No Units**	**SW846 9045C**	**10/29/02**	**2302623**
		Dilution Factor 1				
Flashpoint	>180		**deg F**	**SW846 1010**	**10/30/02**	**2303385**
		Dilution Factor. 1				
Paint Filter Test	**NEG**	**0.10**	**%**	**SW846 9095A**	**10/29/02**	**2302622**
		Dilution Factor 1				
Percent Solids	**74.2**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/28-10/29/02**	**2301509**
		Dilution Factor 1				
Reactive Cyanide	ND	200	mg/kg	SW846 7.3.3	10/31/02	2304480
		Dilution Factor 1				
Reactive Sulfide	ND	200	mg/kg	SW846 7.3.4	10/31/02	2304479
		Dilution Factor 1				

NOTE(S):

RL Reporting Limit
NEG Negative

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-004

TCLP GC/MS Volatiles

Lot-Sample #...:	A2J250333-004	**Work Order #...:**	FATMR1AC	**Matrix.....:**	SO
Date Sampled...:	10/29/02	**Date Received..:**	10/29/02		
Leach Date.....:	11/01/02	**Prep Date.....:**	11/03/02	**Analysis Date..:**	11/03/02
Leach Batch #..:	P230401	**Prep Batch #...:**	2307114		
Dilution Factor:	2				
% Moisture.....:	12	**Method.....:**	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	**0.058**	**0.050**	**mg/L**
Carbon tetrachloride	ND	0.050	mg/L
Chlorobenzene	ND	0.050	mg/L
Chloroform	ND	0.050	mg/L
1,2-Dichloroethane	ND	0.050	mg/L
1,1-Dichloroethylene	ND	0.14	mg/L
Methyl ethyl ketone	ND	0.10	mg/L
Tetrachloroethylene	ND	0.14	mg/L
Trichloroethylene	ND	0.10	mg/L
Vinyl chloride	ND	0.10	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	88	(59 - 138)
1,2-Dichloroethane-d4	88	(61 - 130)
Toluene-d8	95	(60 - 143)
4-Bromofluorobenzene	88	(47 - 158)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

Elevated reporting limits due to TICs

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-004

TCLP GC/MS Semivolatiles

Lot-Sample #...:	A2J250333-004	**Work Order #...:**	FATMR1AE	**Matrix.....:**	SO
Date Sampled...:	10/29/02	**Date Received..:**	10/29/02		
Leach Date.....:	10/30/02	**Prep Date.....:**	10/30/02	**Analysis Date..:**	11/02/02
Leach Batch #..:	P230303	**Prep Batch #...:**	2303245		
Dilution Factor:	20				
% Moisture.....:	12	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
o-Cresol	ND	1.0	mg/L
m-Cresol & p-Cresol	**2.2**	**2.0**	**mg/L**
1,4-Dichlorobenzene	ND	1.0	mg/L
2,4-Dinitrotoluene	ND	1.0	mg/L
Hexachlorobenzene	ND	1.0	mg/L
Hexachlorobutadiene	ND	1.0	mg/L
Hexachloroethane	ND	1.0	mg/L
Nitrobenzene	ND	1.0	mg/L
Pentachlorophenol	ND	2.0	mg/L
Pyridine	ND	2.0	mg/L
2,4,5-Trichloro-phenol	ND	1.0	mg/L
2,4,6-Trichloro-phenol	ND	1.0	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	88 DIL	(32 - 112)
2-Fluorobiphenyl	80 DIL	(30 - 110)
Terphenyl-d14	86 DIL	(10 - 144)
Phenol-d5	76 DIL	(10 - 113)
2-Fluorophenol	47 DIL	(13 - 110)
2,4,6-Tribromophenol	73 DIL	(21 - 122)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-004

TCLP GC Semivolatiles

Lot-Sample #...:	A2J250333-004	**Work Order #...:**	FATMR1AF	**Matrix.....:**	SO
Date Sampled...:	10/29/02	**Date Received..:**	10/29/02		
Leach Date.....:	10/30/02	**Prep Date.....:**	10/30/02	**Analysis Date..:**	10/31/02
Leach Batch #..:	P230303	**Prep Batch #...:**	2303246		
Dilution Factor:	1				
% Moisture.....:	12	**Method.....:**	SW846 8081A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chlordane (technical)	ND	0.0050	mg/L
Endrin	ND	0.00050	mg/L
Heptachlor	ND	0.00050	mg/L
Heptachlor epoxide	ND	0.00050	mg/L
Lindane	ND	0.00050	mg/L
Methoxychlor	ND	0.0010	mg/L
Toxaphene	ND	0.020	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	132 *	(31 - 115)
Tetrachloro-m-xylene	95	(47 - 110)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

* Surrogate recovery is outside stated control limits

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-004

GC Semivolatiles

Lot-Sample #...: A2J250333-004 **Work Order #...:** FATMR1AT **Matrix.....:** SO
Date Sampled...: 10/29/02 **Date Received..:** 10/29/02
Prep Date.....: 10/29/02 **Analysis Date..:** 10/31/02
Prep Batch #...: 2302398
Dilution Factor: 5
% Moisture.....: 12 **Method.....:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	190	ug/kg
Aroclor 1221	ND	190	ug/kg
Aroclor 1232	ND	190	ug/kg
Aroclor 1242	ND	190	ug/kg
Aroclor 1248	ND	190	ug/kg
Aroclor 1254	**280**	**190**	**ug/kg**
Aroclor 1260	ND	190	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	106 DIL	(31 - 127)
Decachlorobiphenyl	25 DIL	(23 - 141)

NOTE(S):

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes

Results and reporting limits have been adjusted for dry weight

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-004

TCLP GC Semivolatiles

Lot-Sample #...:	A2J250333-004	**Work Order #...:**	FATMR1AG	**Matrix.....:**	SO
Date Sampled...:	10/29/02	**Date Received..:**	10/29/02		
Leach Date.....:	10/30/02	**Prep Date.....:**	10/30/02	**Analysis Date..:**	11/03/02
Leach Batch #..:	P230303	**Prep Batch #...:**	2303248		
Dilution Factor:	1				
% Moisture.....:	12	**Method.....:**	SW846 8151A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	0.50	mg/L
2,4,5-TP (Silvex)	ND	0.10	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4-Dichlorophenylacetic acid	86	(37 - 116)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-004

TCLP Metals

Lot-Sample #...: A2J250333-004 **Matrix.....:** SO
Date Sampled...: 10/29/02 **Date Received..:** 10/29/02
Leach Date.....: 10/30/02 **Leach Batch #..:** P230303

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 2304113						
Arsenic	ND	0.50	mg/L	SW846 6010B	10/31/02	FATMR1AH
		Dilution Factor 1				
Barium	ND	10.0	mg/L	SW846 6010B	10/31/02	FATMR1AJ
		Dilution Factor 1				
Cadmium	ND	0.10	mg/L	SW846 6010B	10/31/02	FATMR1AK
		Dilution Factor 1				
Chromium	ND	0.50	mg/L	SW846 6010B	10/31/02	FATMR1AL
		Dilution Factor 1				
Lead	ND	0.50	mg/L	SW846 6010B	10/31/02	FATMR1AM
		Dilution Factor 1				
Selenium	ND	0.25	mg/L	SW846 6010B	10/31/02	FATMR1AN
		Dilution Factor 1				
Silver	ND	0.50	mg/L	SW846 6010B	10/31/02	FATMR1AP
		Dilution Factor 1				
Mercury	ND	0.0020	mg/L	SW846 7470A	10/31/02	FATMR1AQ
		Dilution Factor 1				

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-004

General Chemistry

Lot-Sample #...: A2J250333-004 **Work Order #...:** FATMR **Matrix.....:** SO
Date Sampled...: 10/29/02 **Date Received..:** 10/29/02
% Moisture.....: 12

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Corrosivity	7.3		**No Units**	**SW846 9045C**	**10/29/02**	**2302623**
		Dilution Factor: 1				
Flashpoint	>180		**deg F**	**SW846 1010**	**10/30/02**	**2303385**
		Dilution Factor 1				
Paint Filter Test	**NEG**	**0.10**	**%**	**SW846 9095A**	**10/29/02**	**2302622**
		Dilution Factor: 1				
Percent Solids	**87.7**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/30-10/31/02**	**2303440**
		Dilution Factor: 1				
Reactive Cyanide	ND	200	mg/kg	SW846 7.3.3	10/31/02	2304480
		Dilution Factor: 1				
Reactive Sulfide	ND	200	mg/kg	SW846 7.3.4	10/31/02	2304479
		Dilution Factor 1				

NOTE(S):

RL Reporting Limit
NEG Negative

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-005

TCLP GC/MS Volatiles

Lot-Sample #...:	A2J250333-005	**Work Order #...:**	FATMX1AC	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Leach Date.....:	10/30/02	**Prep Date.....:**	11/02/02	**Analysis Date..:**	11/02/02
Leach Batch #..:	P230206	**Prep Batch #...:**	2305335		
Dilution Factor:	1				
% Moisture.....:	19	**Method.....:**	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	0.025	mg/L
Carbon tetrachloride	ND	0.025	mg/L
Chlorobenzene	ND	0.025	mg/L
Chloroform	ND	0.025	mg/L
1,2-Dichloroethane	ND	0.025	mg/L
1,1-Dichloroethylene	ND	0.070	mg/L
Methyl ethyl ketone	ND	0.050	mg/L
Tetrachloroethylene	ND	0.070	mg/L
Trichloroethylene	ND	0.050	mg/L
Vinyl chloride	ND	0.050	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	96	(59 - 138)
1,2-Dichloroethane-d4	108	(61 - 130)
Toluene-d8	93	(60 - 143)
4-Bromofluorobenzene	93	(47 - 158)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-005

TCLP GC/MS Semivolatiles

Lot-Sample #...:	A2J250333-005	**Work Order #...:**	FATMX1AE	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Leach Date.....:	10/29/02	**Prep Date.....:**	10/30/02	**Analysis Date..:**	11/02/02
Leach Batch #..:	P230213	**Prep Batch #...:**	2303245		
Dilution Factor:	1				
% Moisture.....:	19	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
o-Cresol	ND	0.050	mg/L
m-Cresol & p-Cresol	ND	0.10	mg/L
1,4-Dichlorobenzene	ND	0.050	mg/L
2,4-Dinitrotoluene	ND	0.050	mg/L
Hexachlorobenzene	ND	0.050	mg/L
Hexachlorobutadiene	ND	0.050	mg/L
Hexachloroethane	ND	0.050	mg/L
Nitrobenzene	ND	0.050	mg/L
Pentachlorophenol	ND	0.10	mg/L
Pyridine	ND	0.10	mg/L
2,4,5-Trichloro-phenol	ND	0.050	mg/L
2,4,6-Trichloro-phenol	ND	0.050	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	88	(32 - 112)
2-Fluorobiphenyl	85	(30 - 110)
Terphenyl-d14	88	(10 - 144)
Phenol-d5	83	(10 - 113)
2-Fluorophenol	75	(13 - 110)
2,4,6-Tribromophenol	89	(21 - 122)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-005

TCLP GC Semivolatiles

Lot-Sample #...:	A2J250333-005	**Work Order #...:**	FATMX1AF	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Leach Date.....:	10/29/02	**Prep Date.....:**	10/30/02	**Analysis Date..:**	10/31/02
Leach Batch #..:	P230213	**Prep Batch #...:**	2303246		
Dilution Factor:	1				
% Moisture.....:	19	**Method.....:**	SW846 8081A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chlordane (technical)	ND	0.0050	mg/L
Endrin	ND	0.00050	mg/L
Heptachlor	ND	0.00050	mg/L
Heptachlor epoxide	ND	0.00050	mg/L
Lindane	ND	0.00050	mg/L
Methoxychlor	ND	0.0010	mg/L
Toxaphene	ND	0.020	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	87	(31 - 115)
Tetrachloro-m-xylene	76	(47 - 110)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-005

GC Semivolatiles

Lot-Sample #...: A2J250333-005 **Work Order #...:** FATMX1AT **Matrix.....:** SO
Date Sampled...: 10/22/02 **Date Received..:** 10/22/02
Prep Date.....: 10/27/02 **Analysis Date..:** 10/29/02
Prep Batch #...: 2300146
Dilution Factor: 1
% Moisture.....: 19 **Method.....:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	41	ug/kg
Aroclor 1221	ND	41	ug/kg
Aroclor 1232	ND	41	ug/kg
Aroclor 1242	ND	41	ug/kg
Aroclor 1248	**130**	**41**	**ug/kg**
Aroclor 1254	ND	41	ug/kg
Aroclor 1260	ND	41	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	85	(31 - 127)
Decachlorobiphenyl	78	(23 - 141)

NOTE(S):

Results and reporting limits have been adjusted for dry weight

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-005

TCLP GC Semivolatiles

Lot-Sample #...:	A2J250333-005	**Work Order #...:**	FATMX1AG	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Leach Date.....:	10/29/02	**Prep Date.....:**	10/30/02	**Analysis Date..:**	11/03/02
Leach Batch #..:	P230213	**Prep Batch #...:**	2303248		
Dilution Factor:	1				
% Moisture.....:	19	**Method.....:**	SW846 8151A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	0 50	mg/L
2,4,5-TP (Silvex)	ND	0.10	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4-Dichlorophenylacetic acid	88	(37 - 116)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-005

TCLP Metals

Lot-Sample #...: A2J250333-005 **Matrix.....:** SO
Date Sampled...: 10/22/02 **Date Received..:** 10/22/02
Leach Date.....: 10/29/02 **Leach Batch #..:** P230213

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 2304118						
Arsenic	ND	0.50	mg/L	SW846 6010B	10/31/02	FATMX1AH
		Dilution Factor 1				
Barium	ND	10.0	mg/L	SW846 6010B	10/31/02	FATMX1AJ
		Dilution Factor: 1				
Cadmium	ND	0.10	mg/L	SW846 6010B	10/31/02	FATMX1AK
		Dilution Factor. 1				
Chromium	ND	0.50	mg/L	SW846 6010B	10/31/02	FATMX1AL
		Dilution Factor: 1				
Lead	ND	0.50	mg/L	SW846 6010B	10/31/02	FATMX1AM
		Dilution Factor 1				
Selenium	ND	0.25	mg/L	SW846 6010B	10/31/02	FATMX1AN
		Dilution Factor 1				
Silver	ND	0.50	mg/L	SW846 6010B	10/31/02	FATMX1AP
		Dilution Factor· 1				
Mercury	ND	0.0020	mg/L	SW846 7470A	10/31/02	FATMX1AQ
		Dilution Factor· 1				

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-005

General Chemistry

Lot-Sample #...: A2J250333-005 **Work Order #...:** FATMX **Matrix.....:** SO
Date Sampled...: 10/22/02 **Date Received..:** 10/22/02
% Moisture.....: 19

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Corrosivity	**7.6**		**No Units**	**SW846 9045C**	**10/29/02**	**2302623**
		Dilution Factor: 1				
Flashpoint	**>180**		**deg F**	**SW846 1010**	**11/07/02**	**2311349**
		Dilution Factor: 1				
Paint Filter Test	**NEG**	**0.10**	**%**	**SW846 9095A**	**10/29/02**	**2302622**
		Dilution Factor 1				
Percent Solids	**80.6**	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/28-10/29/02**	**2301512**
		Dilution Factor 1				
Reactive Cyanide	ND	200	mg/kg	SW846 7.3.3	11/10/02	2315197
		Dilution Factor 1				
Reactive Sulfide	ND	200	mg/kg	SW846 7.3.4	11/10/02	2315194
		Dilution Factor 1				

NOTE(S):

RL Reporting Limit

NEG Negative

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-006

TCLP GC/MS Volatiles

Lot-Sample #...:	A2J250333-006	**Work Order #...:**	FATM11AC	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Leach Date.....:	10/30/02	**Prep Date.....:**	11/02/02	**Analysis Date..:**	11/02/02
Leach Batch #..:	P230206	**Prep Batch #...:**	2305335		
Dilution Factor:	10				
% Moisture.....:	25	**Method.....:**	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	0.25	mg/L
Carbon tetrachloride	ND	0.25	mg/L
Chlorobenzene	ND	0.25	mg/L
Chloroform	ND	0.25	mg/L
1,2-Dichloroethane	ND	0.25	mg/L
1,1-Dichloroethylene	ND	0.70	mg/L
Methyl ethyl ketone	ND	0.50	mg/L
Tetrachloroethylene	ND	0.70	mg/L
Trichloroethylene	ND	0.50	mg/L
Vinyl chloride	ND	0.50	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	97	(59 - 138)
1,2-Dichloroethane-d4	108	(61 - 130)
Toluene-d8	92	(60 - 143)
4-Bromofluorobenzene	92	(47 - 158)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

Elevated reporting limits due to TICs

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-006

TCLP GC/MS Semivolatiles

Lot-Sample #...:	A2J250333-006	**Work Order #...:**	FATM11AE	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Leach Date.....:	10/29/02	**Prep Date.....:**	10/30/02	**Analysis Date..:**	11/02/02
Leach Batch #..:	P230213	**Prep Batch #...:**	2303245		
Dilution Factor:	50				
% Moisture.....:	25	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
o-Cresol	ND	2.5	mg/L
m-Cresol & p-Cresol	**5.1**	**5.0**	**mg/L**
1,4-Dichlorobenzene	ND	2.5	mg/L
2,4-Dinitrotoluene	ND	2.5	mg/L
Hexachlorobenzene	ND	2.5	mg/L
Hexachlorobutadiene	ND	2.5	mg/L
Hexachloroethane	ND	2.5	mg/L
Nitrobenzene	ND	2.5	mg/L
Pentachlorophenol	ND	5.0	mg/L
Pyridine	ND	5.0	mg/L
2,4,5-Trichloro-phenol	ND	2.5	mg/L
2,4,6-Trichloro-phenol	ND	2.5	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	0.0 DIL,*	(32 - 112)
2-Fluorobiphenyl	0.0 DIL,*	(30 - 110)
Terphenyl-d14	0.0 DIL,*	(10 - 144)
Phenol-d5	77 DIL	(10 - 113)
2-Fluorophenol	0.0 DIL,*	(13 - 110)
2,4,6-Tribromophenol	0.0 DIL,*	(21 - 122)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes

* Surrogate recovery is outside stated control limits

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-006

TCLP GC Semivolatiles

Lot-Sample #...: A2J250333-006 **Work Order #...:** FATM11AF **Matrix.....:** SO
Date Sampled...: 10/22/02 **Date Received..:** 10/22/02
Leach Date.....: 10/29/02 **Prep Date.....:** 10/30/02 **Analysis Date..:** 10/31/02
Leach Batch #..: P230213 **Prep Batch #...:** 2303246
Dilution Factor: 1
% Moisture.....: 25 **Method.....:** SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chlordane (technical)	ND	0.0050	mg/L
Endrin	ND	0.00050	mg/L
Heptachlor	ND	0.00050	mg/L
Heptachlor epoxide	ND	0.00050	mg/L
Lindane	ND	0.00050	mg/L
Methoxychlor	ND	0.0010	mg/L
Toxaphene	ND	0.020	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	89	(31 - 115)
Tetrachloro-m-xylene	91	(47 - 110)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-006

GC Semivolatiles

Lot-Sample #...: A2J250333-006 **Work Order #...:** FATM11AT **Matrix.....:** SO
Date Sampled...: 10/22/02 **Date Received..:** 10/22/02
Prep Date.....: 10/27/02 **Analysis Date..:** 10/29/02
Prep Batch #...: 2300146
Dilution Factor: 1
% Moisture.....: 25 **Method.....:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	44	ug/kg
Aroclor 1221	ND	44	ug/kg
Aroclor 1232	ND	44	ug/kg
Aroclor 1242	ND	44	ug/kg
Aroclor 1248	**47**	**44**	**ug/kg**
Aroclor 1254	ND	44	ug/kg
Aroclor 1260	ND	44	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	71	(31 - 127)
Decachlorobiphenyl	77	(23 - 141)

NOTE(S):

Results and reporting limits have been adjusted for dry weight

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-006

TCLP GC Semivolatiles

Lot-Sample #...:	A2J250333-006	**Work Order #...:**	FATM11AG	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Leach Date.....:	10/29/02	**Prep Date.....:**	10/30/02	**Analysis Date..:**	11/03/02
Leach Batch #..:	P230213	**Prep Batch #...:**	2303248		
Dilution Factor:	1				
% Moisture.....:	25	**Method.....:**	SW846 8151A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	0.50	mg/L
2,4,5-TP (Silvex)	ND	0.10	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4-Dichlorophenylacetic acid	85	(37 - 116)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-006

TCLP Metals

Lot-Sample #...: A2J250333-006 **Matrix.....:** SO
Date Sampled...: 10/22/02 **Date Received..:** 10/22/02
Leach Date.....: 10/29/02 **Leach Batch #..:** P230213

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 2304118						
Arsenic	ND	0.50	mg/L	SW846 6010B	10/31/02	FATM11AH
		Dilution Factor 1				
Barium	ND	10.0	mg/L	SW846 6010B	10/31/02	FATM11AJ
		Dilution Factor 1				
Cadmium	ND	0.10	mg/L	SW846 6010B	10/31/02	FATM11AK
		Dilution Factor 1				
Chromium	ND	0.50	mg/L	SW846 6010B	10/31/02	FATM11AL
		Dilution Factor 1				
Lead	ND	0.50	mg/L	SW846 6010B	10/31/02	FATM11AM
		Dilution Factor 1				
Selenium	ND	0.25	mg/L	SW846 6010B	10/31/02	FATM11AN
		Dilution Factor 1				
Silver	ND	0.50	mg/L	SW846 6010B	10/31/02	FATM11AP
		Dilution Factor 1				
Mercury	ND	0.0020	mg/L	SW846 7470A	10/31/02	FATM11AQ
		Dilution Factor 1				

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-006

General Chemistry

Lot-Sample #...: A2J250333-006 **Work Order #...:** FATM1 **Matrix.....:** SO
Date Sampled...: 10/22/02 **Date Received..:** 10/22/02
% Moisture.....: 25

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Corrosivity	7.3		**No Units**	**SW846 9045C**	**10/29/02**	**2302623**
		Dilution Factor 1				
Flashpoint	>180		**deg F**	**SW846 1010**	**10/30/02**	**2303385**
		Dilution Factor: 1				
Paint Filter Test	**NEG**	**0.10**	**%**	**SW846 9095A**	**10/29/02**	**2302622**
		Dilution Factor. 1				
Percent Solids	75.4	**10.0**	**%**	**MCAWW 160.3 MOD**	**10/28-10/29/02**	**2301512**
		Dilution Factor 1				
Reactive Cyanide	ND	200	mg/kg	SW846 7.3.3	10/31/02	2304480
		Dilution Factor: 1				
Reactive Sulfide	ND	200	mg/kg	SW846 7.3.4	10/31/02	2304479
		Dilution Factor 1				

NOTE(S):

RL Reporting Limit
NEG Negative

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-007

TCLP GC/MS Volatiles

Lot-Sample #...: A2J250333-007 **Work Order #...:** FATM41AC **Matrix.....:** SO
Date Sampled...: 10/22/02 **Date Received..:** 10/22/02
Leach Date.....: 10/30/02 **Prep Date.....:** 11/02/02 **Analysis Date..:** 11/02/02
Leach Batch #..: P230206 **Prep Batch #...:** 2305335
Dilution Factor: 28.57
% Moisture.....: 79 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	0.71	mg/L
Carbon tetrachloride	ND	0.71	mg/L
Chlorobenzene	ND	0.71	mg/L
Chloroform	ND	0.71	mg/L
1,2-Dichloroethane	ND	0.71	mg/L
1,1-Dichloroethylene	ND	2.0	mg/L
Methyl ethyl ketone	ND	1.4	mg/L
Tetrachloroethylene	ND	2.0	mg/L
Trichloroethylene	ND	1.4	mg/L
Vinyl chloride	ND	1.4	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	99	(59 - 138)
1,2-Dichloroethane-d4	111	(61 - 130)
Toluene-d8	92	(60 - 143)
4-Bromofluorobenzene	94	(47 - 158)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

Elevated reporting limits due to TICs

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-007

TCLP GC/MS Semivolatiles

Lot-Sample #...:	A2J250333-007	**Work Order #...:**	FATM41AE	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Leach Date.....:	10/29/02	**Prep Date.....:**	10/30/02	**Analysis Date..:**	11/02/02
Leach Batch #..:	P230213	**Prep Batch #...:**	2303245		
Dilution Factor:	20				
% Moisture.....:	79	**Method.....:**	SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
o-Cresol	ND	1.0	mg/L
m-Cresol & p-Cresol	ND	2.0	mg/L
1,4-Dichlorobenzene	ND	1.0	mg/L
2,4-Dinitrotoluene	ND	1.0	mg/L
Hexachlorobenzene	ND	1.0	mg/L
Hexachlorobutadiene	ND	1.0	mg/L
Hexachloroethane	ND	1.0	mg/L
Nitrobenzene	ND	1.0	mg/L
Pentachlorophenol	ND	2.0	mg/L
Pyridine	ND	2.0	mg/L
2,4,5-Trichloro-phenol	ND	1.0	mg/L
2,4,6-Trichloro-phenol	ND	1.0	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	65 DIL	(32 - 112)
2-Fluorobiphenyl	71 DIL	(30 - 110)
Terphenyl-d14	71 DIL	(10 - 144)
Phenol-d5	43 DIL	(10 - 113)
2-Fluorophenol	0.0 DIL,*	(13 - 110)
2,4,6-Tribromophenol	46 DIL	(21 - 122)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes

* Surrogate recovery is outside stated control limits

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-007

TCLP GC Semivolatiles

Lot-Sample #...:	A2J250333-007	**Work Order #...:**	FATM41AF	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Leach Date.....:	10/29/02	**Prep Date.....:**	10/30/02	**Analysis Date..:**	10/31/02
Leach Batch #..:	P230213	**Prep Batch #...:**	2303246		
Dilution Factor:	1				
% Moisture.....:	79	**Method.....:**	SW846 8081A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chlordane (technical)	ND	0.0050	mg/L
Endrin	ND	0.00050	mg/L
Heptachlor	ND	0.00050	mg/L
Heptachlor epoxide	ND	0.00050	mg/L
Lindane	ND	0.00050	mg/L
Methoxychlor	ND	0.0010	mg/L
Toxaphene	ND	0.020	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	104	(31 - 115)
Tetrachloro-m-xylene	99	(47 - 110)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-007

GC Semivolatiles

Lot-Sample #...:	A2J250333-007	**Work Order #...:**	FATM41AT	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Prep Date.....:	10/27/02	**Analysis Date..:**	10/29/02		
Prep Batch #...:	2300146				
Dilution Factor:	1				
% Moisture.....:	79	**Method.....:**	SW846 8082		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	350	ug/kg
Aroclor 1221	ND	350	ug/kg
Aroclor 1232	ND	350	ug/kg
Aroclor 1242	ND	350	ug/kg
Aroclor 1248	ND	350	ug/kg
Aroclor 1254	ND	350	ug/kg
Aroclor 1260	ND	350	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	40	(31 - 127)
Decachlorobiphenyl	30	(23 - 141)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-007

TCLP GC Semivolatiles

Lot-Sample #...:	A2J250333-007	**Work Order #...:**	FATM41AG	**Matrix.....:**	SO
Date Sampled...:	10/22/02	**Date Received..:**	10/22/02		
Leach Date.....:	10/29/02	**Prep Date.....:**	10/30/02	**Analysis Date..:**	11/03/02
Leach Batch #..:	P230213	**Prep Batch #...:**	2303248		
Dilution Factor:	1				
% Moisture.....:	79	**Method.....:**	SW846 8151A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	0.50	mg/L
2,4,5-TP (Silvex)	ND	0.10	mg/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4-Dichlorophenylacetic acid	86	(37 - 116)

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-007

TCLP Metals

Lot-Sample #...: A2J250333-007 **Matrix.....:** SO
Date Sampled...: 10/22/02 **Date Received..:** 10/22/02
Leach Date.....: 10/29/02 **Leach Batch #..:** P230213

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 2304118						
Arsenic	ND	0.50	mg/L	SW846 6010B	10/31/02	FATM41AH
		Dilution Factor: 1				
Barium	ND	10.0	mg/L	SW846 6010B	10/31/02	FATM41AJ
		Dilution Factor: 1				
Cadmium	ND	0.10	mg/L	SW846 6010B	10/31/02	FATM41AK
		Dilution Factor: 1				
Chromium	ND	0.50	mg/L	SW846 6010B	10/31/02	FATM41AL
		Dilution Factor: 1				
Lead	ND	0.50	mg/L	SW846 6010B	10/31/02	FATM41AM
		Dilution Factor: 1				
Selenium	ND	0.25	mg/L	SW846 6010B	10/31/02	FATM41AN
		Dilution Factor: 1				
Silver	ND	0.50	mg/L	SW846 6010B	10/31/02	FATM41AP
		Dilution Factor: 1				
Mercury	ND	0.0020	mg/L	SW846 7470A	10/31/02	FATM41AQ
		Dilution Factor: 1				

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CONESTOGA-ROVERS & ASSOCIATES INC

Client Sample ID: CS-007

General Chemistry

Lot-Sample #...: A2J250333-007 Work Order #...: FATM4 Matrix.....: SO
Date Sampled...: 10/22/02 Date Received..: 10/22/02
% Moisture.....: 79

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Corrosivity	7.6		No Units	SW846 9045C	10/29/02	2302623
		Dilution Factor: 1				
Paint Filter Test	NEG	0.10	%	SW846 9095A	10/29/02	2302622
		Dilution Factor: 1				
Percent Solids	20.8	10.0	%	MCAWW 160.3 MOD	10/28-10/29/02	2301512
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

NEG Negative

QUALITY CONTROL SECTION

METHOD BLANK REPORT

TCLP GC/MS Volatiles

Client Lot #...: A2J250333 **Work Order #...:** FA0TQ1AA **Matrix.....:** SOLID
MB Lot-Sample #: A2J290000-199
Leach Date.....: 10/30/02 **Prep Date.....:** 11/01/02 **Analysis Date..:** 11/01/02
Leach Batch #..: P230206 **Prep Batch #...:** 2305335
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	0.025	mg/L	SW846 8260B
Carbon tetrachloride	ND	0.025	mg/L	SW846 8260B
Chlorobenzene	ND	0.025	mg/L	SW846 8260B
Chloroform	ND	0.025	mg/L	SW846 8260B
1,2-Dichloroethane	ND	0.025	mg/L	SW846 8260B
1,1-Dichloroethylene	ND	0.070	mg/L	SW846 8260B
Methyl ethyl ketone	ND	0.050	mg/L	SW846 8260B
Tetrachloroethylene	ND	0.070	mg/L	SW846 8260B
Trichloroethylene	ND	0.050	mg/L	SW846 8260B
Vinyl chloride	ND	0.050	mg/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	99	(59 - 138)
1,2-Dichloroethane-d4	91	(61 - 130)
Toluene-d8	92	(60 - 143)
4-Bromofluorobenzene	83	(47 - 158)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

TCLP GC/MS Volatiles

Client Lot #...: A2J250333 **Work Order #...:** FA42F1AA **Matrix.....:** SOLID
MB Lot-Sample #: A2J310000-128
Leach Date.....: 11/01/02 **Prep Date.....:** 11/02/02 **Analysis Date..:** 11/02/02
Leach Batch #..: P230401 **Prep Batch #...:** 2307114
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	0.025	mg/L	SW846 8260B
Carbon tetrachloride	ND	0.025	mg/L	SW846 8260B
Chlorobenzene	ND	0.025	mg/L	SW846 8260B
Chloroform	ND	0.025	mg/L	SW846 8260B
1,2-Dichloroethane	ND	0.025	mg/L	SW846 8260B
1,1-Dichloroethylene	ND	0.070	mg/L	SW846 8260B
Methyl ethyl ketone	ND	0.050	mg/L	SW846 8260B
Tetrachloroethylene	ND	0.070	mg/L	SW846 8260B
Trichloroethylene	ND	0.050	mg/L	SW846 8260B
Vinyl chloride	ND	0.050	mg/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	99	(59 - 138)
1,2-Dichloroethane-d4	110	(61 - 130)
Toluene-d8	92	(60 - 143)
4-Bromofluorobenzene	92	(47 - 158)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

TCLP GC/MS Semivolatiles

Client Lot #...: A2J250333 **Work Order #...:** FA29X1AA **Matrix.....:** SOLID
MB Lot-Sample #: A2J300000-245
Leach Date.....: 10/29/02 **Prep Date.....:** 10/30/02 **Analysis Date..:** 11/02/02
Leach Batch #..: P230213 **Prep Batch #...:** 2303245
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
o-Cresol	ND	0.050	mg/L	SW846 8270C
m-Cresol & p-Cresol	ND	0.10	mg/L	SW846 8270C
1,4-Dichlorobenzene	ND	0.050	mg/L	SW846 8270C
2,4-Dinitrotoluene	ND	0.050	mg/L	SW846 8270C
Hexachlorobenzene	ND	0.050	mg/L	SW846 8270C
Hexachlorobutadiene	ND	0.050	mg/L	SW846 8270C
Hexachloroethane	ND	0.050	mg/L	SW846 8270C
Nitrobenzene	ND	0.050	mg/L	SW846 8270C
Pentachlorophenol	ND	0.10	mg/L	SW846 8270C
Pyridine	ND	0.10	mg/L	SW846 8270C
2,4,5-Trichloro-phenol	ND	0.050	mg/L	SW846 8270C
2,4,6-Trichloro-phenol	ND	0.050	mg/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	72	(32 - 112)
2-Fluorobiphenyl	70	(30 - 110)
Terphenyl-d14	77	(10 - 144)
Phenol-d5	47	(10 - 113)
2-Fluorophenol	25	(13 - 110)
2,4,6-Tribromophenol	58	(21 - 122)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

TCLP GC/MS Semivolatiles

Client Lot #...: A2J250333 **Work Order #...:** FCD291AA **Matrix.....:** SOLID
MB Lot-Sample #: A2K050000-104
Leach Date.....: 10/29/02 **Prep Date.....:** 11/05/02 **Analysis Date..:** 11/05/02
Leach Batch #..: P230213 **Prep Batch #...:** 2309104
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
o-Cresol	ND	0.050	mg/L	SW846 8270C
m-Cresol & p-Cresol	ND	0.10	mg/L	SW846 8270C
1,4-Dichlorobenzene	ND	0.050	mg/L	SW846 8270C
2,4-Dinitrotoluene	ND	0.050	mg/L	SW846 8270C
Hexachlorobenzene	ND	0.050	mg/L	SW846 8270C
Hexachlorobutadiene	ND	0.050	mg/L	SW846 8270C
Hexachloroethane	ND	0.050	mg/L	SW846 8270C
Nitrobenzene	ND	0.050	mg/L	SW846 8270C
Pentachlorophenol	ND	0.10	mg/L	SW846 8270C
Pyridine	ND	0.10	mg/L	SW846 8270C
2,4,5-Trichloro-phenol	ND	0.050	mg/L	SW846 8270C
2,4,6-Trichloro-phenol	ND	0.050	mg/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	72	(32 - 112)
2-Fluorobiphenyl	71	(30 - 110)
Terphenyl-d14	95	(10 - 144)
Phenol-d5	70	(10 - 113)
2-Fluorophenol	77	(13 - 110)
2,4,6-Tribromophenol	56	(21 - 122)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

TCLP GC Semivolatiles

Client Lot #...: A2J250333 **Work Order #...:** FA2961AA **Matrix.....:** SOLID
MB Lot-Sample #: A2J300000-246
Leach Date.....: 10/29/02 **Prep Date.....:** 10/30/02 **Analysis Date..:** 10/31/02
Leach Batch #..: P230213 **Prep Batch #...:** 2303246
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Chlordane (technical)	ND	0.0050	mg/L	SW846 8081A
Endrin	ND	0.00050	mg/L	SW846 8081A
Heptachlor	ND	0.00050	mg/L	SW846 8081A
Heptachlor epoxide	ND	0.00050	mg/L	SW846 8081A
Lindane	ND	0.00050	mg/L	SW846 8081A
Methoxychlor	ND	0.0010	mg/L	SW846 8081A
Toxaphene	ND	0.020	mg/L	SW846 8081A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	88	(31 - 115)
Tetrachloro-m-xylene	90	(47 - 110)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: A2J250333 **Work Order #...:** FA13R1AA **Matrix.....:** SOLID
MB Lot-Sample #: A2J290000-398

Prep Date.....: 10/29/02
Analysis Date..: 10/30/02 **Prep Batch #...:** 2302398
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Aroclor 1016	ND	33	ug/kg	SW846 8082
Aroclor 1221	ND	33	ug/kg	SW846 8082
Aroclor 1232	ND	33	ug/kg	SW846 8082
Aroclor 1242	ND	33	ug/kg	SW846 8082
Aroclor 1248	ND	33	ug/kg	SW846 8082
Aroclor 1254	ND	33	ug/kg	SW846 8082
Aroclor 1260	ND	33	ug/kg	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	91	(31 - 127)
Decachlorobiphenyl	95	(23 - 141)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: A2J250333 **Work Order #...:** FAWA31AA **Matrix.....:** SOLID
MB Lot-Sample #: A2J270000-146

Prep Date.....: 10/27/02
Analysis Date..: 10/29/02 **Prep Batch #...:** 2300146
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Aroclor 1016	ND	33	ug/kg	SW846 8082
Aroclor 1221	ND	33	ug/kg	SW846 8082
Aroclor 1232	ND	33	ug/kg	SW846 8082
Aroclor 1242	ND	33	ug/kg	SW846 8082
Aroclor 1248	ND	33	ug/kg	SW846 8082
Aroclor 1254	ND	33	ug/kg	SW846 8082
Aroclor 1260	ND	33	ug/kg	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	77	(31 - 127)
Decachlorobiphenyl	87	(23 - 141)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results

METHOD BLANK REPORT

TCLP GC Semivolatiles

Client Lot #...: A2J250333 **Work Order #...:** FA3AA1AA **Matrix.....:** SOLID
MB Lot-Sample #: A2J300000-248
Leach Date.....: 10/29/02 **Prep Date.....:** 10/30/02 **Analysis Date..:** 11/03/02
Leach Batch #..: P230213 **Prep Batch #...:** 2303248
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2,4-D	ND	0.50	mg/L	SW846 8151A
2,4,5-TP (Silvex)	ND	0.10	mg/L	SW846 8151A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4-Dichlorophenylacetic acid	71	(37 - 116)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

TCLP Metals

Client Lot #...: A2J250333 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: A2J290000-453 **Prep Batch #...:** 2304118						
Leach Date.....: 10/29/02 **Leach Batch #..:** P230213						
Arsenic	ND	0.50	mg/L	SW846 6010B	10/31/02	FA18D1AF
		Dilution Factor: 1				
Barium	ND	10.0	mg/L	SW846 6010B	10/31/02	FA18D1AG
		Dilution Factor: 1				
Cadmium	ND	0.10	mg/L	SW846 6010B	10/31/02	FA18D1AH
		Dilution Factor: 1				
Chromium	ND	0.50	mg/L	SW846 6010B	10/31/02	FA18D1AJ
		Dilution Factor: 1				
Lead	ND	0.50	mg/L	SW846 6010B	10/31/02	FA18D1AK
		Dilution Factor: 1				
Selenium	ND	0.25	mg/L	SW846 6010B	10/31/02	FA18D1AL
		Dilution Factor: 1				
Silver	ND	0.50	mg/L	SW846 6010B	10/31/02	FA18D1AA
		Dilution Factor: 1				
Mercury	ND	0.0020	mg/L	SW846 7470A	10/31/02	FA18D1AM
		Dilution Factor: 1				
MB Lot-Sample #: A2J300000-411 **Prep Batch #...:** 2304113						
Leach Date.....: 10/30/02 **Leach Batch #..:** P230303						
Arsenic	ND	0.50	mg/L	SW846 6010B	10/31/02	FA38F1AE
		Dilution Factor: 1				
Barium	ND	10.0	mg/L	SW846 6010B	10/31/02	FA38F1AF
		Dilution Factor: 1				
Cadmium	ND	0.10	mg/L	SW846 6010B	10/31/02	FA38F1AG
		Dilution Factor: 1				
Chromium	ND	0.50	mg/L	SW846 6010B	10/31/02	FA38F1AH
		Dilution Factor: 1				
Lead	ND	0.50	mg/L	SW846 6010B	10/31/02	FA38F1AJ
		Dilution Factor: 1				

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METHOD BLANK REPORT

TCLP Metals

Client Lot #...: A2J250333 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	ND	0.25	mg/L	SW846 6010B	10/31/02	FA38F1AK
		Dilution Factor: 1				
Silver	ND	0.50	mg/L	SW846 6010B	10/31/02	FA38F1AL
		Dilution Factor: 1				
Mercury	ND	0.0020	mg/L	SW846 7470A	10/31/02	FA38F1AM
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results

METHOD BLANK REPORT

TCLP Metals

Client Lot #...: A2J250333 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: A2J310000-113 **Prep Batch #...:** 2304113						
Arsenic	ND	0.50	mg/L	SW846 6010B	10/31/02	FA41E1AA
		Dilution Factor: 1				
Barium	ND	10.0	mg/L	SW846 6010B	10/31/02	FA41E1AC
		Dilution Factor: 1				
Cadmium	ND	0.10	mg/L	SW846 6010B	10/31/02	FA41E1AD
		Dilution Factor: 1				
Chromium	ND	0.50	mg/L	SW846 6010B	10/31/02	FA41E1AE
		Dilution Factor: 1				
Lead	ND	0.50	mg/L	SW846 6010B	10/31/02	FA41E1AF
		Dilution Factor: 1				
Selenium	ND	0.25	mg/L	SW846 6010B	10/31/02	FA41E1AG
		Dilution Factor: 1				
Silver	ND	0.50	mg/L	SW846 6010B	10/31/02	FA41E1AH
		Dilution Factor: 1				
Mercury	ND	0.0020	mg/L	SW846 7470A	10/31/02	FA41E1AJ
		Dilution Factor: 1				
MB Lot-Sample #: A2J310000-118 **Prep Batch #...:** 2304118						
Arsenic	ND	0.50	mg/L	SW846 6010B	10/31/02	FA41Q1AC
		Dilution Factor: 1				
Barium	ND	10.0	mg/L	SW846 6010B	10/31/02	FA41Q1AD
		Dilution Factor: 1				
Cadmium	ND	0.10	mg/L	SW846 6010B	10/31/02	FA41Q1AE
		Dilution Factor: 1				
Chromium	ND	0.50	mg/L	SW846 6010B	10/31/02	FA41Q1AF
		Dilution Factor: 1				
Lead	ND	0.50	mg/L	SW846 6010B	10/31/02	FA41Q1AG
		Dilution Factor: 1				
Selenium	ND	0.25	mg/L	SW846 6010B	10/31/02	FA41Q1AH
		Dilution Factor: 1				

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METHOD BLANK REPORT

TCLP Metals

Client Lot #....: A2J250333 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Silver	ND	0.50	mg/L	SW846 6010B	10/31/02	FA41Q1AJ
		Dilution Factor: 1				
Mercury	ND	0.0020	mg/L	SW846 7470A	10/31/02	FA41Q1AK
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: A2J250333 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids		Work Order #:	FA1K81AA	MB Lot-Sample #:	A2J280000-509	
	ND	10.0	%	MCAWW 160.3 MOD	10/28-10/29/02	2301509
		Dilution Factor: 1				
Percent Solids		Work Order #:	FA1LF1AA	MB Lot-Sample #:	A2J280000-512	
	ND	10.0	%	MCAWW 160.3 MOD	10/28-10/29/02	2301512
		Dilution Factor: 1				
Percent Solids		Work Order #:	FA4GG1AA	MB Lot-Sample #:	A2J300000-440	
	ND	10.0	%	MCAWW 160.3 MOD	10/30-10/31/02	2303440
		Dilution Factor: 1				
Reactive Cyanide		Work Order #:	FA64P1AA	MB Lot-Sample #:	A2J310000-480	
	ND	200	mg/kg	SW846 7.3.3	10/31/02	2304480
		Dilution Factor: 1				
Reactive Cyanide		Work Order #:	FCTVE1AA	MB Lot-Sample #:	A2K110000-197	
	ND	200	mg/kg	SW846 7.3.3	11/10/02	2315197
		Dilution Factor: 1				
Reactive Sulfide		Work Order #:	FA64R1AA	MB Lot-Sample #:	A2J310000-479	
	ND	200	mg/kg	SW846 7.3.4	10/31/02	2304479
		Dilution Factor: 1				
Reactive Sulfide		Work Order #:	FCTT51AA	MB Lot-Sample #:	A2K110000-194	
	ND	200	mg/kg	SW846 7.3.4	11/10/02	2315194
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A2J250333 **Work Order #...:** FA8VM1AA-LCS **Matrix.....:** SOLID
LCS Lot-Sample#: A2K010000-335 FA8VM1AC-LCSD
Prep Date.....: 11/01/02 **Analysis Date..:** 11/01/02
Prep Batch #...: 2305335
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**89**	**(79 - 116)**			**SW846 8260B**
	97	**(79 - 116)**	**8.7**	**(0-20)**	**SW846 8260B**
Chlorobenzene	**90**	**(81 - 115)**			**SW846 8260B**
	99	**(81 - 115)**	**9.2**	**(0-20)**	**SW846 8260B**
1,1-Dichloroethylene	**91**	**(65 - 119)**			**SW846 8260B**
	96	**(65 - 119)**	**5.2**	**(0-20)**	**SW846 8260B**
Trichloroethylene	**81**	**(80 - 122)**			**SW846 8260B**
	86	**(80 - 122)**	**6.7**	**(0-20)**	**SW846 8260B**
Toluene	**89**	**(76 - 119)**			**SW846 8260B**
	97	**(76 - 119)**	**9.1**	**(0-20)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	95	(78 - 115)
	97	(78 - 115)
1,2-Dichloroethane-d4	86	(77 - 120)
	93	(77 - 120)
Toluene-d8	97	(78 - 111)
	97	(78 - 111)
4-Bromofluorobenzene	92	(80 - 114)
	94	(80 - 114)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A2J250333 **Work Order #...:** FCA501AA **Matrix.....:** SOLID
LCS Lot-Sample#: A2K030000-114
Prep Date.....: 11/02/02 **Analysis Date..:** 11/02/02
Prep Batch #...: 2307114
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzene	**96**	**(75 - 129)**	**SW846 8260B**
Chlorobenzene	**95**	**(75 - 127)**	**SW846 8260B**
1,1-Dichloroethylene	**94**	**(55 - 142)**	**SW846 8260B**
Trichloroethylene	**82**	**(70 - 131)**	**SW846 8260B**
Toluene	**93**	**(71 - 130)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	97	(59 - 138)
1,2-Dichloroethane-d4	107	(61 - 130)
Toluene-d8	93	(60 - 143)
4-Bromofluorobenzene	94	(47 - 158)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A2J250333 Work Order #...: FA29X1AC-LCS Matrix.....: SOLID
LCS Lot-Sample#: A2J300000-245 FA29X1AD-LCSD
Prep Date.....: 10/30/02 Analysis Date..: 11/02/02
Prep Batch #...: 2303245
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
o-Cresol	65	(33 - 115)			SW846 8270C
	68	(33 - 115)	5.3	(0-31)	SW846 8270C
m-Cresol & p-Cresol	72	(46 - 109)			SW846 8270C
	75	(46 - 109)	4.4	(0-32)	SW846 8270C
1,4-Dichlorobenzene	65	(28 - 110)			SW846 8270C
	69	(28 - 110)	6.0	(0-36)	SW846 8270C
2,4-Dinitrotoluene	89	(47 - 131)			SW846 8270C
	86	(47 - 131)	3.1	(0-32)	SW846 8270C
Hexachlorobenzene	86	(57 - 128)			SW846 8270C
	86	(57 - 128)	0.35	(0-22)	SW846 8270C
Hexachlorobutadiene	64	(36 - 116)			SW846 8270C
	65	(36 - 116)	2.2	(0-32)	SW846 8270C
Hexachloroethane	63	(30 - 110)			SW846 8270C
	68	(30 - 110)	8.1	(0-33)	SW846 8270C
Nitrobenzene	83	(45 - 130)			SW846 8270C
	84	(45 - 130)	0.89	(0-50)	SW846 8270C
Pentachlorophenol	65	(10 - 140)			SW846 8270C
	61	(10 - 140)	7.1	(0-56)	SW846 8270C
Pyridine	63	(10 - 148)			SW846 8270C
	65	(10 - 148)	3.4	(0-65)	SW846 8270C
2,4,5-Trichloro-phenol	79	(41 - 125)			SW846 8270C
	81	(41 - 125)	2.1	(0-22)	SW846 8270C
2,4,6-Trichloro-phenol	80	(46 - 135)			SW846 8270C
	81	(46 - 135)	1.5	(0-27)	SW846 8270C
Cresols (total)	69	(46 - 109)			SW846 8270C
	73	(46 - 109)	4.6	(0-32)	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	81	(32 - 112)
	84	(32 - 112)
2-Fluorobiphenyl	77	(30 - 110)
	81	(30 - 110)
Terphenyl-d14	78	(10 - 144)
	79	(10 - 144)
Phenol-d5	71	(10 - 113)

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A2J250333 **Work Order #...:** FA29X1AC-LCS **Matrix.....:** SOLID
LCS Lot-Sample#: A2J300000-245 FA29X1AD-LCSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
	78	(10 - 113)
2-Fluorophenol	61	(13 - 110)
	71	(13 - 110)
2,4,6-Tribromophenol	81	(21 - 122)
	81	(21 - 122)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A2J250333 Work Order #...: FCD291AC-LCS Matrix.....: SOLID
LCS Lot-Sample#: A2K050000-104 FCD291AD-LCSD
Prep Date.....: 11/05/02 Analysis Date..: 11/05/02
Prep Batch #...: 2309104
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
o-Cresol	70	(33 - 115)			SW846 8270C
	74	(33 - 115)	5.3	(0-31)	SW846 8270C
m-Cresol & p-Cresol	72	(46 - 109)			SW846 8270C
	78	(46 - 109)	8.0	(0-32)	SW846 8270C
1,4-Dichlorobenzene	73	(28 - 110)			SW846 8270C
	77	(28 - 110)	4.5	(0-36)	SW846 8270C
2,4-Dinitrotoluene	86	(47 - 131)			SW846 8270C
	90	(47 - 131)	4.5	(0-32)	SW846 8270C
Hexachlorobenzene	97	(57 - 128)			SW846 8270C
	97	(57 - 128)	0.17	(0-22)	SW846 8270C
Hexachlorobutadiene	74	(36 - 116)			SW846 8270C
	74	(36 - 116)	0.12	(0-32)	SW846 8270C
Hexachloroethane	76	(30 - 110)			SW846 8270C
	81	(30 - 110)	6.5	(0-33)	SW846 8270C
Nitrobenzene	77	(45 - 130)			SW846 8270C
	80	(45 - 130)	3.8	(0-50)	SW846 8270C
Pentachlorophenol	63	(10 - 140)			SW846 8270C
	69	(10 - 140)	10	(0-56)	SW846 8270C
Pyridine	70	(10 - 148)			SW846 8270C
	76	(10 - 148)	9.3	(0-65)	SW846 8270C
2,4,5-Trichloro-phenol	77	(41 - 125)			SW846 8270C
	80	(41 - 125)	4.6	(0-22)	SW846 8270C
2,4,6-Trichloro-phenol	81	(46 - 135)			SW846 8270C
	82	(46 - 135)	2.1	(0-27)	SW846 8270C
Cresols (total)	72	(46 - 109)			SW846 8270C
	77	(46 - 109)	7.1	(0-32)	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Nitrobenzene-d5	79	(32 - 112)
	82	(32 - 112)
2-Fluorobiphenyl	79	(30 - 110)
	81	(30 - 110)
Terphenyl-d14	93	(10 - 144)
	93	(10 - 144)
Phenol-d5	74	(10 - 113)

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: A2J250333 **Work Order #...:** FCD291AC-LCS **Matrix.....:** SOLID
LCS Lot-Sample#: A2K050000-104 FCD291AD-LCSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
	80	(10 - 113)
2-Fluorophenol	82	(13 - 110)
	87	(13 - 110)
2,4,6-Tribromophenol	83	(21 - 122)
	87	(21 - 122)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: A2J250333 **Work Order #...:** FA2961AC-LCS **Matrix.....:** SOLID
LCS Lot-Sample#: A2J300000-246 FA2961AD-LCSD
Prep Date.....: 10/30/02 **Analysis Date..:** 10/31/02
Prep Batch #...: 2303246
Dilution Factor: 5

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Endrin	**87**	**(50 - 110)**			**SW846 8081A**
	81	**(50 - 110)**	**7.7**	**(0-93)**	**SW846 8081A**
Heptachlor	**91**	**(57 - 110)**			**SW846 8081A**
	85	**(57 - 110)**	**7.0**	**(0-88)**	**SW846 8081A**
Heptachlor epoxide	**94**	**(56 - 110)**			**SW846 8081A**
	86	**(56 - 110)**	**7.8**	**(0-86)**	**SW846 8081A**
Lindane	**95**	**(56 - 110)**			**SW846 8081A**
	85	**(56 - 110)**	**11**	**(0-88)**	**SW846 8081A**
Methoxychlor	**111**	**(41 - 126)**			**SW846 8081A**
	101	**(41 - 126)**	**9.8**	**(0-94)**	**SW846 8081A**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	100	(31 - 115)
	87	(31 - 115)
Tetrachloro-m-xylene	92	(47 - 110)
	86	(47 - 110)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: A2J250333 **Work Order #...:** FAWA31AC-LCS **Matrix.....:** SOLID
LCS Lot-Sample#: A2J270000-146 FAWA31AD-LCSD
Prep Date.....: 10/27/02 **Analysis Date..:** 10/29/02
Prep Batch #...: 2300146
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Aroclor 1016	**83**	**(49 - 122)**			**SW846 8082**
	78	**(49 - 122)**	**6.9**	**(0-39)**	**SW846 8082**
Aroclor 1260	**85**	**(51 - 127)**			**SW846 8082**
	82	**(51 - 127)**	**3.4**	**(0-33)**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	83	(31 - 127)
	73	(31 - 127)
Decachlorobiphenyl	88	(23 - 141)
	86	(23 - 141)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: A2J250333 **Work Order #...:** FA13R1AC-LCS **Matrix.....:** SOLID
LCS Lot-Sample#: A2J290000-398 FA13R1AD-LCSD
Prep Date.....: 10/29/02 **Analysis Date..:** 10/30/02
Prep Batch #...: 2302398
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Aroclor 1016	**77**	**(49 - 122)**			**SW846 8082**
	81	**(49 - 122)**	**4.0**	**(0-39)**	**SW846 8082**
Aroclor 1260	**76**	**(51 - 127)**			**SW846 8082**
	85	**(51 - 127)**	**11**	**(0-33)**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	79	(31 - 127)
	82	(31 - 127)
Decachlorobiphenyl	83	(23 - 141)
	90	(23 - 141)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: A2J250333 **Work Order #...:** FA3AA1AC-LCS **Matrix.....:** SOLID
LCS Lot-Sample#: A2J300000-248 FA3AA1AD-LCSD
Prep Date.....: 10/30/02 **Analysis Date..:** 11/03/02
Prep Batch #...: 2303248
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2,4-D	**91**	**(35 - 136)**			**SW846 8151A**
	86	**(35 - 136)**	**6.2**	**(0-50)**	**SW846 8151A**
2,4,5-TP (Silvex)	**85**	**(46 - 112)**			**SW846 8151A**
	86	**(46 - 112)**	**0.83**	**(0-63)**	**SW846 8151A**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4-Dichlorophenylacetic acid	78	(37 - 116)
	77	(37 - 116)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: A2J250333 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: A2J310000-113 **Prep Batch #...:** 2304113					
Arsenic	91	(50 - 150)	SW846 6010B Dilution Factor: 1	10/31/02	FA41E1AK
Barium	93	(50 - 150)	SW846 6010B Dilution Factor: 1	10/31/02	FA41E1AL
Cadmium	96	(50 - 150)	SW846 6010B Dilution Factor: 1	10/31/02	FA41E1AM
Chromium	93	(50 - 150)	SW846 6010B Dilution Factor: 1	10/31/02	FA41E1AN
Lead	95	(50 - 150)	SW846 6010B Dilution Factor: 1	10/31/02	FA41E1AP
Selenium	93	(50 - 150)	SW846 6010B Dilution Factor: 1	10/31/02	FA41E1AQ
Silver	101	(50 - 150)	SW846 6010B Dilution Factor: 1	10/31/02	FA41E1AR
Mercury	111	(50 - 150)	SW846 7470A Dilution Factor: 1	10/31/02	FA41E1AT
LCS Lot-Sample#: A2J310000-118 **Prep Batch #...:** 2304118					
Arsenic	93	(50 - 150)	SW846 6010B Dilution Factor: 1	10/31/02	FA41Q1AM
Barium	96	(50 - 150)	SW846 6010B Dilution Factor: 1	10/31/02	FA41Q1AN
Cadmium	99	(50 - 150)	SW846 6010B Dilution Factor: 1	10/31/02	FA41Q1AP
Chromium	96	(50 - 150)	SW846 6010B Dilution Factor: 1	10/31/02	FA41Q1AQ
Lead	97	(50 - 150)	SW846 6010B Dilution Factor: 1	10/31/02	FA41Q1AR

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: A2J250333 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	95	(50 - 150)	SW846 6010B	10/31/02	FA41Q1AT
		Dilution Factor: 1			
Silver	103	(50 - 150)	SW846 6010B	10/31/02	FA41Q1AU
		Dilution Factor: 1			
Mercury	114	(50 - 150)	SW846 7470A	10/31/02	FA41Q1AV
		Dilution Factor: 1			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A2J250333 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Corrosivity		Work Order #: FA2XT1AA	LCS Lot-Sample#: A2J290000-623		
	100	(97 - 103)	SW846 9045C	10/29/02	2302623
		Dilution Factor: 1			
Reactive Cyanide		Work Order #: FA64P1AC	LCS Lot-Sample#: A2J310000-480		
	21	(10 - 200)	SW846 7.3.3	10/31/02	2304480
		Dilution Factor: 1			
Reactive Cyanide		Work Order #: FCTVE1AC	LCS Lot-Sample#: A2K110000-197		
	16	(10 - 200)	SW846 7.3.3	11/10/02	2315197
		Dilution Factor: 1			
Reactive Sulfide		Work Order #: FA64R1AC	LCS Lot-Sample#: A2J310000-479		
	40	(10 - 200)	SW846 7.3.4	10/31/02	2304479
		Dilution Factor: 1			
Reactive Sulfide		Work Order #: FCTT51AC	LCS Lot-Sample#: A2K110000-194		
	42	(10 - 200)	SW846 7.3.4	11/10/02	2315194
		Dilution Factor: 1			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP GC/MS Volatiles

Client Lot #...: A2J250333 **Work Order #...:** FAV0Q1CJ-MS **Matrix.....:** WATER
MS Lot-Sample #: A2J260164-001 FAV0Q1CK-MSD
Date Sampled...: 10/25/02 15:00 **Date Received..:** 10/26/02
Leach Date.....: 10/30/02 **Prep Date.....:** 11/02/02 **Analysis Date..:** 11/02/02
Leach Batch #..: P230206 **Prep Batch #...:** 2305335
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**96**	**(55 - 138)**			**SW846 8260B**
	97	**(55 - 138)**	**1.2**	**(0-20)**	**SW846 8260B**
Chlorobenzene	**95**	**(49 - 139)**			**SW846 8260B**
	95	**(49 - 139)**	**0.60**	**(0-22)**	**SW846 8260B**
1,1-Dichloroethylene	**96**	**(43 - 147)**			**SW846 8260B**
	97	**(43 - 147)**	**0.63**	**(0-27)**	**SW846 8260B**
Trichloroethylene	**89**	**(46 - 143)**			**SW846 8260B**
	89	**(46 - 143)**	**0.07**	**(0-23)**	**SW846 8260B**
Toluene	**94**	**(46 - 147)**			**SW846 8260B**
	96	**(46 - 147)**	**1.3**	**(0-24)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	94	(59 - 138)
	95	(59 - 138)
1,2-Dichloroethane-d4	100	(61 - 130)
	101	(61 - 130)
Toluene-d8	94	(60 - 143)
	93	(60 - 143)
4-Bromofluorobenzene	95	(47 - 158)
	93	(47 - 158)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP GC/MS Volatiles

Client Lot #...: A2J250333 Work Order #...: FA3191AG-MS Matrix.....: SOLID
MS Lot-Sample #: A2J300196-001 FA3191AH-MSD
Date Sampled...: 10/29/02 10:45 Date Received..: 10/30/02
Leach Date.....: 11/01/02 Prep Date.....: 11/03/02 Analysis Date..: 11/03/02
Leach Batch #..: P230401 Prep Batch #...: 2307114
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	94	(55 - 138)			SW846 8260B
	98	(55 - 138)	3.9	(0-20)	SW846 8260B
Chlorobenzene	92	(49 - 139)			SW846 8260B
	96	(49 - 139)	4.2	(0-22)	SW846 8260B
1,1-Dichloroethylene	100	(43 - 147)			SW846 8260B
	100	(43 - 147)	0.14	(0-27)	SW846 8260B
Trichloroethylene	85	(46 - 143)			SW846 8260B
	88	(46 - 143)	4.0	(0-23)	SW846 8260B
Toluene	92	(46 - 147)			SW846 8260B
	96	(46 - 147)	4.0	(0-24)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	92	(59 - 138)
	90	(59 - 138)
1,2-Dichloroethane-d4	87	(61 - 130)
	88	(61 - 130)
Toluene-d8	94	(60 - 143)
	94	(60 - 143)
4-Bromofluorobenzene	89	(47 - 158)
	90	(47 - 158)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: A2J250333 **Matrix.....:** SO
Date Sampled...: 10/29/02 **Date Received..:** 10/29/02

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A2J250333-004 **Prep Batch #...:** 2304113							
Leach Date.....: 10/30/02 **Leach Batch #..:** P230303							
Arsenic	99	(50 - 150)			SW846 6010B	10/31/02	FATMR1A2
	95	(50 - 150)	4.8	(0-20)	SW846 6010B	10/31/02	FATMR1A3
		Dilution Factor: 5					
Barium	95	(50 - 150)			SW846 6010B	10/31/02	FATMR1A4
	91	(50 - 150)	4.6	(0-20)	SW846 6010B	10/31/02	FATMR1A5
		Dilution Factor: 5					
Cadmium	98	(50 - 150)			SW846 6010B	10/31/02	FATMR1A6
	94	(50 - 150)	5.0	(0-20)	SW846 6010B	10/31/02	FATMR1A7
		Dilution Factor: 5					
Chromium	96	(50 - 150)			SW846 6010B	10/31/02	FATMR1A8
	91	(50 - 150)	5.4	(0-20)	SW846 6010B	10/31/02	FATMR1A9
		Dilution Factor: 5					
Lead	99	(50 - 150)			SW846 6010B	10/31/02	FATMR1CA
	94	(50 - 150)	5.7	(0-20)	SW846 6010B	10/31/02	FATMR1CC
		Dilution Factor: 5					
Selenium	100	(50 - 150)			SW846 6010B	10/31/02	FATMR1CD
	95	(50 - 150)	5.2	(0-20)	SW846 6010B	10/31/02	FATMR1CE
		Dilution Factor: 5					
Silver	98	(50 - 150)			SW846 6010B	10/31/02	FATMR1CF
	93	(50 - 150)	4.8	(0-20)	SW846 6010B	10/31/02	FATMR1CG
		Dilution Factor: 5					
Mercury	118	(50 - 150)			SW846 7470A	10/31/02	FATMR1CH
	110	(50 - 150)	7.1	(0-20)	SW846 7470A	10/31/02	FATMR1CJ
		Dilution Factor: 1					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: A2J250333 **Matrix.....:** SOLID
Date Sampled...: 10/25/02 09:50 **Date Received..:** 10/25/02

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A2J250321-001 **Prep Batch #...:** 2304118							
Leach Date.....: 10/29/02 **Leach Batch #..:** P230213							
Arsenic	82	(50 - 150)			SW846 6010B	10/31/02	FATG41CG
	83	(50 - 150)	1.7	(0-20)	SW846 6010B	10/31/02	FATG41CH
		Dilution Factor: 5					
Barium	79	(50 - 150)			SW846 6010B	10/31/02	FATG41CJ
	81	(50 - 150)	1.6	(0-20)	SW846 6010B	10/31/02	FATG41CK
		Dilution Factor: 5					
Cadmium	83	(50 - 150)			SW846 6010B	10/31/02	FATG41CL
	84	(50 - 150)	1.9	(0-20)	SW846 6010B	10/31/02	FATG41CM
		Dilution Factor: 5					
Chromium	80	(50 - 150)			SW846 6010B	10/31/02	FATG41CN
	81	(50 - 150)	1.5	(0-20)	SW846 6010B	10/31/02	FATG41CP
		Dilution Factor: 5					
Lead	82	(50 - 150)			SW846 6010B	10/31/02	FATG41CQ
	84	(50 - 150)	1.5	(0-20)	SW846 6010B	10/31/02	FATG41CR
		Dilution Factor: 5					
Selenium	82	(50 - 150)			SW846 6010B	10/31/02	FATG41CT
	84	(50 - 150)	2.1	(0-20)	SW846 6010B	10/31/02	FATG41CU
		Dilution Factor: 5					
Silver	81	(50 - 150)			SW846 6010B	10/31/02	FATG41CV
	82	(50 - 150)	1.6	(0-20)	SW846 6010B	10/31/02	FATG41CW
		Dilution Factor: 5					
Mercury	119	(50 - 150)			SW846 7470A	10/31/02	FATG41CX
	121	(50 - 150)	1.6	(0-20)	SW846 7470A	10/31/02	FATG41C0
		Dilution Factor: 1					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A2J250333 **Matrix.....:** SOLID
Date Sampled...: 11/01/02 13:45 **Date Received..:** 11/02/02

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
						% Moisture.....: 11	
Reactive Cyanide		WO#:	FA1461AW-MS/FA1461AX-MSD			MS Lot-Sample #: C2J290234-001	
	14	(10 - 200)			SW846 7.3.3	10/31/02	2304480
	16	(10 - 200)	15	(0-100)	SW846 7.3.3	10/31/02	2304480
		Dilution Factor: 1					
						% Moisture.....: 11	
Reactive Cyanide		WO#:	FCAR21A4-MS/FCAR21A5-MSD			MS Lot-Sample #: A2K020142-002	
	14	(10 - 200)			SW846 7.3.3	11/10/02	2315197
	14	(10 - 200)	0.0	(0-100)	SW846 7.3.3	11/10/02	2315197
		Dilution Factor: 1					
						% Moisture.....: 11	
Reactive Sulfide		WO#:	FATG41C1-MS/FATG41C2-MSD			MS Lot-Sample #: A2J250321-001	
	33	(10 - 200)			SW846 7.3.4	10/31/02	2304479
	31	(10 - 200)	6.1	(0-100)	SW846 7.3.4	10/31/02	2304479
		Dilution Factor: 1					
						% Moisture.....: 11	
Reactive Sulfide		WO#:	FCAR21A2-MS/FCAR21A3-MSD			MS Lot-Sample #: A2K020142-002	
	20	(10 - 200)			SW846 7.3.4	11/10/02	2315194
	19	(10 - 200)	5.1	(0-100)	SW846 7.3.4	11/10/02	2315194
		Dilution Factor: 1					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A2J250333 **Work Order #...:** FATMQ-SMP FATMQ-DUP **Matrix.....:** SO

Date Sampled...: 10/22/02 **Date Received..:** 10/22/02

% Moisture.....: 26

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #:	A2J250333-003	
	74.2	66.5	%	11	(0-20)	MCAWW 160.3 MOD	10/28-10/29/02	2301509

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A2J250333 **Work Order #...:** FART0-SMP FART0-DUP **Matrix.....:** SOLID

Date Sampled...: 10/24/02 15:00 **Date Received..:** 10/25/02

% Moisture.....: 21

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #:	A2J250209-012	
	78.6	79.4	%	1.1	(0-20)	MCAWW 160.3 MOD	10/28-10/29/02	2301512

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A2J250333 **Work Order #...:** FATMX-SMP FATMX-DUP **Matrix.....:** SO

Date Sampled...: 10/22/02 **Date Received..:** 10/22/02

% Moisture.....: 19

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #:	A2J250333-005	
	80.6	79.7	%	1.1	(0-20)	MCAWW 160.3 MOD	10/28-10/29/02	2301512

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A2J250333 **Work Order #...:** FATMM-SMP FATMM-DUP **Matrix.....:** SO

Date Sampled...: 10/22/02 **Date Received..:** 10/22/02

% Moisture.....: 10

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Corrosivity						SD Lot-Sample #:	A2J250333-002	
	8.4	8.2	No Units	2.3	(0-20)	SW846 9045C	10/29/02	2302623

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A2J250333 **Work Order #...:** FATMR-SMP FATMR-DUP **Matrix.....:** SO

Date Sampled...: 10/29/02 **Date Received..:** 10/29/02

% Moisture.....: 12

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Flashpoint						SD Lot-Sample #:	A2J250333-004	
	>180	>180	deg F	0.0	(0-20)	SW846 1010	10/30/02	2303385

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A2J250333 **Work Order #...:** FA0T8-SMP FA0T8-DUP **Matrix.....:** SOLID

Date Sampled...: 10/27/02 13:00 **Date Received..:** 10/28/02

% Moisture.....: 25

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #:	A2J290116-001	
	75.0	77.6	%	3.4	(0-20)	MCAWW 160.3 MOD	10/30-10/31/02	2303440

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A2J250333 **Work Order #...:** FA2CL-SMP FA2CL-DUP **Matrix.....:** SOLID

Date Sampled...: 10/22/02 07:55 **Date Received..:** 10/29/02

% Moisture.....: 13

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #:	A2J290265-002	
	87.0	88.1	%	1.3	(0-20)	MCAWW 160.3 MOD	10/30-10/31/02	2303440

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A2J250333 **Work Order #...:** FCDMT-SMP FCDMT-DUP **Matrix.....:** SOLID

Date Sampled...: 11/01/02 **Date Received..:** 11/02/02

% Moisture.....: 25

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Flashpoint						SD Lot-Sample #:	A2K040222-002	
	>180	>180	deg F	0.0	(0-20)	SW846 1010	11/07/02	2311349

Dilution Factor: 1

Appendix C

Dredged Spoils Soil Stockpile Data

ANALYTICAL RESULTS SUMMARY
DREDGE SPOILS SOIL STOCKPILE INVESTIGATION
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
JULY 2002

Sample Location:		*SB-237*	*SB-237*	*SB-238*	*SB-238*	*SB-239*	*SB-239*
Sample ID:		*S-073002-MG-282*	*S-073002-MG-282*	*S-072902-MG-271*	*S-072902-MG-271*	*S-072902-MG-272*	*S-072902-MG-272*
Sample Date:		*7/30/2002*	*7/30/2002*	*7/29/2002*	*7/29/2002*	*7/29/2002*	*7/29/2002*
		0-10 ft (bgs)	*8-10 ft (bgs)*	*1-10 ft (bgs)*	*6-8 ft (bgs)*	*2 5-12.5 ft (bgs)*	*10-12 ft (bgs)*
Parameter	*Unit*						
Volatiles							
1,1,1-Trichloroethane	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
1,1,2,2-Tetrachloroethane	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
1,1,2-Trichloroethane	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
1,1-Dichloroethane	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
1,1-Dichloroethene	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
1,2,4-Trichlorobenzene	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
1,2-Dibromo-3-chloropropane (DBCP)	ug/Kg	-	ND (12)	-	ND (17)	-	ND (11)
1,2-Dibromoethane (Ethylene Dibromide)	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
1,2-Dichlorobenzene	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
1,2-Dichloroethane	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
1,2-Dichloropropane	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
1,3-Dichlorobenzene	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
1,4-Dichlorobenzene	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
2-Butanone	ug/Kg	-	ND (24)	-	ND (33)	-	ND (23)
2-Hexanone	ug/Kg	-	ND (24)	-	ND (33)	-	ND (23)
4-Methyl-2-pentanone	ug/Kg	-	ND (24)	-	ND (33)	-	ND (23)
Acetone	ug/Kg	-	ND (24)	-	ND (33)	-	ND (23)
Benzene	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Bromodichloromethane	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Bromoform	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Bromomethane	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Carbon disulfide	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Carbon tetrachloride	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Chlorobenzene	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Chloroethane	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Chloroform (Trichloromethane)	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Chloromethane	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
cis-1,2-Dichloroethene	ug/Kg	-	ND (3 0)	-	ND (4 1)	-	ND (2 8)
cis-1,3-Dichloropropene	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Cyclohexane	ug/Kg	-	ND (12)	-	ND (17)	-	ND (11)
Dibromochloromethane	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Dichlorodifluoromethane (CFC-12)	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Ethylbenzene	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Isopropylbenzene	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Methyl acetate	ug/Kg	-	ND (12)	-	ND (17)	-	ND (11)
Methyl cyclohexane	ug/Kg	-	ND (12)	-	ND (17)	-	ND (11)
Methyl Tert Butyl Ether	ug/Kg	-	ND (24)	-	ND (33)	-	ND (23)
Methylene chloride	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Styrene	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Tetrachloroethene	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Toluene	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
trans-1,2-Dichloroethene	ug/Kg	-	ND (3 0)	-	ND (4 1)	-	ND (2 8)
trans-1,3-Dichloropropene	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Trichloroethene	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Trichlorofluoromethane (CFC-11)	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)

ANALYTICAL RESULTS SUMMARY
DREDGE SPOILS SOIL STOCKPILE INVESTIGATION
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
JULY 2002

Sample Location:		*SB-237*	*SB-237*	*SB-238*	*SB-238*	*SB-239*	*SB-239*
Sample ID:		*S-073002-MG-282*	*S-073002-MG-282*	*S-072902-MG-271*	*S-072902-MG-271*	*S-072902-MG-272*	*S-072902-MG-272*
Sample Date:		*7/30/2002*	*7/30/2002*	*7/29/2002*	*7/29/2002*	*7/29/2002*	*7/29/2002*
		0-10 ft (bgs)	*8-10 ft (bgs)*	*1-10 ft (bgs)*	*6-8 ft (bgs)*	*2.5-12.5 ft (bgs)*	*10-12 ft (bgs)*
Parameter	*Unit*						
Trifluorotrichloroethane (Freon 113)	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Vinyl chloride	ug/Kg	-	ND (6 0)	-	ND (8 3)	-	ND (5 7)
Xylene (total)	ug/Kg	-	ND (12)	-	ND (17)	-	ND (11)
Semi-Volatiles							
2,2'-oxybis(1-Chloropropane)	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
2,4,5-Trichlorophenol	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
2,4,6-Trichlorophenol	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
2,4-Dichlorophenol	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
2,4-Dimethylphenol	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
2,4-Dinitrophenol	ug/Kg	ND (1700)	-	ND (2300)	-	ND (6700)	-
2,4-Dinitrotoluene	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
2,6-Dinitrotoluene	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
2-Chloronaphthalene	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
2-Chlorophenol	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
2-Methylnaphthalene	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
2-Methylphenol	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
2-Nitroaniline	ug/Kg	ND (1700)	-	ND (2300)	-	ND (6700)	-
2-Nitrophenol	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
3,3'-Dichlorobenzidine	ug/Kg	ND (1700)	-	ND (2300)	-	ND (6700)	-
3-Nitroaniline	ug/Kg	ND (1700)	-	ND (2300)	-	ND (6700)	-
4,6-Dinitro-2-methylphenol	ug/Kg	ND (1700)	-	ND (2300)	-	ND (6700)	-
4-Bromophenyl phenyl ether	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
4-Chloro-3-methylphenol	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
4-Chloroaniline	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
4-Chlorophenyl phenyl ether	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
4-Methylphenol	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
4-Nitroaniline	ug/Kg	ND (1700)	-	ND (2300)	-	ND (6700)	-
4-Nitrophenol	ug/Kg	ND (1700)	-	ND (2300)	-	ND (6700)	-
Acenaphthene	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
Acenaphthylene	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
Acetophenone	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
Anthracene	ug/Kg	ND (340)	-	1100	-	8300	-
Atrazine	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
Benzaldehyde	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
Benzo(a)anthracene	ug/Kg	350	-	1400	-	1600	-
Benzo(a)pyrene	ug/Kg	ND (340)	-	1400	-	1400	-
Benzo(b)fluoranthene	ug/Kg	430	-	1900	-	1800	-
Benzo(g,h,i)perylene	ug/Kg	ND (340)	-	640	-	ND (1400)	-
Benzo(k)fluoranthene	ug/Kg	ND (340)	-	810	-	ND (1400)	-
Biphenyl	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
bis(2-Chloroethoxy)methane	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
bis(2-Chloroethyl)ether	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
bis(2-Ethylhexyl)phthalate	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
Butyl benzylphthalate	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
Caprolactam	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-

ANALYTICAL RESULTS SUMMARY
DREDGE SPOILS SOIL STOCKPILE INVESTIGATION
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
JULY 2002

Sample Location:		*SB-237*	*SB-237*	*SB-238*	*SB-238*	*SB-239*	*SB-239*
Sample ID:		*S-073002-MG-282*	*S-073002-MG-282*	*S-072902-MG-271*	*S-072902-MG-271*	*S-072902-MG-272*	*S-072902-MG-272*
Sample Date:		*7/30/2002*	*7/30/2002*	*7/29/2002*	*7/29/2002*	*7/29/2002*	*7/29/2002*
		0-10 ft (bgs)	*8-10 ft (bgs)*	*1-10 ft (bgs)*	*6-8 ft (bgs)*	*2 5-12 5 ft (bgs)*	*10-12 ft (bgs)*
Parameter	***Unit***						
Carbazole	ug/Kg	ND (340)	-	ND (480)	-	4300	-
Chrysene	ug/Kg	520	-	2100	-	3100	-
Dibenz(a,h)anthracene	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
Dibenzofuran	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
Diethyl phthalate	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
Dimethyl phthalate	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
Di-n-butylphthalate	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
Di-n-octyl phthalate	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
Fluoranthene	ug/Kg	530	-	2700	-	2800	-
Fluorene	ug/Kg	ND (340)	-	ND (480)	-	1400	-
Hexachlorobenzene	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
Hexachlorobutadiene	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
Hexachlorocyclopentadiene	ug/Kg	ND (1700)	-	ND (2300)	-	ND (6700)	-
Hexachloroethane	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
Indeno(1,2,3-cd)pyrene	ug/Kg	ND (340)	-	700	-	ND (1400)	-
Isophorone	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
Naphthalene	ug/Kg	ND (340)	-	760	-	ND (1400)	-
Nitrobenzene	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
N-Nitrosodi-n-propylamine	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
N-Nitrosodiphenylamine	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
Pentachlorophenol	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
Phenanthrene	ug/Kg	440	-	1100	-	3200	-
Phenol	ug/Kg	ND (340)	-	ND (480)	-	ND (1400)	-
Pyrene	ug/Kg	470	-	2500	-	ND (1400)	-
Metals							
Arsenic	mg/Kg	3 4	-	7 7	-	4 0	-
Barium	mg/Kg	ND (20 9)	-	ND (21 7)	-	ND (20 8)	-
Cadmium	mg/Kg	ND (0 52)	-	ND (0 54)	-	ND (0 52)	-
Chromium	mg/Kg	3 6	-	3 4	-	3 4	-
Lead	mg/Kg	4 5	-	3 6	-	2 0	-
Mercury	mg/Kg	ND (0 10)	-	ND (0 11)	-	ND (0 10)	-
Selenium	mg/Kg	ND (0 52)	-	0 57	-	ND (0 52)	-
Silver	mg/Kg	ND (1 0)	-	ND (1 1)	-	ND (1 0)	-
PCBs							
Aroclor-1016 (PCB-1016)	ug/Kg	ND (34)	-	ND (36)	-	ND (34)	-
Aroclor-1221 (PCB-1221)	ug/Kg	ND (34)	-	ND (36)	-	ND (34)	-
Aroclor-1232 (PCB-1232)	ug/Kg	ND (34)	-	ND (36)	-	ND (34)	-
Aroclor-1242 (PCB-1242)	ug/Kg	ND (34)	-	ND (36)	-	ND (34)	-
Aroclor-1248 (PCB-1248)	ug/Kg	130	-	170	-	ND (34)	-
Aroclor-1254 (PCB-1254)	ug/Kg	ND (34)	-	ND (36)	-	ND (34)	-
Aroclor-1260 (PCB-1260)	ug/Kg	ND (34)	-	ND (36)	-	ND (34)	-
General Chemistry							
Total Solids	%	95 9	95 9	92 0	92 0	96 2	96 2

ANALYTICAL RESULTS SUMMARY
DREDGE SPOILS SOIL STOCKPILE INVESTIGATION
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
JULY 2002

Sample Location:		*SB-240*	*SB-240*	*SB-241*	*SB-241*	*SB-241*	*SB-241*
Sample ID:		*S-072902-MG-274*	*S-072902-MG-274*	*S-073002-MG-275*	*S-073002-MG-276*	*S-073002-MG-275*	*S-073002-MG-276*
Sample Date		*7/29/2002*	*7/29/2002*	*7/30/2002*	*7/30/2002*	*7/30/2002*	*7/30/2002*
		0-10 5 ft (bgs)	*2-4 ft (bgs)*	*0-10 ft (bgs)*	*0-10 ft (bgs) Duplicate*	*2-4 ft (bgs)*	*2-4 ft (bgs) Duplicate*
Parameter	*Unit*						
Volatiles							
1,1,1-Trichloroethane	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
1,1,2,2-Tetrachloroethane	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
1,1,2-Trichloroethane	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
1,1-Dichloroethane	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
1,1-Dichloroethene	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
1,2,4-Trichlorobenzene	ug/Kg	-	ND (7 0) UJ	-	-	ND (8 8) UJ	ND (11) UJ
1,2-Dibromo-3-chloropropane (DBCP)	ug/Kg	-	ND (14) UJ	-	-	ND (18) UJ	ND (23) UJ
1,2-Dibromoethane (Ethylene Dibromide)	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
1,2-Dichlorobenzene	ug/Kg	-	ND (7 0) UJ	-	-	ND (8 8) UJ	ND (11) UJ
1,2-Dichloroethane	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
1,2-Dichloropropane	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
1,3-Dichlorobenzene	ug/Kg	-	ND (7 0) UJ	-	-	ND (8 8) UJ	ND (11) UJ
1,4-Dichlorobenzene	ug/Kg	-	ND (7 0) UJ	-	-	ND (8 8) UJ	ND (11) UJ
2-Butanone	ug/Kg	-	ND (28)	-	-	ND (35)	ND (46)
2-Hexanone	ug/Kg	-	ND (28)	-	-	ND (35)	ND (46)
4-Methyl-2-pentanone	ug/Kg	-	ND (28)	-	-	ND (35)	ND (46)
Acetone	ug/Kg	-	ND (28)	-	-	ND (35)	ND (46)
Benzene	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
Bromodichloromethane	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
Bromoform	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
Bromomethane	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
Carbon disulfide	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
Carbon tetrachloride	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
Chlorobenzene	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
Chloroethane	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
Chloroform (Trichloromethane)	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
Chloromethane	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
cis-1,2-Dichloroethene	ug/Kg	-	ND (3 5)	-	-	ND (4 4)	ND (5 7)
cis-1,3-Dichloropropene	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
Cyclohexane	ug/Kg	-	ND (14)	-	-	ND (18)	ND (23)
Dibromochloromethane	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
Dichlorodifluoromethane (CFC-12)	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
Ethylbenzene	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
Isopropylbenzene	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
Methyl acetate	ug/Kg	-	ND (14)	-	-	ND (18)	ND (23)
Methyl cyclohexane	ug/Kg	-	ND (14)	-	-	ND (18)	ND (23)
Methyl Tert Butyl Ether	ug/Kg	-	ND (28)	-	-	ND (35)	ND (46)
Methylene chloride	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
Styrene	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
Tetrachloroethene	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
Toluene	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
trans-1,2-Dichloroethene	ug/Kg	-	ND (3 5)	-	-	ND (4 4)	ND (5 7)
trans-1,3-Dichloropropene	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
Trichloroethene	ug/Kg	-	ND (7 0)	-	-	ND (8.8)	ND (11)
Trichlorofluoromethane (CFC-11)	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)

ANALYTICAL RESULTS SUMMARY
DREDGE SPOILS SOIL STOCKPILE INVESTIGATION
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
JULY 2002

Sample Location:		*SB-240*	*SB-240*	*SB-241*	*SB-241*	*SB-241*	*SB-241*
Sample ID:		*S-072902-MG-274*	*S-072902-MG-274*	*S-073002-MG-275*	*S-073002-MG-276*	*S-073002-MG-275*	*S-073002-MG-276*
Sample Date:		*7/29/2002*	*7/29/2002*	*7/30/2002*	*7/30/2002*	*7/30/2002*	*7/30/2002*
		0-10 5 ft (bgs)	*2-4 ft (bgs)*	*0-10 ft (bgs)*	*0-10 ft (bgs)*	*2-4 ft (bgs)*	*2-4 ft (bgs)*
					Duplicate		*Duplicate*
Parameter	*Unit*						
Trifluorotrichloroethane (Freon 113)	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
Vinyl chloride	ug/Kg	-	ND (7 0)	-	-	ND (8 8)	ND (11)
Xylene (total)	ug/Kg	-	ND (14)	-	-	ND (18)	ND (23)
Semi-Volatiles							
2,2'-oxybis(1-Chloropropane)	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
2,4,5-Trichlorophenol	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
2,4,6-Trichlorophenol	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
2,4-Dichlorophenol	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
2,4-Dimethylphenol	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
2,4-Dinitrophenol	ug/Kg	ND (13000)	-	ND (1700)	ND (1700)	-	-
2,4-Dinitrotoluene	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
2,6-Dinitrotoluene	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
2-Chloronaphthalene	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
2-Chlorophenol	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
2-Methylnaphthalene	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
2-Methylphenol	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
2-Nitroaniline	ug/Kg	ND (13000)	-	ND (1700)	ND (1700)	-	-
2-Nitrophenol	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
3,3'-Dichlorobenzidine	ug/Kg	ND (13000)	-	ND (1700)	ND (1700)	-	-
3-Nitroaniline	ug/Kg	ND (13000)	-	ND (1700)	ND (1700)	-	-
4,6-Dinitro-2-methylphenol	ug/Kg	ND (13000)	-	ND (1700)	ND (1700)	-	-
4-Bromophenyl phenyl ether	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
4-Chloro-3-methylphenol	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
4-Chloroaniline	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
4-Chlorophenyl phenyl ether	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
4-Methylphenol	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
4-Nitroaniline	ug/Kg	ND (13000)	-	ND (1700)	ND (1700)	-	-
4-Nitrophenol	ug/Kg	ND (13000)	-	ND (1700)	ND (1700)	-	-
Acenaphthene	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Acenaphthylene	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Acetophenone	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Anthracene	ug/Kg	4500	-	ND (350)	ND (350)	-	-
Atrazine	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Benzaldehyde	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Benzo(a)anthracene	ug/Kg	9500	-	350	ND (350)	-	-
Benzo(a)pyrene	ug/Kg	6500	-	ND (350)	ND (350)	-	-
Benzo(b)fluoranthene	ug/Kg	7500	-	390	400	-	-
Benzo(g,h,i)perylene	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Benzo(k)fluoranthene	ug/Kg	3500	-	ND (350)	ND (350)	-	-
Biphenyl	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
bis(2-Chloroethoxy)methane	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
bis(2-Chloroethyl)ether	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
bis(2-Ethylhexyl)phthalate	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Butyl benzylphthalate	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Caprolactam	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-

ANALYTICAL RESULTS SUMMARY
DREDGE SPOILS SOIL STOCKPILE INVESTIGATION
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
JULY 2002

Sample Location:		*SB-240*	*SB-240*	*SB-241*	*SB-241*	*SB-241*	*SB-241*
Sample ID:		S-072902-MG-274	S-072902-MG-274	S-073002-MG-275	S-073002-MG-276	S-073002-MG-275	S-073002-MG-276
Sample Date:		7/29/2002	7/29/2002	7/30/2002	7/30/2002	7/30/2002	7/30/2002
		0-10.5 ft (bgs)	*2-4 ft (bgs)*	*0-10 ft (bgs)*	*0-10 ft (bgs)*	*2-4 ft (bgs)*	*2-4 ft (bgs)*
					Duplicate		*Duplicate*
Parameter	*Unit*						
Carbazole	ug/Kg	2700	-	ND (350)	ND (350)	-	-
Chrysene	ug/Kg	9900	-	450	460	-	-
Dibenz(a,h)anthracene	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Dibenzofuran	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Diethyl phthalate	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Dimethyl phthalate	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Di-n-butylphthalate	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Di-n-octyl phthalate	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Fluoranthene	ug/Kg	16000	-	630	560	-	-
Fluorene	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Hexachlorobenzene	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Hexachlorobutadiene	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Hexachlorocyclopentadiene	ug/Kg	ND (13000)	-	ND (1700)	ND (1700)	-	-
Hexachloroethane	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Indeno(1,2,3-cd)pyrene	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Isophorone	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Naphthalene	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Nitrobenzene	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
N-Nitrosodi-n-propylamine	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
N-Nitrosodiphenylamine	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Pentachlorophenol	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Phenanthrene	ug/Kg	14000	-	670	580	-	-
Phenol	ug/Kg	ND (2700)	-	ND (350)	ND (350)	-	-
Pyrene	ug/Kg	13000	-	550	500	-	-
Metals							
Arsenic	mg/Kg	5 8	-	7 0	7 1	-	-
Barium	mg/Kg	ND (24 2)	-	ND (21 2)	ND (21 1)	-	-
Cadmium	mg/Kg	ND (0 60)	-	ND (0 53)	ND (0 53)	-	-
Chromium	mg/Kg	12 8	-	5 3	5 7	-	-
Lead	mg/Kg	17 7	-	13 2	11 7	-	-
Mercury	mg/Kg	ND (0 12)	-	ND (0 11)	ND (0 11)	-	-
Selenium	mg/Kg	ND (0 60)	-	ND (0 53)	0 71	-	-
Silver	mg/Kg	ND (1 2)	-	ND (1 1)	ND (1 1)	-	-
PCBs							
Aroclor-1016 (PCB-1016)	ug/Kg	ND (200)	-	ND (700)	ND (350)	-	-
Aroclor-1221 (PCB-1221)	ug/Kg	ND (200)	-	ND (700)	ND (350)	-	-
Aroclor-1232 (PCB-1232)	ug/Kg	ND (200)	-	ND (700)	ND (350)	-	-
Aroclor-1242 (PCB-1242)	ug/Kg	ND (200)	-	ND (700)	ND (350)	-	-
Aroclor-1248 (PCB-1248)	ug/Kg	860	-	3900	2500	-	-
Aroclor-1254 (PCB-1254)	ug/Kg	ND (200)	-	ND (700)	ND (350)	-	-
Aroclor-1260 (PCB-1260)	ug/Kg	ND (200)	-	ND (700)	ND (350)	-	-
General Chemistry							
Total Solids	%	82 7	82 7	94 5	94 7	94 5	94 7

ANALYTICAL RESULTS SUMMARY
DREDGE SPOILS SOIL STOCKPILE INVESTIGATION
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
JULY 2002

Sample Location		*SB-242*	*SB-242*	*SB-243*	*SB-243*	*SB-244*	*SB-244*
Sample ID		*S-073002-MG-277*	*S-073002-MG-277*	*S-073002-MG-279*	*S-073002-MG-279*	*S-073002-MG-280*	*S-073002-MG-280*
Sample Date		*7/30/2002*	*7/30/2002*	*7/30/2002*	*7/30/2002*	*7/30/2002*	*7/30/2002*
		5-15 ft (bgs)	*8-10 ft (bgs)*	*2-12 ft (bgs)*	*10-12 ft (bgs)*	*6-16 ft (bgs)*	*10-12 ft (bgs)*
Parameter	*Unit*						
Volatiles							
1,1,1-Trichloroethane	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
1,1,2,2-Tetrachloroethane	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
1,1,2-Trichloroethane	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
1,1-Dichloroethane	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
1,1-Dichloroethene	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
1,2,4-Trichlorobenzene	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
1,2-Dibromo-3-chloropropane (DBCP)	ug/Kg	-	ND (25) UJ	-	ND (12) UJ	-	ND (16) UJ
1,2-Dibromoethane (Ethylene Dibromide)	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
1,2-Dichlorobenzene	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
1,2-Dichloroethane	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
1,2-Dichloropropane	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
1,3-Dichlorobenzene	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
1,4-Dichlorobenzene	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
2-Butanone	ug/Kg	-	ND (51) UJ	-	ND (25) UJ	-	ND (32) UJ
2-Hexanone	ug/Kg	-	ND (51) UJ	-	ND (25) UJ	-	ND (32) UJ
4-Methyl-2-pentanone	ug/Kg	-	ND (51) UJ	-	ND (25) UJ	-	ND (32) UJ
Acetone	ug/Kg	-	ND (51) UJ	-	ND (25) UJ	-	ND (32) UJ
Benzene	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Bromodichloromethane	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Bromoform	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Bromomethane	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Carbon disulfide	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Carbon tetrachloride	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Chlorobenzene	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Chloroethane	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Chloroform (Trichloromethane)	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Chloromethane	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
cis-1,2-Dichloroethene	ug/Kg	-	ND (6 4) UJ	-	ND (3 1) UJ	-	ND (4 1) UJ
cis-1,3-Dichloropropene	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Cyclohexane	ug/Kg	-	ND (25) UJ	-	ND (12) UJ	-	ND (16) UJ
Dibromochloromethane	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Dichlorodifluoromethane (CFC-12)	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Ethylbenzene	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Isopropylbenzene	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Methyl acetate	ug/Kg	-	ND (25) UJ	-	ND (12) UJ	-	ND (16) UJ
Methyl cyclohexane	ug/Kg	-	ND (25) UJ	-	ND (12) UJ	-	ND (16) UJ
Methyl Tert Butyl Ether	ug/Kg	-	ND (51) UJ	-	ND (25) UJ	-	ND (32) UJ
Methylene chloride	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Styrene	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Tetrachloroethene	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Toluene	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
trans-1,2-Dichloroethene	ug/Kg	-	ND (6 4) UJ	-	ND (3 1) UJ	-	ND (4 1) UJ
trans-1,3-Dichloropropene	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Trichloroethene	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Trichlorofluoromethane (CFC-11)	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ

ANALYTICAL RESULTS SUMMARY
DREDGE SPOILS SOIL STOCKPILE INVESTIGATION
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
JULY 2002

Sample Location:		*SB-242*	*SB-242*	*SB-243*	*SB-243*	*SB-244*	*SB-244*
Sample ID:		*S-073002-MG-277*	*S-073002-MG-277*	*S-073002-MG-279*	*S-073002-MG-279*	*S-073002-MG-280*	*S-073002-MG-280*
Sample Date.		*7/30/2002*	*7/30/2002*	*7/30/2002*	*7/30/2002*	*7/30/2002*	*7/30/2002*
		5-15 ft (bgs)	*8-10 ft (bgs)*	*2-12 ft (bgs)*	*10-12 ft (bgs)*	*6-16 ft (bgs)*	*10-12 ft (bgs)*
Parameter	*Unit*						
Trifluorotrichloroethane (Freon 113)	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Vinyl chloride	ug/Kg	-	ND (13) UJ	-	ND (6 2) UJ	-	ND (8 1) UJ
Xylene (total)	ug/Kg	-	ND (25) UJ	-	ND (12) UJ	-	ND (16) UJ
Semi-Volatiles							
2,2'-oxybis(1-Chloropropane)	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
2,4,5-Trichlorophenol	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
2,4,6-Trichlorophenol	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
2,4-Dichlorophenol	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
2,4-Dimethylphenol	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
2,4-Dinitrophenol	ug/Kg	ND (1700)	-	ND (1700)	-	ND (1700)	-
2,4-Dinitrotoluene	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
2,6-Dinitrotoluene	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
2-Chloronaphthalene	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
2-Chlorophenol	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
2-Methylnaphthalene	ug/Kg	900	-	ND (340)	-	ND (340)	-
2-Methylphenol	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
2-Nitroaniline	ug/Kg	ND (1700)	-	ND (1700)	-	ND (1700)	-
2-Nitrophenol	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
3,3'-Dichlorobenzidine	ug/Kg	ND (1700)	-	ND (1700)	-	ND (1700)	-
3-Nitroaniline	ug/Kg	ND (1700)	-	ND (1700)	-	ND (1700)	-
4,6-Dinitro-2-methylphenol	ug/Kg	ND (1700)	-	ND (1700)	-	ND (1700)	-
4-Bromophenyl phenyl ether	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
4-Chloro-3-methylphenol	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
4-Chloroaniline	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
4-Chlorophenyl phenyl ether	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
4-Methylphenol	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
4-Nitroaniline	ug/Kg	ND (1700)	-	ND (1700)	-	ND (1700)	-
4-Nitrophenol	ug/Kg	ND (1700)	-	ND (1700)	-	ND (1700)	-
Acenaphthene	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Acenaphthylene	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Acetophenone	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Anthracene	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Atrazine	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Benzaldehyde	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Benzo(a)anthracene	ug/Kg	660	-	840	-	ND (340)	-
Benzo(a)pyrene	ug/Kg	610	-	640	-	ND (340)	-
Benzo(b)fluoranthene	ug/Kg	740	-	1000	-	350	-
Benzo(g,h,i)perylene	ug/Kg	350	-	370	-	ND (340)	-
Benzo(k)fluoranthene	ug/Kg	530	-	420	-	ND (340)	-
Biphenyl	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
bis(2-Chloroethoxy)methane	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
bis(2-Chloroethyl)ether	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
bis(2-Ethylhexyl)phthalate	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Butyl benzylphthalate	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Caprolactam	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-

ANALYTICAL RESULTS SUMMARY
DREDGE SPOILS SOIL STOCKPILE INVESTIGATION
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
JULY 2002

Sample Location:		*SB-242*	*SB-242*	*SB-243*	*SB-243*	*SB-244*	*SB-244*
Sample ID.		*S-073002-MG-277*	*S-073002-MG-277*	*S-073002-MG-279*	*S-073002-MG-279*	*S-073002-MG-280*	*S-073002-MG-280*
Sample Date:		*7/30/2002*	*7/30/2002*	*7/30/2002*	*7/30/2002*	*7/30/2002*	*7/30/2002*
		5-15 ft (bgs)	*8-10 ft (bgs)*	*2-12 ft (bgs)*	*10-12 ft (bgs)*	*6-16 ft (bgs)*	*10-12 ft (bgs)*
Parameter	*Unit*						
Carbazole	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Chrysene	ug/Kg	850	-	960	-	350	-
Dibenz(a,h)anthracene	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Dibenzofuran	ug/Kg	610	-	ND (340)	-	ND (340)	-
Diethyl phthalate	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Dimethyl phthalate	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Di-n-butylphthalate	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Di-n-octyl phthalate	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Fluoranthene	ug/Kg	1100	-	1600	-	500	-
Fluorene	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Hexachlorobenzene	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Hexachlorobutadiene	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Hexachlorocyclopentadiene	ug/Kg	ND (1700)	-	ND (1700)	-	ND (1700)	-
Hexachloroethane	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Indeno(1,2,3-cd)pyrene	ug/Kg	350	-	380	-	ND (340)	-
Isophorone	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Naphthalene	ug/Kg	2300	-	590	-	ND (340)	-
Nitrobenzene	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
N-Nitrosodi-n-propylamine	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
N-Nitrosodiphenylamine	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Pentachlorophenol	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Phenanthrene	ug/Kg	1400	-	520	-	440	-
Phenol	ug/Kg	ND (350)	-	ND (340)	-	ND (340)	-
Pyrene	ug/Kg	1000	-	960	-	440	-
Metals							
Arsenic	mg/Kg	4 5	-	9 3	-	4 0	-
Barium	mg/Kg	ND (21 4)	-	ND (20 8)	-	ND (20 8)	-
Cadmium	mg/Kg	ND (0 54)	-	ND (0 52)	-	ND (0 52)	-
Chromium	mg/Kg	7 1	-	4 1	-	7 7	-
Lead	mg/Kg	9 0	-	8 9	-	16 4	-
Mercury	mg/Kg	ND (0 11)	-	ND (0 10)	-	ND (0 10)	-
Selenium	mg/Kg	0 59	-	0 53	-	0 96	-
Silver	mg/Kg	ND (1 1)	-	ND (1 0)	-	ND (1 0)	-
PCBs							
Aroclor-1016 (PCB-1016)	ug/Kg	ND (1800)	-	ND (170)	-	ND (340)	-
Aroclor-1221 (PCB-1221)	ug/Kg	ND (1800)	-	ND (170)	-	ND (340)	-
Aroclor-1232 (PCB-1232)	ug/Kg	ND (1800)	-	ND (170)	-	ND (340)	-
Aroclor-1242 (PCB-1242)	ug/Kg	ND (1800)	-	ND (170)	-	ND (340)	-
Aroclor-1248 (PCB-1248)	ug/Kg	9200	-	730	-	1400	-
Aroclor-1254 (PCB-1254)	ug/Kg	ND (1800)	-	ND (170)	-	ND (340)	-
Aroclor-1260 (PCB-1260)	ug/Kg	ND (1800)	-	ND (170)	-	ND (340)	-
General Chemistry							
Total Solids	%	93 4	93 4	96 0	96 0	96 1	96 1

ANALYTICAL RESULTS SUMMARY
DREDGE SPOILS SOIL STOCKPILE INVESTIGATION
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
JULY 2002

Sample Location		*SB-245*	*SB-245*	*SB-246*	*SB-246*
Sample ID:		*S-073002-MG-281*	*S-073002-MG-281*	*S-072902-MG-273*	*S-072902-MG-273*
Sample Date:		*7/30/2002*	*7/30/2002*	*7/29/2002*	*7/29/2002*
		0-10 ft (bgs)	*6-8 ft (bgs)*	*4-14 ft (bgs)*	*10-12 ft (bgs)*
Parameter	*Unit*				
Volatiles					
1,1,1-Trichloroethane	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
1,1,2,2-Tetrachloroethane	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
1,1,2-Trichloroethane	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
1,1-Dichloroethane	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
1,1-Dichloroethene	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
1,2,4-Trichlorobenzene	ug/Kg	-	ND (8 4) UJ	-	ND (6 7) UJ
1,2-Dibromo-3-chloropropane (DBCP)	ug/Kg	-	ND (17) UJ	-	ND (13) UJ
1,2-Dibromoethane (Ethylene Dibromide)	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
1,2-Dichlorobenzene	ug/Kg	-	ND (8 4) UJ	-	ND (6 7) UJ
1,2-Dichloroethane	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
1,2-Dichloropropane	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
1,3-Dichlorobenzene	ug/Kg	-	ND (8 4) UJ	-	ND (6 7) UJ
1,4-Dichlorobenzene	ug/Kg	-	ND (8 4) UJ	-	ND (6 7) UJ
2-Butanone	ug/Kg	-	ND (33) UJ	-	ND (27)
2-Hexanone	ug/Kg	-	ND (33) UJ	-	ND (27)
4-Methyl-2-pentanone	ug/Kg	-	ND (33) UJ	-	ND (27)
Acetone	ug/Kg	-	ND (33) UJ	-	ND (27)
Benzene	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Bromodichloromethane	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Bromoform	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Bromomethane	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Carbon disulfide	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Carbon tetrachloride	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Chlorobenzene	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Chloroethane	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Chloroform (Trichloromethane)	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Chloromethane	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
cis-1,2-Dichloroethene	ug/Kg	-	ND (4 2) UJ	-	ND (3 4)
cis-1,3-Dichloropropene	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Cyclohexane	ug/Kg	-	ND (17) UJ	-	ND (13)
Dibromochloromethane	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Dichlorodifluoromethane (CFC-12)	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Ethylbenzene	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Isopropylbenzene	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Methyl acetate	ug/Kg	-	ND (17) UJ	-	ND (13)
Methyl cyclohexane	ug/Kg	-	ND (17) UJ	-	ND (13)
Methyl Tert Butyl Ether	ug/Kg	-	ND (33) UJ	-	ND (27)
Methylene chloride	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Styrene	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Tetrachloroethene	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Toluene	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
trans-1,2-Dichloroethene	ug/Kg	-	ND (4 2) UJ	-	ND (3 4)
trans-1,3-Dichloropropene	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Trichloroethene	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Trichlorofluoromethane (CFC-11)	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)

ANALYTICAL RESULTS SUMMARY
DREDGE SPOILS SOIL STOCKPILE INVESTIGATION
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
JULY 2002

Sample Location:		*SB-245*	*SB-245*	*SB-246*	*SB-246*
Sample ID:		*S-073002-MG-281*	*S-073002-MG-281*	*S-072902-MG-273*	*S-072902-MG-273*
Sample Date:		*7/30/2002*	*7/30/2002*	*7/29/2002*	*7/29/2002*
		0-10 ft (bgs)	*6-8 ft (bgs)*	*4-14 ft (bgs)*	*10-12 ft (bgs)*
Parameter	*Unit*				
Trifluorotrichloroethane (Freon 113)	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Vinyl chloride	ug/Kg	-	ND (8 4) UJ	-	ND (6 7)
Xylene (total)	ug/Kg	-	ND (17) UJ	-	ND (13)
Semi-Volatiles					
2,2'-oxybis(1-Chloropropane)	ug/Kg	ND (340)	-	ND (7300)	-
2,4,5-Trichlorophenol	ug/Kg	ND (340)	-	ND (7300)	-
2,4,6-Trichlorophenol	ug/Kg	ND (340)	-	ND (7300)	-
2,4-Dichlorophenol	ug/Kg	ND (340)	-	ND (7300)	-
2,4-Dimethylphenol	ug/Kg	ND (340)	-	ND (7300)	-
2,4-Dinitrophenol	ug/Kg	ND (1700)	-	ND (35000)	-
2,4-Dinitrotoluene	ug/Kg	ND (340)	-	ND (7300)	-
2,6-Dinitrotoluene	ug/Kg	ND (340)	-	ND (7300)	-
2-Chloronaphthalene	ug/Kg	ND (340)	-	ND (7300)	-
2-Chlorophenol	ug/Kg	ND (340)	-	ND (7300)	-
2-Methylnaphthalene	ug/Kg	ND (340)	-	ND (7300)	-
2-Methylphenol	ug/Kg	ND (340)	-	ND (7300)	-
2-Nitroaniline	ug/Kg	ND (1700)	-	ND (35000)	-
2-Nitrophenol	ug/Kg	ND (340)	-	ND (7300)	-
3,3'-Dichlorobenzidine	ug/Kg	ND (1700)	-	ND (35000)	-
3-Nitroaniline	ug/Kg	ND (1700)	-	ND (35000)	-
4,6-Dinitro-2-methylphenol	ug/Kg	ND (1700)	-	ND (35000)	-
4-Bromophenyl phenyl ether	ug/Kg	ND (340)	-	ND (7300)	-
4-Chloro-3-methylphenol	ug/Kg	ND (340)	-	ND (7300)	-
4-Chloroaniline	ug/Kg	ND (340)	-	ND (7300)	-
4-Chlorophenyl phenyl ether	ug/Kg	ND (340)	-	ND (7300)	-
4-Methylphenol	ug/Kg	ND (340)	-	ND (7300)	-
4-Nitroaniline	ug/Kg	ND (1700)	-	ND (35000)	-
4-Nitrophenol	ug/Kg	ND (1700)	-	ND (35000)	-
Acenaphthene	ug/Kg	ND (340)	-	ND (7300)	-
Acenaphthylene	ug/Kg	ND (340)	-	ND (7300)	-
Acetophenone	ug/Kg	ND (340)	-	ND (7300)	-
Anthracene	ug/Kg	ND (340)	-	14000	-
Atrazine	ug/Kg	ND (340)	-	ND (7300)	-
Benzaldehyde	ug/Kg	ND (340)	-	ND (7300)	-
Benzo(a)anthracene	ug/Kg	470	-	15000	-
Benzo(a)pyrene	ug/Kg	410	-	9100	-
Benzo(b)fluoranthene	ug/Kg	570	-	13000	-
Benzo(g,h,i)perylene	ug/Kg	ND (340)	-	ND (7300)	-
Benzo(k)fluoranthene	ug/Kg	ND (340)	-	ND (7300)	-
Biphenyl	ug/Kg	ND (340)	-	ND (7300)	-
bis(2-Chloroethoxy)methane	ug/Kg	ND (340)	-	ND (7300)	-
bis(2-Chloroethyl)ether	ug/Kg	ND (340)	-	ND (7300)	-
bis(2-Ethylhexyl)phthalate	ug/Kg	ND (340)	-	ND (7300)	-
Butyl benzylphthalate	ug/Kg	ND (340)	-	ND (7300)	-
Caprolactam	ug/Kg	ND (340)	-	ND (7300)	-

ANALYTICAL RESULTS SUMMARY
DREDGE SPOILS SOIL STOCKPILE INVESTIGATION
WAUKEGAN MANUFACTURED GAS AND COKE PLANT
JULY 2002

Sample Location.		*SB-245*	*SB-245*	*SB-246*	*SB-246*
Sample ID:		*S-073002-MG-281*	*S-073002-MG-281*	*S-072902-MG-273*	*S-072902-MG-273*
Sample Date:		*7/30/2002*	*7/30/2002*	*7/29/2002*	*7/29/2002*
		0-10 ft (bgs)	*6-8 ft (bgs)*	*4-14 ft (bgs)*	*10-12 ft (bgs)*
Parameter	*Unit*				
Carbazole	ug/Kg	ND (340)	-	ND (7300)	-
Chrysene	ug/Kg	600	-	18000	-
Dibenz(a,h)anthracene	ug/Kg	ND (340)	-	ND (7300)	-
Dibenzofuran	ug/Kg	ND (340)	-	ND (7300)	-
Diethyl phthalate	ug/Kg	ND (340)	-	ND (7300)	-
Dimethyl phthalate	ug/Kg	ND (340)	-	ND (7300)	-
Di-n-butylphthalate	ug/Kg	ND (340)	-	ND (7300)	-
Di-n-octyl phthalate	ug/Kg	ND (340)	-	ND (7300)	-
Fluoranthene	ug/Kg	700	-	39000	-
Fluorene	ug/Kg	ND (340)	-	ND (7300)	-
Hexachlorobenzene	ug/Kg	ND (340)	-	ND (7300)	-
Hexachlorobutadiene	ug/Kg	ND (340)	-	ND (7300)	-
Hexachlorocyclopentadiene	ug/Kg	ND (1700)	-	ND (35000)	-
Hexachloroethane	ug/Kg	ND (340)	-	ND (7300)	-
Indeno(1,2,3-cd)pyrene	ug/Kg	ND (340)	-	ND (7300)	-
Isophorone	ug/Kg	ND (340)	-	ND (7300)	-
Naphthalene	ug/Kg	500	-	ND (7300)	-
Nitrobenzene	ug/Kg	ND (340)	-	ND (7300)	-
N-Nitrosodi-n-propylamine	ug/Kg	ND (340)	-	ND (7300)	-
N-Nitrosodiphenylamine	ug/Kg	ND (340)	-	ND (7300)	-
Pentachlorophenol	ug/Kg	ND (340)	-	ND (7300)	-
Phenanthrene	ug/Kg	500	-	29000	-
Phenol	ug/Kg	ND (340)	-	ND (7300)	-
Pyrene	ug/Kg	620	-	30000	-
Metals					
Arsenic	mg/Kg	6 2	-	5 6	-
Barium	mg/Kg	ND (20 8)	-	ND (22 1)	-
Cadmium	mg/Kg	ND (0 52)	-	ND (0 55)	-
Chromium	mg/Kg	4 0	-	4 2	-
Lead	mg/Kg	6 6	-	7.7	-
Mercury	mg/Kg	ND (0 10)	-	ND (0 11)	-
Selenium	mg/Kg	ND (0 52)	-	ND (0 55)	-
Silver	mg/Kg	ND (1 0)	-	ND (1 1)	-
PCBs					
Aroclor-1016 (PCB-1016)	ug/Kg	ND (170)	-	ND (180)	-
Aroclor-1221 (PCB-1221)	ug/Kg	ND (170)	-	ND (180)	-
Aroclor-1232 (PCB-1232)	ug/Kg	ND (170)	-	ND (180)	-
Aroclor-1242 (PCB-1242)	ug/Kg	ND (170)	-	ND (180)	-
Aroclor-1248 (PCB-1248)	ug/Kg	900	-	980	-
Aroclor-1254 (PCB-1254)	ug/Kg	ND (170)	-	ND (180)	-
Aroclor-1260 (PCB-1260)	ug/Kg	ND (170)	-	ND (180)	-
General Chemistry					
Total Solids	%	96 1	96 1	90 6	90 6

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-245
DATE COMPLETED: July 30, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND (FILL), fine-grained, poorly graded, loose, light brown, dry		2" Ø BOREHOLE					
2				1		2		0
	- turns brown, moist, compact							
4								
6	- black staining present		NATIVE BACKFILL	2		3.5		4
8								
10				3		4		0
12								
	END OF BOREHOLE @ 12.5ft BGS	12 50						
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-244
DATE COMPLETED: July 30, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND (FILL), fine-grained, poorly graded, loose, light brown, dry		2" Ø BOREHOLE					
2				1		3.5		0
	- becomes moist, compact							
4	- trace of black staining							
6				2		2.5		0
8			NATIVE BACKFILL					
10				3		3		2
12	- no trace of black staining							
14				4		3.5		0
16	END OF BOREHOLE @ 16.0ft BGS	16.00						
18								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION. SB-246
DATE COMPLETED. July 29, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND (FILL), fine-grained, poorly graded, loose, light brown, dry		2" Ø BOREHOLE					
	- becomes moist							
2				1		3		0
	- turns brown							
4								
	- becomes dry, turns light brown							
6				2		3		0
			NATIVE BACKFILL					
8								
	- black staining present							
10				3		4		1
12								
				4		2		<1
14	END OF BOREHOLE @ 14 0ft BGS	14 00						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION. WAUKEGAN, IL

HOLE DESIGNATION: SB-243
DATE COMPLETED: July 30, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND (FILL), fine-grained, poorly graded, loose, brown, dry		2" Ø BOREHOLE					
2				1		4		0
	- becomes moist							
4								
	- turns light brown							
6				2		3.5		0
	- turns brown							
8			NATIVE BACKFILL					
10	- black staining present			3		3		5
12								
	- no trace of black staining							
14				4		3.5		0
16	END OF BOREHOLE @ 16 0ft BGS	16 00						
18								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-242
DATE COMPLETED: July 30, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL. M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND (FILL), fine-grained, poorly graded, loose, light brown, dry		2" Ø BOREHOLE					
2	- becomes moist, compact			1		4		0
4	- becomes dry - becomes moist, turns brown							
6				2		4		0
8			NATIVE BACKFILL					
	- black staining present, trace of gravel							
10				3		4		0
12								
14				4		3		0
	END OF BOREHOLE @ 15 0ft BGS	15.00						
16								
18								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER. 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-241
DATE COMPLETED. July 30, 2002
DRILLING METHOD· GEOPROBE
FIELD PERSONNEL: M GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND (FILL), fine-grained, poorly graded, loose, light brown, dry		2" Ø BOREHOLE					
	- becomes moist, black staining present							
2				1		3		2
4								
	- trace of black staining							
6			NATIVE BACKFILL	2		2 5		1
	- no trace of black staining							
8								
10				3		3		0
12								
				4		1.5		0
	END OF BOREHOLE @ 13.5ft BGS	13 50						
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER. 19023
CLIENT. WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION. SB-240
DATE COMPLETED. July 29, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND (FILL), fine-grained, poorly graded, loose, light brown, dry		2" Ø BOREHOLE					
2	- black staining, moist			1		3		240
4			NATIVE BACKFILL					
	- black staining disappears							
6				2		4		25
8								
				3		2.5		0
10								
	END OF BOREHOLE @ 10.5ft BGS	10 50						
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME WAUKEGAN COKE
PROJECT NUMBER. 19023
CLIENT: WCP GROUP
LOCATION. WAUKEGAN, IL

HOLE DESIGNATION: SB-239
DATE COMPLETED: July 29, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND (FILL), fine-grained, poorly graded, loose, light brown, dry		2" Ø BOREHOLE					
2	- becomes moist			1		3 5		0
	- turns brown							
4								
	- becomes dry, turns light brown							
6			NATIVE BACKFILL	2		4		0
	- becomes moist, turns brown							
	- becomes wet, compact							
8								
10				3		3.5		0
12								
	END OF BOREHOLE @ 12 5ft BGS	12 50						
14								

NOTES. MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION SB-238
DATE COMPLETED: July 29, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND (FILL), fine-grained, poorly graded, loose, light brown, dry		2" Ø BOREHOLE					
2				1		3		0
	- becomes moist							
4								
6	- becomes wet, compact		NATIVE BACKFILL	2		3.5		0
8								
10	- turning dark brown			3		4		0
12	END OF BOREHOLE @ 12.0ft BGS	12.00						
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-237
DATE COMPLETED: July 30, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND (FILL), fine-grained, poorly graded, loose, brown, dry		2" Ø BOREHOLE					
	- becomes moist, compact							
2				1		3		0
4								
	- turning light brown		NATIVE BACKFILL					
6				2		4		0
8								
				3		2		0
10	END OF BOREHOLE @ 10.0ft BGS	10 00						
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BORING LOG

PROJECT: WCP RI/FS PHASE 2.
DATE STARTED: 10/5/93
DATE COMPLETED: 10/5/93
FIELD INSPECTOR: K. French (Barr)
CREW CHIEF: M. Mueller (WTD)

BORING NUMBER: SB-31
RISER PIPE ELEVATION: N/A
GROUND SURFACE ELEVATION: 604.07 ft MSL

Depth (Feet)	Blows Per 6 in.	Sample Type/ Recovery (Ft.)	Non-Meth Org Vap Headspace (ppm)	Odor/Sheen	Soil pH	Analytical Sample Types	Moisture Content	Lithologic Unit	ASTM Soil Classification	DESCRIPTION OF MATERIALS AND REMARKS	Depth (Ft)
	3 8 12 --	SSB/1.7	300	L/N	7.6		W	LAKE SEDIMENTS-BEACH DEPOSITS	SP	Poorly graded sand (SP). About 95% fine subrounded sand, <5% silt. Very dark gray (10YR3/1). Lake sediments-beach deposits.	
	5 12 20 28 --	SSB/2.0	800	S/N	8.3	GROUP 5			SP-SM	Poorly graded sand with silt (SP-SM). About 90% fine subrounded sand, 10% silt, trace coarse angular sand, trace fine angular to subangular gravel. Coarse sand and gravel fraction consisted of mostly mafic clasts. Black (10YR2/1). Lake sediments-beach deposits. ◀Sample contained approximately 30% fine gravel at 44.0 ft bgs.	
45	12 9 10 27	SSB/2.0	350	M/T	8.2				GM	Silty gravel (GM). About 40% coarse angular black stained dolomite or limestone gravel, 35% fine sand, 15% silt, 10% medium to coarse sand. Black (10YR2/1). Lake sediments-beach deposits.	45
								GLACIAL DEPOSITS	ML/CL	Clayey silt (ML/CL). About 70% silt, 30% clay. Clayey silt exhibited low toughness, rapid dilatancy, and low plasticity. Black (10YR2/1). Glacial deposits.	
	25 41 100+ -- -- --	SSB/1.5	200	S/T	8.1	GROUP 5/M19			SP-SM /SM	Poorly graded sand with silt to silty sand (SP-SM/SM). About 85% to 90% fine to medium sand, 10% to 15% silt, trace coarse sand, trace fine angular gravel. Black (10YR2/1). Glacial deposits.	
									SM	Silty sand with gravel (SM). About 45% fine to medium sand, 20% coarse angular limestone or dolomite gravel, 20% coarse angular sand, 15% silt. Black (10YR2/1). Glacial deposits.	
50	11 20 20 22	SSB/2.0	20	N/N	8.2		M	TILL	CL	Lean clay (CL). Mostly clay, trace coarse sand. Clay exhibited medium toughness, medium plasticity, no dilatancy, and high dry strength. Firm. Clay contained minute horizontal fractures. Gray (10YR5/1). Till.	50
										End of boring at 49.5 ft bgs. Split spoon driven to 51.5 ft bgs.	
55										The borehole was drilled with a 4¼" (I.D.) hollow stem auger mounted on an ORV Mobil B-57 ATV drill rig producing a 8¼" (O.D.) borehole. California samplers (3" diameter split spoon samplers with a 6" brass liner retained in the bottom of the sampler) were driven with a 300 lb hammer operated mechanically by a winch line mounted on the drill rig. Samples were logged by a Barr Engineering Company (Barr- 612/832-2600) geologist and the borehole was drilled by WTD Environmental Drilling (WTD-715/359-7090).	55
60											60

COMMENTS: SAMPLE METHOD: G=grab; SSB= split barrel with brass liner; SS= split spoon (no liner); TW= thin wall; HP= hydropunch water sample. ODOR: L= low; M= modorate; S= strong; VS= very strong; P= petroleum; D= diesel. SHEEN: N= none; T= trace; M= moderate; H= heavy. MOISTURE: D= dry; M= moist; W= wet. ANALYTICAL SAMPLE TYPES: GROUP 5= As/Cd/Pb/Se/Hg/tot. Cyanide/BETX/ PAH/Phenols. GROUP FS= Full scan analysis. M19= duplicate sample.

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BORING LOG

PROJECT: WCP RI/FS PHASE 2.
DATE STARTED: 10/5/93
DATE COMPLETED: 10/5/93
FIELD INSPECTOR: K. French (Barr)
CREW CHIEF: M. Mueller (WTD)

BORING NUMBER: SB-31
RISER PIPE ELEVATION: N/A
GROUND SURFACE ELEVATION: 604.07 ft MSL

Depth (Feet)	Blows Per 6 In.	Sample Type/ Recovery (Ft.)	Non-Meth Org Vap Headspace (ppm)	Odor/Sheen	Soil pH	Analytical Sample Types	Moisture Content	Lithologic Unit	ASTM Soil Classification	DESCRIPTION OF MATERIALS AND REMARKS	Depth (Ft)
	9 9 13 --	SSB/1.8	0	N/N	7.4		M		SP COAL SM	Coal with coal fines. Black. Silty sand (SM). About 50% coarse sand, 30% fine to medium sand, 15% silt, 5% fine gravel. Coarse sand and gravel fractions consisted of coal furnace slag material. Black (10YR2/1). FILL	
	6 6 5 6 --	SSB/1.4	0	N/N	6.9	GROUP FS	W	LAKE SEDIMENTS-BEACH DEPOSITS	SP	Poorly graded sand (SP). About 75% fine subrounded sand, 20% medium subangular sand, <5% silt. Coarser grains consisted of shell fragments, quartz, and mafic and feldspathic lithologies. Brown (10YR5/3). Lake sediments-beach deposits. ◀Color changed to dark grayish brown (10YR4/2) at 24.5 to 28.5 ft bgs.	
25	2 3 4 7 --	SSB/1.5	0	N/N	7.0						25
	3 5 7 10 --	SSB/1.4	1.0	N/N	7.2	GROUP 5					
30	4 5 11 17 --	SSB/1.8	4.0	N/N	7.1				SP	Poorly graded sand (SP). About 95% fine subrounded sand, <5% silt. Sand fraction consisted of 75% quartz and 25% mafic and feldspathic lithologies. Very dark gray (10YR3/1). Lake sediments-beach deposits. ◀Sample contained trace medium sand-sized angular shell fragments beginning at 29.5 ft bgs.	30
	4 8 10 17 --	SSB/1.8	14	N/N	7.1						
35	2 5 8 13 --	SSB/2.0	28	N/N	7.1						35
	4 4 8 13 --	SSB/1.9	300	N/N	7.4	GROUP 5					
40	3										40

COMMENTS: SAMPLE METHOD: G=grab; SSB= split barrel with brass liner; SS= split spoon (no liner); TW= thin wall; HP= hydropunch water sample. ODOR: L= low; M= moderate; S= strong; VS= very strong; P= petroleum; D= diesel. SHEEN: N= none; T= trace; M= moderate; H= heavy. MOISTURE: D= dry; M= moist; W= wet. ANALYTICAL SAMPLE TYPES: GROUP 5= As/Cd/Pb/Se/Hg/tot. Cyanide/BETX/ PAH/Phenols. GROUP FS= Full scan analysis. M19= duplicate sample.

FORM30 rev.12/21/93 JAB

BORING LOG

PROJECT: WCP RI/FS PHASE 2.
DATE STARTED: 10/5/93
DATE COMPLETED: 10/5/93
FIELD INSPECTOR: K. French (Barr)
CREW CHIEF: M. Mueller (WTD)

BORING NUMBER: SB-31
RISER PIPE ELEVATION: N/A
GROUND SURFACE ELEVATION: 604.07 ft MSL

Depth (Feet)	Blows Per 6 In.	Sample Type/ Recovery (Ft.)	Non-Meth Org Vap Headspace (ppm)	Odor/Sheen	Soil pH	Analytical Sample Types	Moisture Content	Lithologic Unit	ASTM Soil Classification	DESCRIPTION OF MATERIALS AND REMARKS	Depth (Ft)
	1 1 1 1	SSB/1.3	0	N/N	8.3		D/M	FILL-DREDGE SPOILS	SP	Poorly graded sand (SP). About 80% fine subrounded sand, 10% to 15% medium subangular sand, <5% silt, trace coarse sand, trace fine subangular to subrounded gravel. Sand fraction consisted of 90% quartz and 10% mafic and miscellaneous lithologies. Sample contained root fibers. Brown (10YR5/3). Fill-dredge spoils.	
	2 1 1 2	SSB/1.7	0	N/N	8.4					◀ Sample from 2.0 to 4.0 ft below ground surface (bgs) contained coal pieces.	
5	3 4 7 9	SSB/1.9	0	N/N	8.4	GROUP FS	M			◀Sample from 4.5 to 6.5 ft bgs contained coarse coal gravel pieces.	5
	2 5 6 7	SSB/1.6	0	N/N	8.2		M/W		SP-SM	Poorly graded sand with silt (SP-SM). About 70% fine subrounded sand, 10% to 15% medium subangular sand, 10% silt, trace to 5% fine subrounded quartz and basalt gravel. Dark grayish brown (10YR4/2). Fill-dredge spoils.	
10	1 3 2 3	SSB/1.6	10	N/N	7.6		M		SM	Silty sand (SM). About 70% fine subrounded sand, 30% silt, trace fine angular gravel. Black (10YR2/1). Fill-dredge spoils.	10
	1 2 5 8	SSB/1.8	0	N/N	8.3				SP	Poorly graded sand (SP). About 90% fine subrounded sand, 5% medium sand, <5% silt. Brown (10YR5/3). Fill-dredge spoils.	
15	2 4 5 4	SSB/1.8	0	N/N	8.2	GROUP FS			SP/ SP-SM	Poorly graded sand to poorly graded sand with silt (SP/SP-SM). About 90% to 95% fine subrounded sand, 5% to 10% silt, trace fine to coarse gravel. Sample contained coal fragments. Brown (10YR5/3) mottled with very dark brown (10YR2/2). Fill-dredge spoils.	15
	2 5 6 7	SSB/1.4	0	N/N	8.2				SP	Poorly graded sand (SP). About 90% fine subrounded sand, 5% medium angular sand, <5% silt. Sand fraction consisted of 95% quartz and 5% mafic and feldspathic lithologies. Bottom of sampler contained a large fragment of weathered concrete . Fill-dredge spoils.	
20	4										20

COMMENTS: SAMPLE METHOD: G=grab; SSB= split barrel with brass liner; SS= split spoon (no liner); TW= thin wall; HP= hydropunch water sample. ODOR: L= low; M= modorate; S= strong; VS= very strong; P= petroleum; D= diesel. SHEEN: N= none; T= trace; M= moderate; H= heavy. MOISTURE: D= dry; M= moist; W= wet. ANALYTICAL SAMPLE TYPES: GROUP 5= As/Cd/Pb/Se/Hg/tot. Cyanide/BETX/ PAH/Phenols. GROUP FS= Full scan analysis. M19= duplicate sample.

. ORM30 rev.12/21/93 JAB

BORING LOG

PROJECT: WCP RI/FS PHASE 2.
DATE STARTED: 10/5/93
DATE COMPLETED: 10/5/93
FIELD INSPECTOR: K. French (Barr)
CREW CHIEF: M. Mueller (WTD)

BORING NUMBER: SB-30
RISER PIPE ELEVATION: N/A
GROUND SURFACE ELEVATION: 602.08 ft MSL

Depth (Feet)	Blows Per 6 In.	Sample Type/ Recovery (Ft.)	Non-Meth Org Vap Headspace (ppm)	Odor/Sheen	Soil pH	Analytical Sample Types	Moisture Content	Lithologic Unit	ASTM Soil Classification	DESCRIPTION OF MATERIALS AND REMARKS	Depth (Ft)
	6 7 9 -- 6 10 20 24	SSB/2.0	110	S/T	8.5	GS	W		SP/ SP-SM	Poorly graded sand to poorly graded sand with silt (SP/SP-SM). About 90% to 95% fine subrounded sand, 5% to 10% silt, trace coarse sand. Black (10YR2/1). Lake sediments-beach deposits.	
		SSB/2.2	35	S/T	8.6	GROUP 5	M	TILL	SM	Silty sand with gravel (SM). About 50% fine to medium subangular to subrounded sand, 15% coarse subangular sand, 20% fine to coarse subangular to subrounded gravel, 15% silt. Black (10YR2/1). Lake sediments-beach deposits.	
									CL	Lean clay (CL). About 90% clay, 10% silt, trace coarse angular to subangular sand. Clay exhibited no dilatancy, very high dry strength, medium plasticity, and high toughness. Hard. Gray (10YR5/1) with black discoloration from 42.8 to 43.4 ft bgs. Till.	
45										End of boring at 42.0 ft bgs. Split spoon driven to 44.0 ft bgs.	45
50											50
55										The borehole was drilled with a 4¼" (I.D.) hollow stem auger mounted on an ORV Mobil B-57 ATV drill rig producing a 8¼" (O.D.) borehole. California samplers (3" diameter split spoon samplers with a 6" brass liner retained in the bottom of the sampler) were driven with a 300 lb hammer operated mechanically by a winch line mounted on the drill rig. Samples were logged by a Barr Engineering Company (Barr- 612/832-2600) geologist and the borehole was drilled by WTD Environmental Drilling (WTD-715/359-7080).	55
60											60

COMMENTS: SAMPLE METHOD: G=grab; SSB= split barrel with brass liner; SS= split spoon (no liner); TW= thin wall; HP= hydropunch water sample. ODOR: L= low; M= moderate; S= strong; VS= very strong; P= petroleum; D= diesel. SHEEN: N= none; T= trace; M= moderate; H= heavy. MOISTURE: D= dry; M= moist; W= wet. ANALYTICAL SAMPLE TYPES: GROUP 5= As/Cd/Pb/Se/Hg/tot. Cyanide/BETX/ PAH/Phenols. FS= Full Scan analysis. M17= duplicate sample. GEOTECHNICAL SAMPLE TYPES: G= grain size.

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BORING LOG

PROJECT: WCP RI/FS PHASE 2.
DATE STARTED: 10/5/93
DATE COMPLETED: 10/5/93
FIELD INSPECTOR: K. French (Barr)
CREW CHIEF: M. Mueller (WTD)

BORING NUMBER: SB-30
RISER PIPE ELEVATION: N/A
GROUND SURFACE ELEVATION: 602.08 ft MSL

Depth (Feet)	Blows Per 6 In.	Sample Type/ Recovery (Ft.)	Non-Meth Org Vap Headspace (ppm)	Odor/Sheen	Soil pH	Analytical Sample Types	Moisture Content	Lithologic Unit	ASTM Soil Classification	DESCRIPTION OF MATERIALS AND REMARKS	Depth (Ft)
	18 20 22 --	SSB/1.6	0	N/N	7.9	FS	M/W	FILL	SP	Poorly graded sand (SP). About 95% fine to medium subangular to subrounded sand, <5% silt. Sand fraction consisted of 85% quartz, 15% mafic and miscellaneous lithologies. Brown (10YR5/3). Fill.	
	3 5 7 8 --	SSB/1.6	0	N/T	7.8				SM	Silty sand (SM). About 60% to 70% fine subrounded sand, 30% to 40% silt, trace coarse subangular sand. Black (10YR2/1). Fill.	
25	3 6 7 10 --	SSB/1.9	3.0	N/N	7.8	GROUP 5			SP	Poorly graded sand (SP). About 95% fine to medium subangular sand, trace coarse sand, 5% silt. Sample contained small coal fragments. Fill. ◀Poorly graded sand (SP) at 24.5 ft bgs. About 75% fine subrounded sand, 20% medium subangular sand, <5% silt. Medium sand fraction included basalt and feldspathic lithologies. Sample contained small coal fragments. Very dark grayish brown (10YR3/2). Fill.	25
	4 5 11 13 --	SSB/2.0	5.0	N/N	8.0	GS		LAKE SEDIMENTS-BEACH DEPOSITS	SP	Poorly graded sand (SP). About 75% fine subrounded sand, 20% medium subangular sand, <5% silt. Medium sand fraction included basalt and feldspathic lithologies. Very dark grayish brown (10YR3/2). Lake sediments-beach deposits. ◀Sample contained a 0.01-ft thick silt layer at 27.6 ft bgs. ◀Poorly graded sand (SP) at 27.7 ft bgs. About 95% fine subrounded sand, trace to 5% medium subangular sand, <5% silt, trace coarse sand. Very dark gray (10YR3/1). Lake sediments-beach deposits.	
30	3 4 4 7 --	SSB/1.8	3.0	N/N	8.0		W			◀Silt laminations at 30.6 ft bgs.	30
	9 9 10 12 --	SSB/2.0	50	L/T	8.2					◀Poorly graded sand (SP) at 32.0 ft bgs. About 85% fine subrounded sand, 10% medium subangular sand, trace coarse sand, <5% silt. Sand fraction included 80% quartz, 20% shell fragments, mafics, and feldspathics. Very dark gray (10YR3/1) to black (10YR2/1). Lake sediments-beach deposits.	
35	3 4 10 18 --	SSB/1.8	40	M/T	8.1	GROUP 5			SP-SM	Poorly graded sand with silt (SP-SM). About 90% fine subrounded sand, 10% silt, trace fine subrounded basaltic gravel. Black (10YR2/1). Lake sediments-beach deposits.	35
	2 4 5 7 --	SSB/2.0	70	S/T	8.6				SP/ SP-SM	Poorly graded sand to poorly graded sand with silt (SP/SP-SM). About 90% to 95% fine subrounded sand, 5% to 10% silt, trace coarse sand. Black (10YR2/1). Lake sediments-beach deposits.	
40	6										40

COMMENTS: SAMPLE METHOD: G=grab; SSB= split barrel with brass liner; SS= split spoon (no liner); TW= thin wall; HP= hydropunch water sample. ODOR: L= low; M= modorate; S= strong; VS= very strong; P= petroleum; D= diesel. SHEEN: N= none; T= trace; M= moderate; H= heavy. MOISTURE: D= dry; M= moist; W= wet. ANALYTICAL SAMPLE TYPES: GROUP 5= As/Cd/Pb/Se/Hg/tot. Cyanide/BETX/ PAH/Phenols. FS= Full Scan analysis. M17= duplicate sample. GEOTECHNICAL SAMPLE TYPES: G= grain size.

JRM30 rev.12/21/93 JAB

BORING LOG

PROJECT: WCP RI/FS PHASE 2.
DATE STARTED: 10/5/93
DATE COMPLETED: 10/5/93
FIELD INSPECTOR: K. French (Barr)
CREW CHIEF: M. Mueller (WTD)

BORING NUMBER: SB-30
RISER PIPE ELEVATION: N/A
GROUND SURFACE ELEVATION: 602.08 ft MSL

Depth (Feet)	Blows Per 6 In.	Sample Type/ Recovery (Ft.)	Non-Meth Org Vap Headspace (ppm)	Odor/Sheen	Soil pH	Analytical Sample Types	Moisture Content	Lithologic Unit	ASTM Soil Classification	DESCRIPTION OF MATERIALS AND REMARKS	Depth (Ft)
	1 2 2 2	SSB/1.2	0	N/N	9.0		D	FILL-DREDGE SPOILS	SP	Poorly graded sand (SP). About 95% fine subrounded sand, <5% silt, trace medium to coarse subangular sand. Sand fraction consisted mostly of quartz, 10% to 15% miscellaneous lithologies. Brown (10YR5/3). Fill-dredge spoils.	
	3 3 5 6	SSB/1.8	0	N/N	8.7				ML	Silt (ML). About 95% to 100% silt, trace to 5% fine subrounded sand, trace medium to coarse sand. Medium to coarse sand fraction consisted mostly of coal fragments and small wood pieces. Silt exhibited low plasticity and low toughness. Fill-dredge spoils.	
5	2 1 1 1	SSB/1.8	0	N/N	8.2	FS					5
	1 1 1 1	SSB/1.3	0	N/N	8.6					◀Coal seam, 0.01-ft thick, at 7.9 ft below ground surface (bgs).	
10	1 3 3 3	SSB/1.7	0	N/N	7.8		M		SP	Poorly graded sand (SP). About 95% fine subrounded sand, <5% silt, trace angular medium sand. Sand fraction consisted of 85% quartz, 15% shell fragments, basalts and miscellaneous lithologies. Fill-dredge spoils.	10
	2 5 7 11	SSB/1.8	0	N/N	7.9						
15	3 5 6 7	SSB/1.8	0	N/N	8.1	FS/M17				◀Sample contained trace coarse sand and fine subangular to subrounded gravel from 14.5 to 16.5 ft bgs.	15
	1 3 7 12	SSB/1.9	0	N/N	8.0			FILL	COAL	Coal and coal fine bed. Black (10YR2/1).	
20	6					FS			SP	Poorly graded sand (SP). Fill.	20

COMMENTS: SAMPLE METHOD: G=grab; SSB= split barrel with brass liner; SS= split spoon (no liner); TW= thin wall; HP= hydropunch water sample. ODOR: L= low; M= moderate; S= strong; VS= very strong; P= petroleum; D= diesel. SHEEN: N= none; T= trace; M= moderate; H= heavy. MOISTURE: D= dry; M= moist; W= wet. ANALYTICAL SAMPLE TYPES: GROUP 5= As/Cd/Pb/Se/Hg/tot. Cyanide/BETX/ PAH/Phenols. FS= Full Scan analysis. M17= duplicate sample. GEOTECHNICAL SAMPLE TYPES: G= grain size.

FORM30 rev.12/21/93 JAB

Soil Pre-Design Study Boring Logs and Test Trench Logs

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

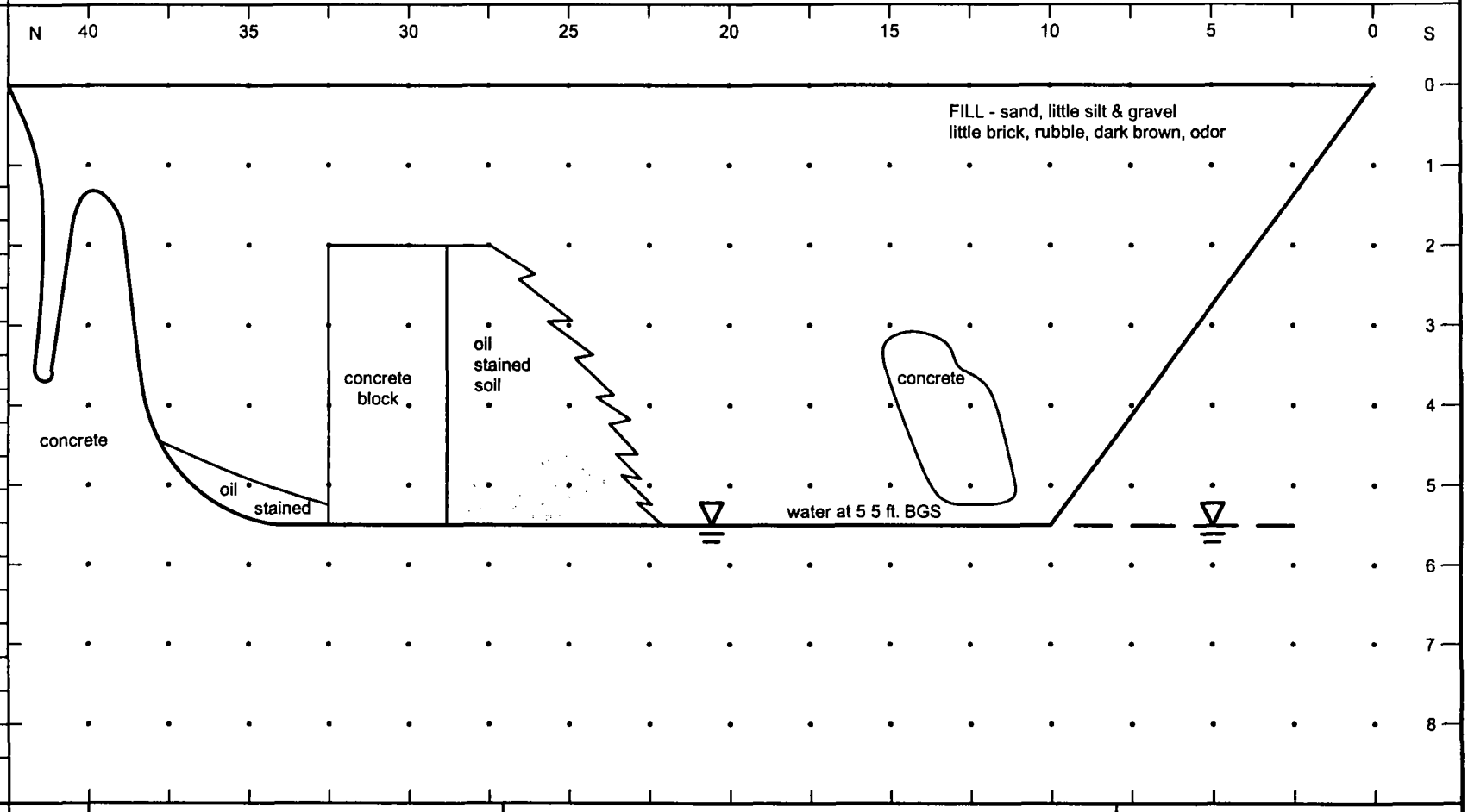
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-100
DATE/TIME STARTED 6/3/02 11:30
DATE/TIME COMPLETED 6/3/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060302-WP-003A
S-060302-WP-003B
S-060302-WP-003C

S-060302-WP-002A
S-060302-WP-002B
S-060302-WP-002C

S-060302-WP-001A
S-060302-WP-001B
S-060302-WP-001C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

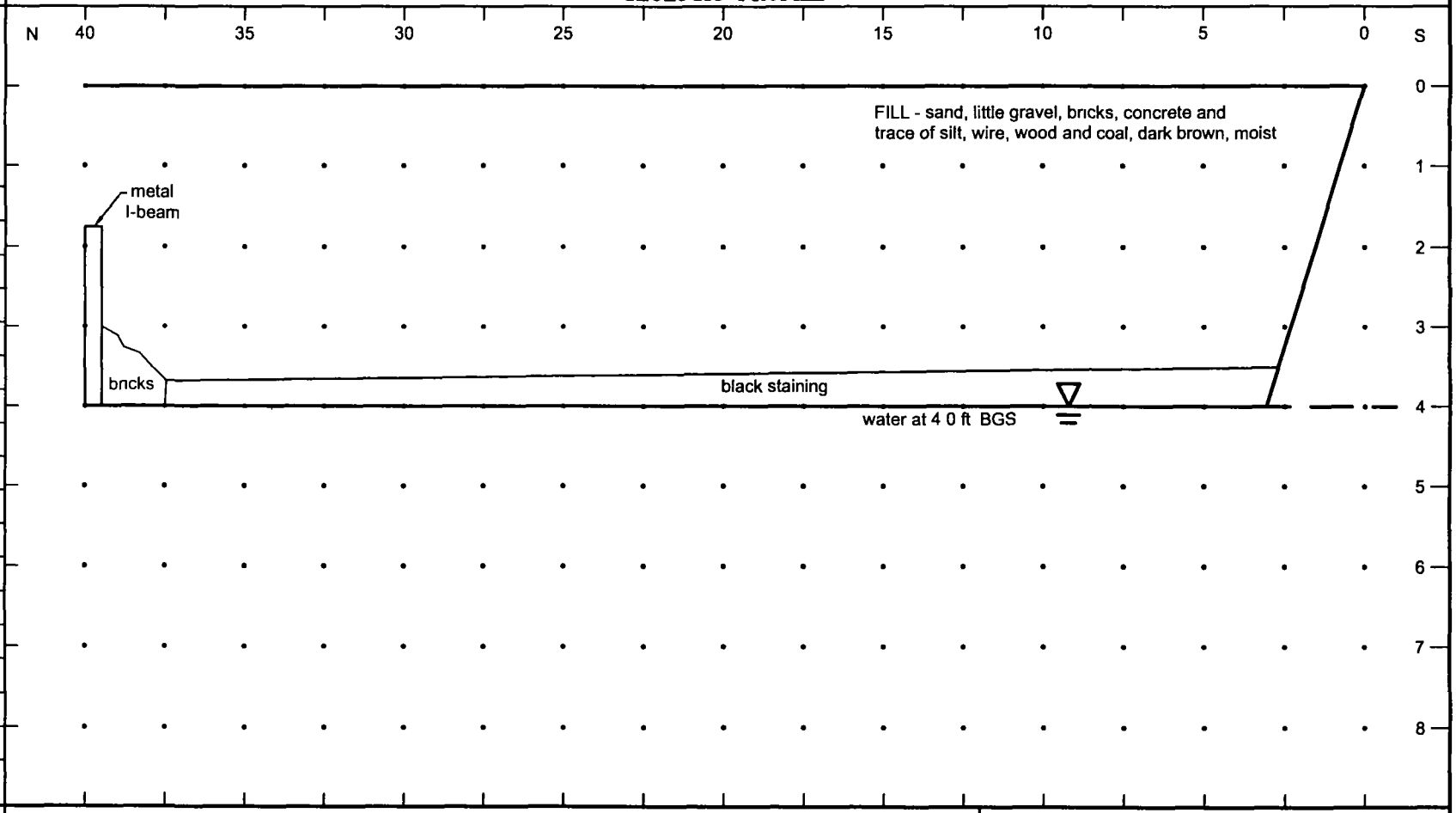
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-101
DATE/TIME STARTED 6/3/02 13:00
DATE/TIME COMPLETED 6/3/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060302-WP-004A
S-060302-WP-004B

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

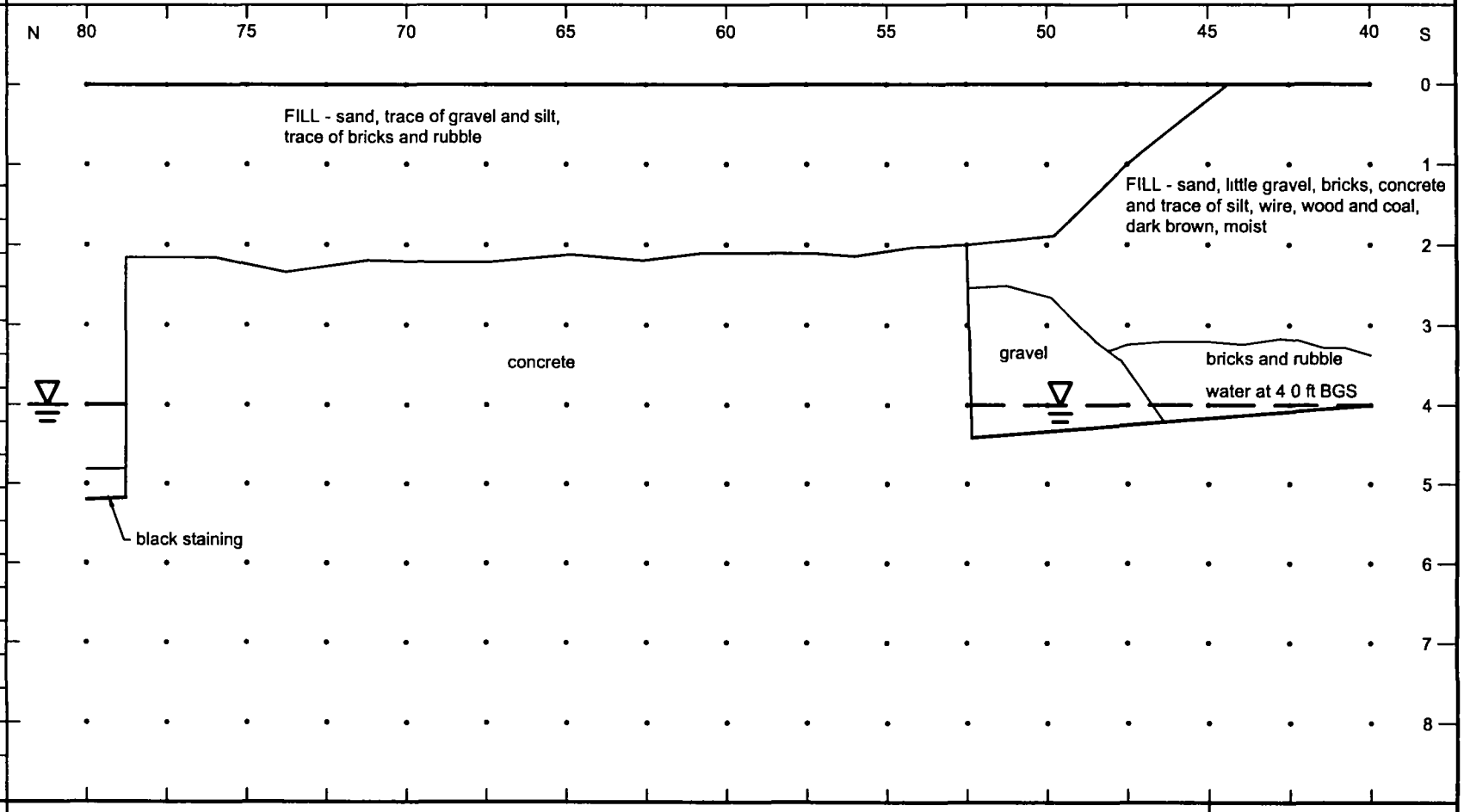
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-101
DATE/TIME STARTED 6/3/02 13:00
DATE/TIME COMPLETED 6/3/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060302-WP-005A
S-060302-WP-005B

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

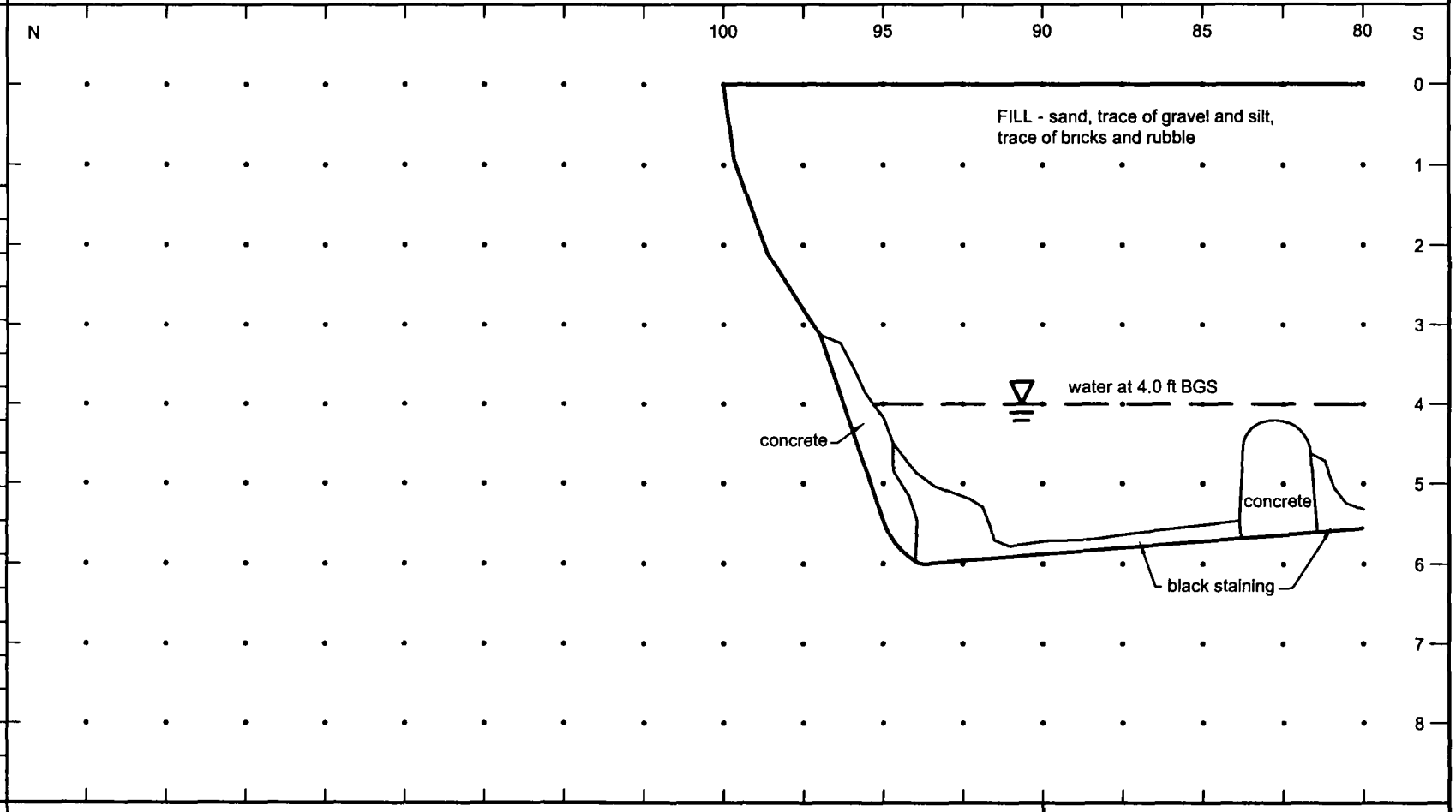
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-101
DATE/TIME STARTED 6/3/02 13:00
DATE/TIME COMPLETED 6/3/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

Composite Geotech sample collected from Trench S-060302-WP-009

S-060302-WP-006A
S-060302-WP-006B
S-060302-WP-006C
S-060302-WP-007B-DUP

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

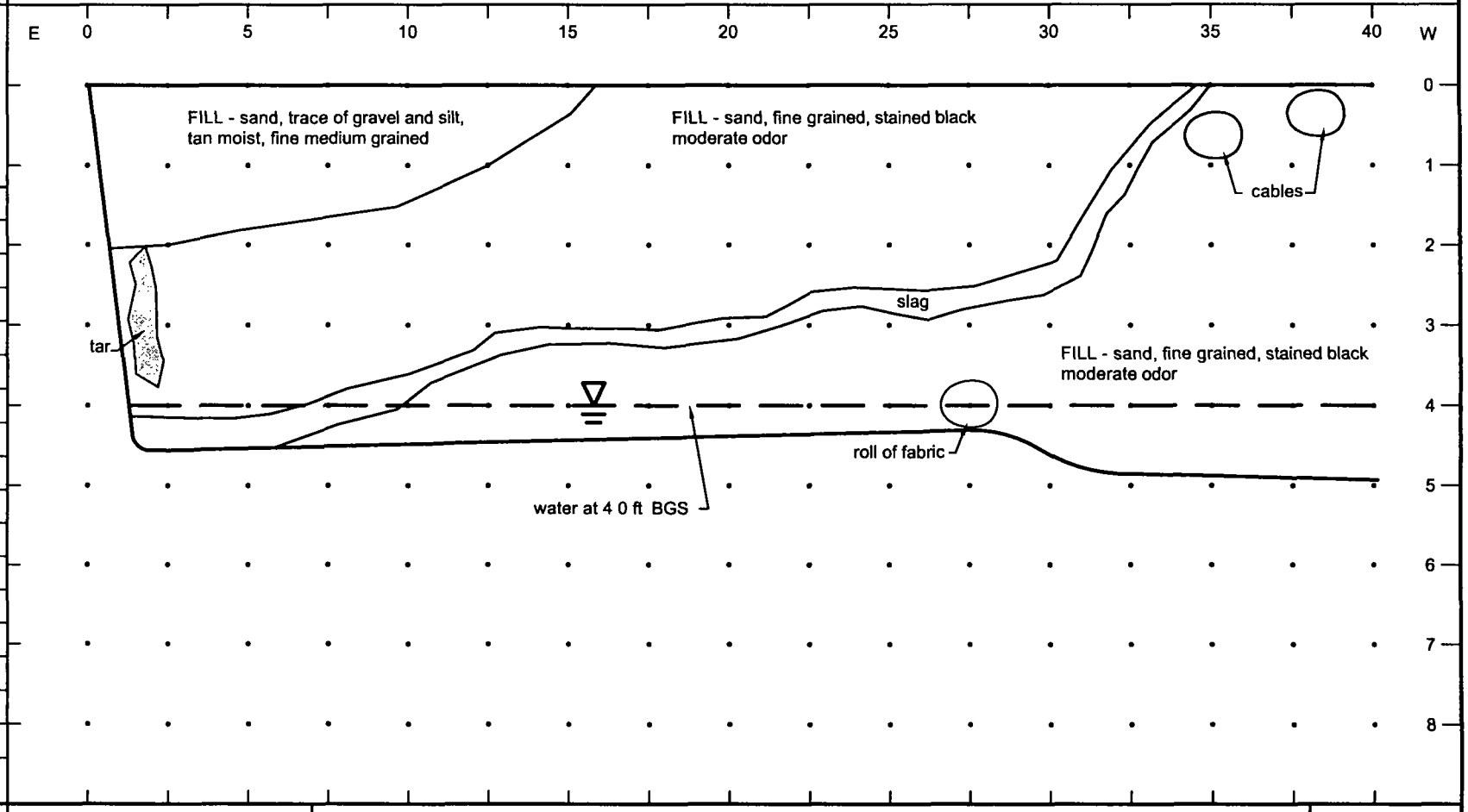
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-102
DATE/TIME STARTED 6/3/02 14:30
DATE/TIME COMPLETED 6/3/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060302-WP-010A
S-060302-WP-010B

S-060302-WP-011A ms/msd
S-060302-WP-011B

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN, ILLINOIS

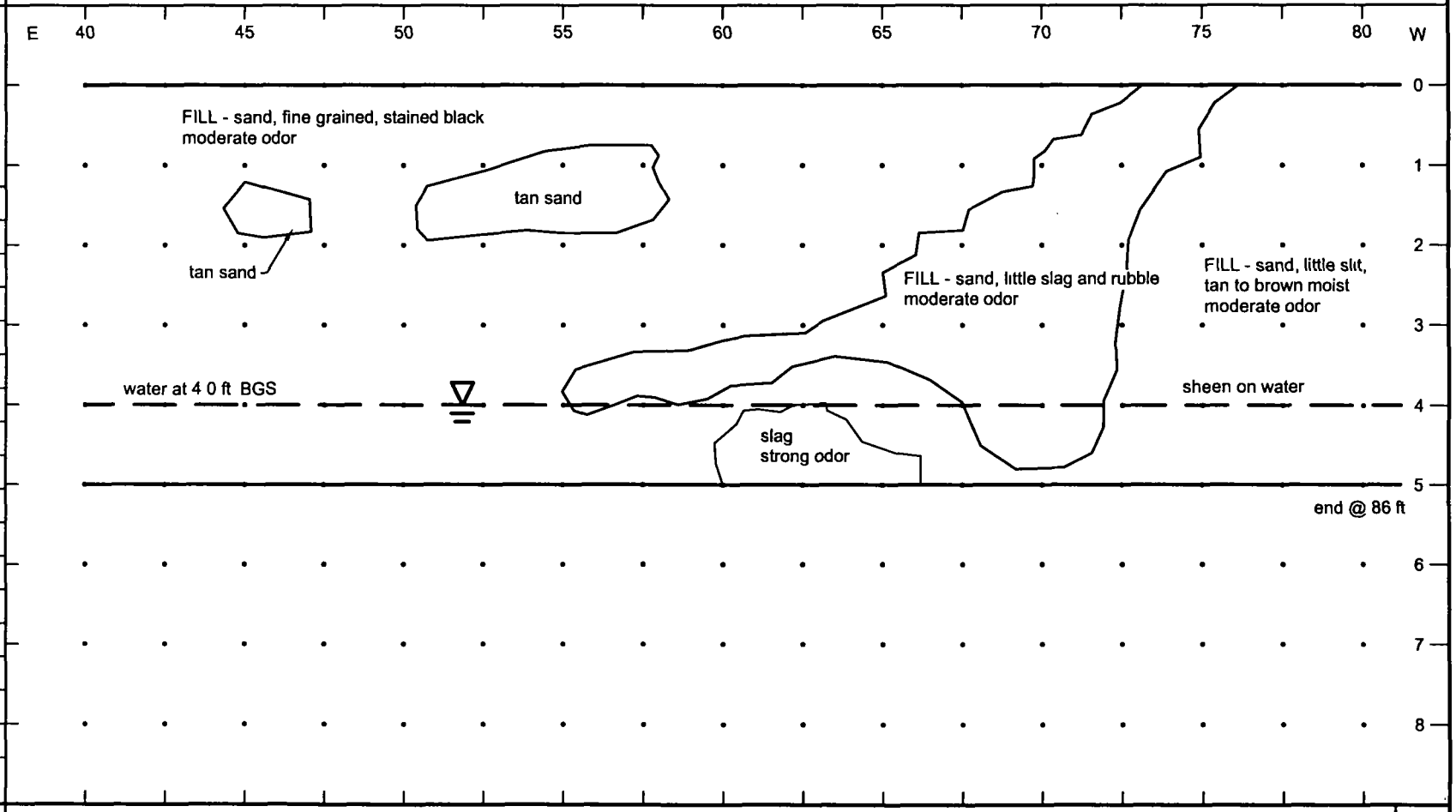
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-102
DATE/TIME STARTED 6/3/02 14:30
DATE/TIME COMPLETED 6/3/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060302-WP-012A
S-060302-WP-012B

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

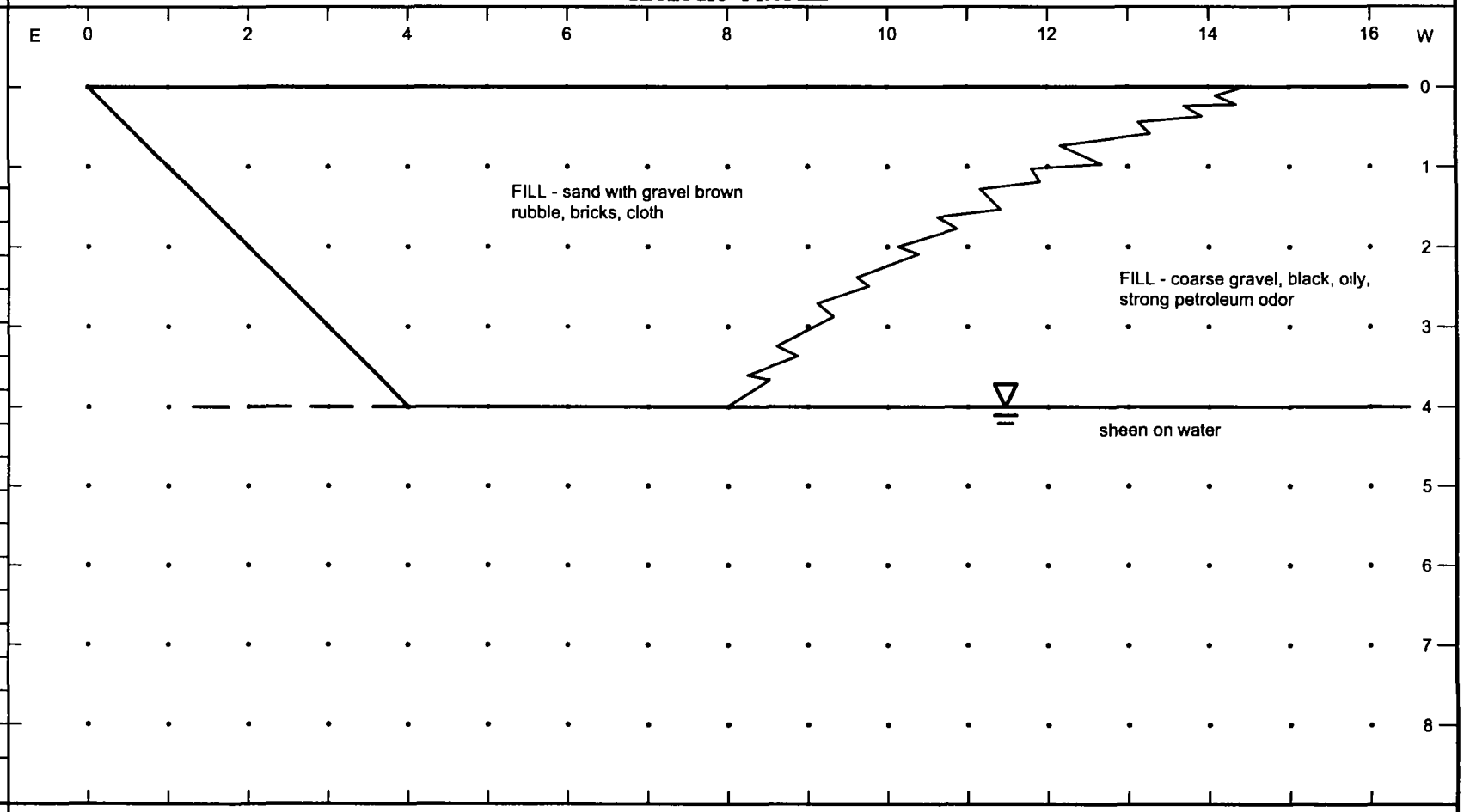
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.) OVERCAST
(P.M.)

TEST PIT DESIGNATION TP-103
DATE/TIME STARTED 6/5/02
DATE/TIME COMPLETED 6/5/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR P. JOHNSON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

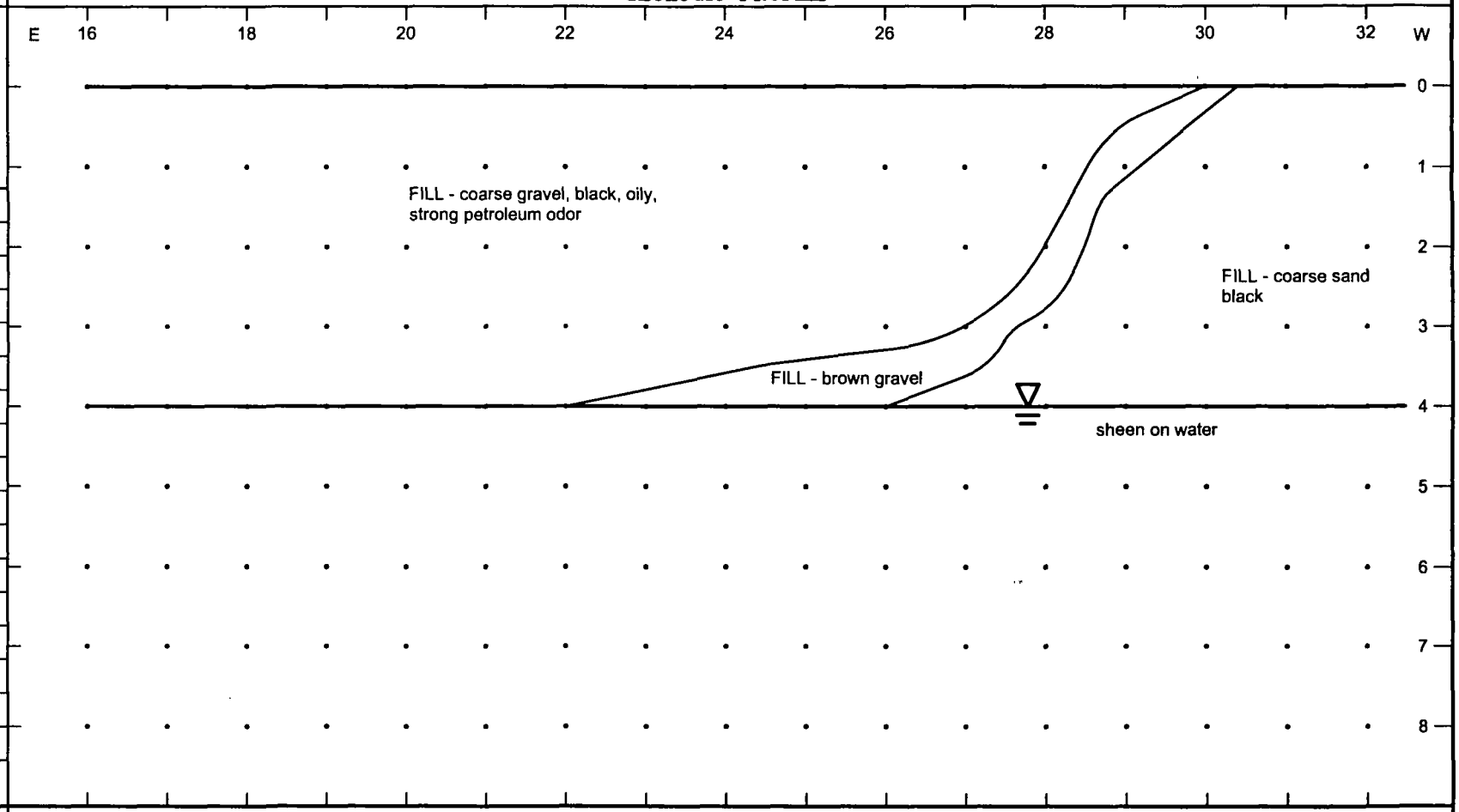
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-103
DATE/TIME STARTED 6/5/02
DATE/TIME COMPLETED 6/5/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR P. JOHNSON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

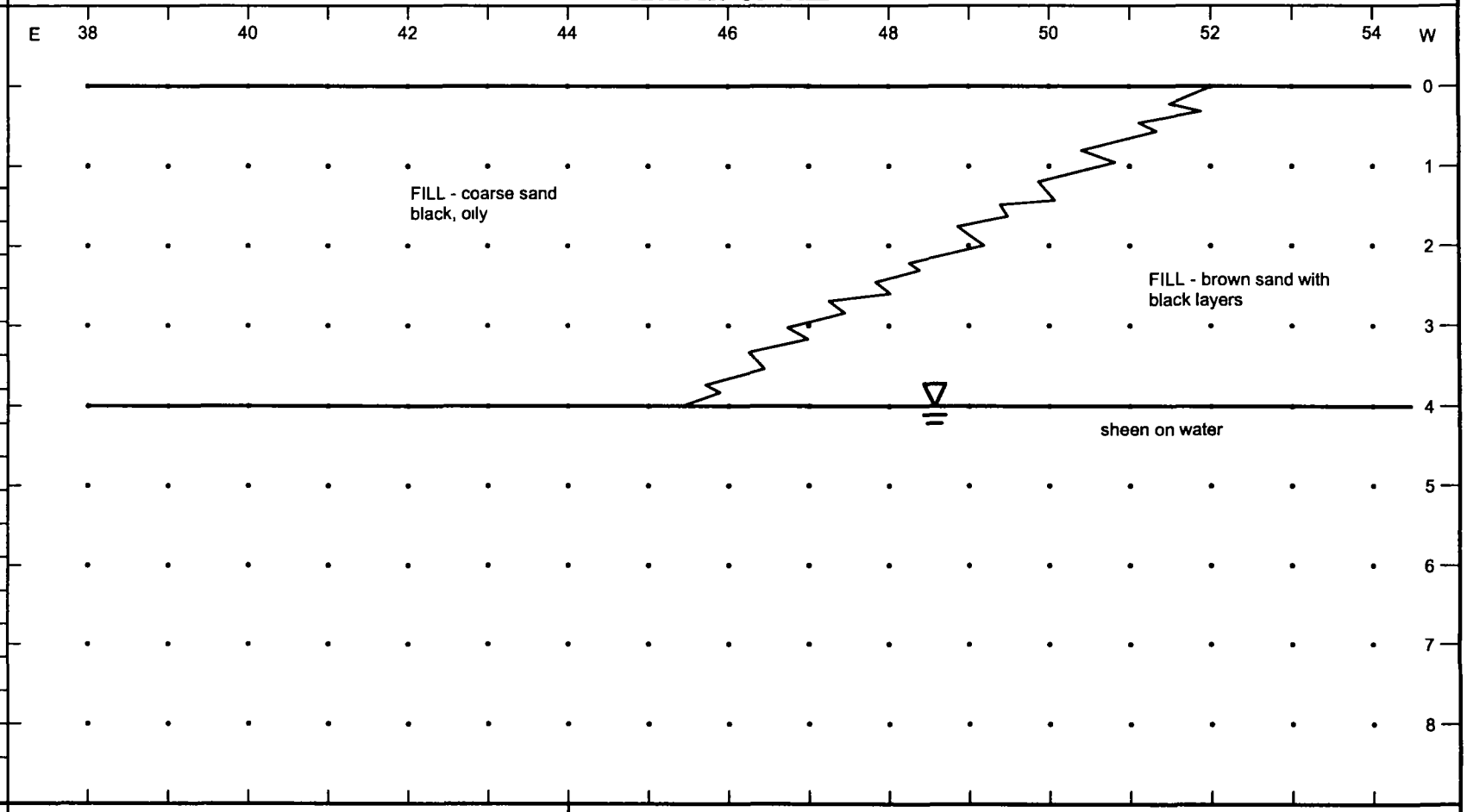
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-103
DATE/TIME STARTED 6/5/02
DATE/TIME COMPLETED 6/5/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR P. JOHNSON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060502-WP-013A
S-060502-WP-013B

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

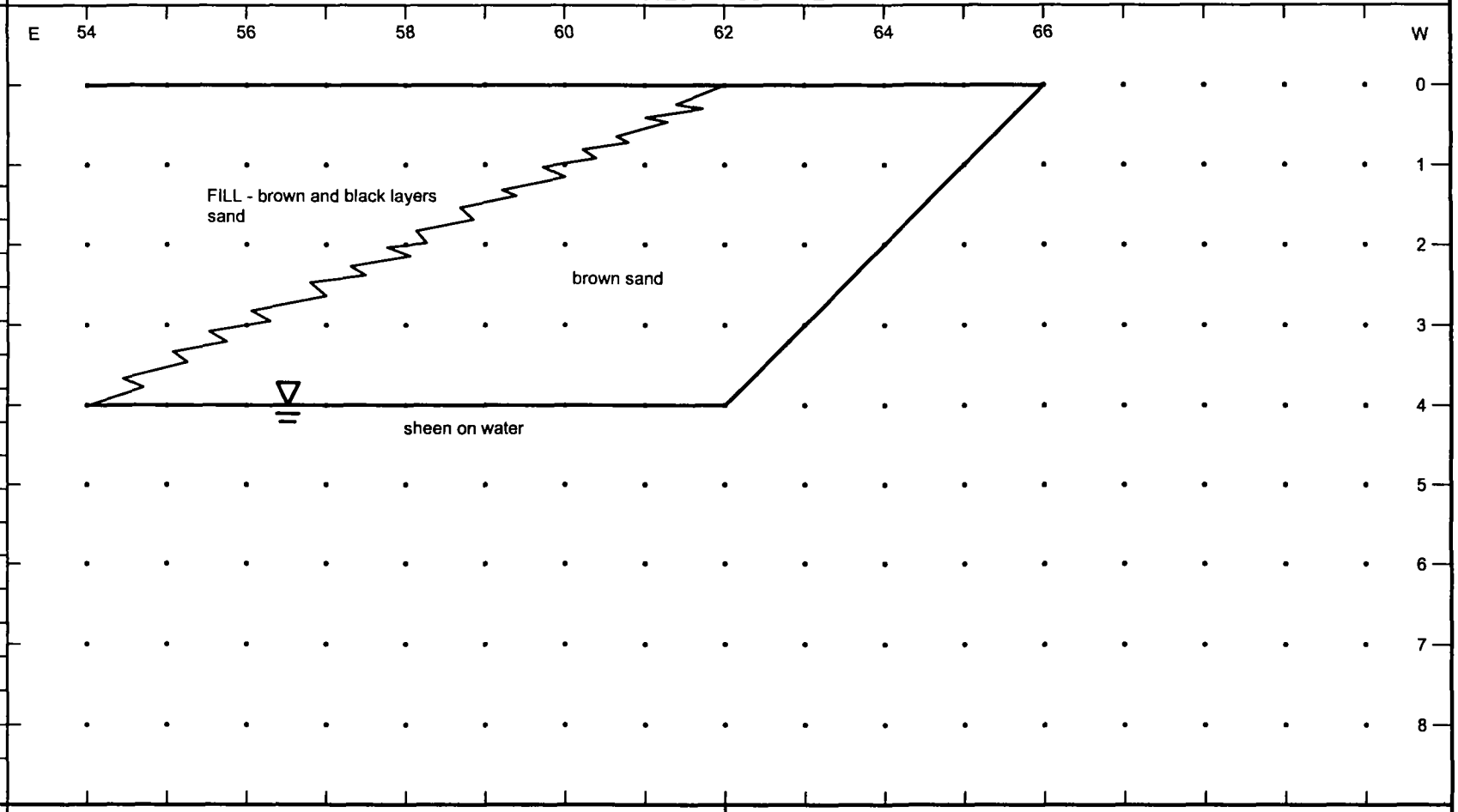
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-103
DATE/TIME STARTED 6/5/02
DATE/TIME COMPLETED 6/5/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR P. JOHNSON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060502-WP-014A
S-060502-WP-014B

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

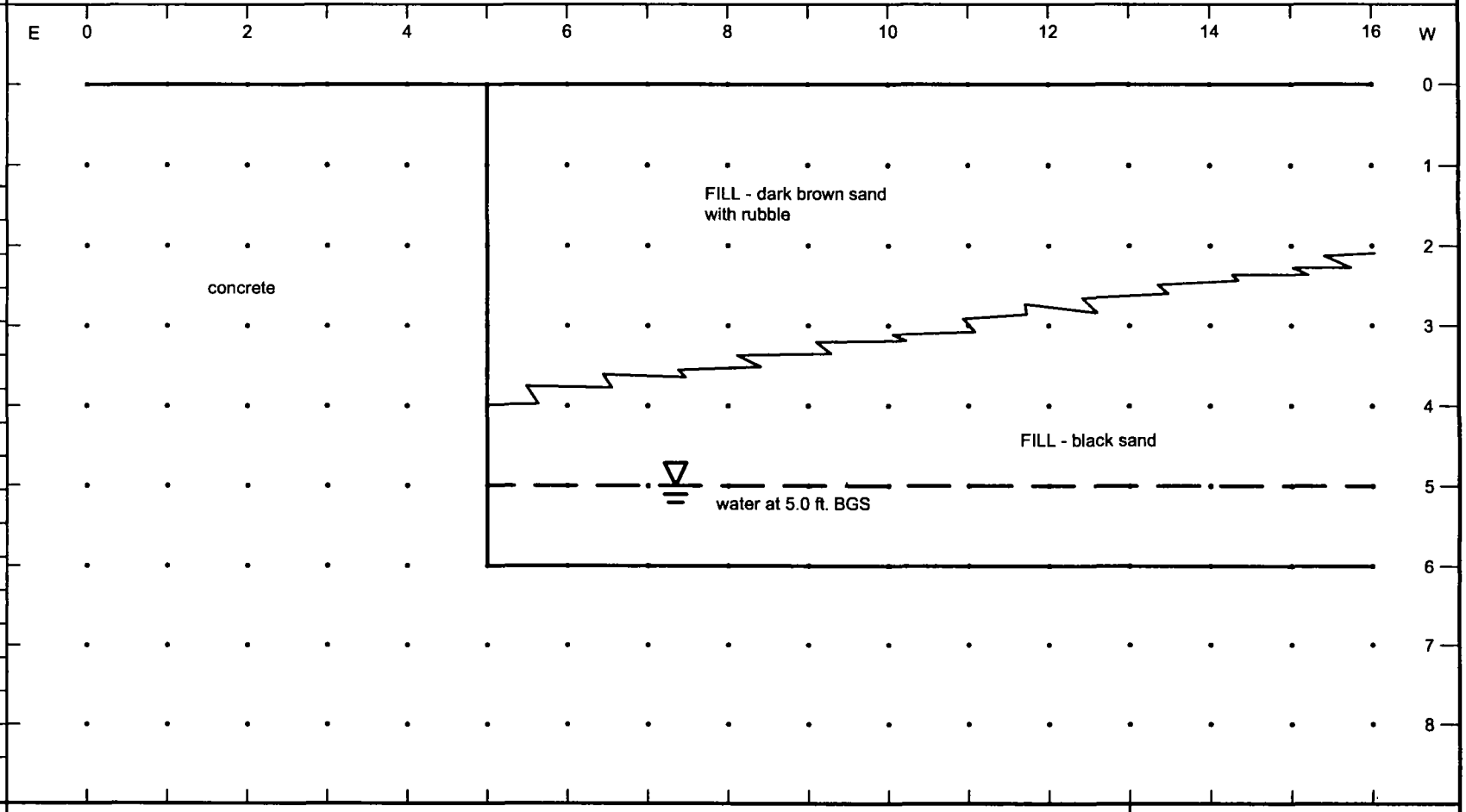
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-104
DATE/TIME STARTED 6/5/02 9:10
DATE/TIME COMPLETED 6/5/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060502-WP-015A
S-060502-WP-015B
S-060502-WP-015C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

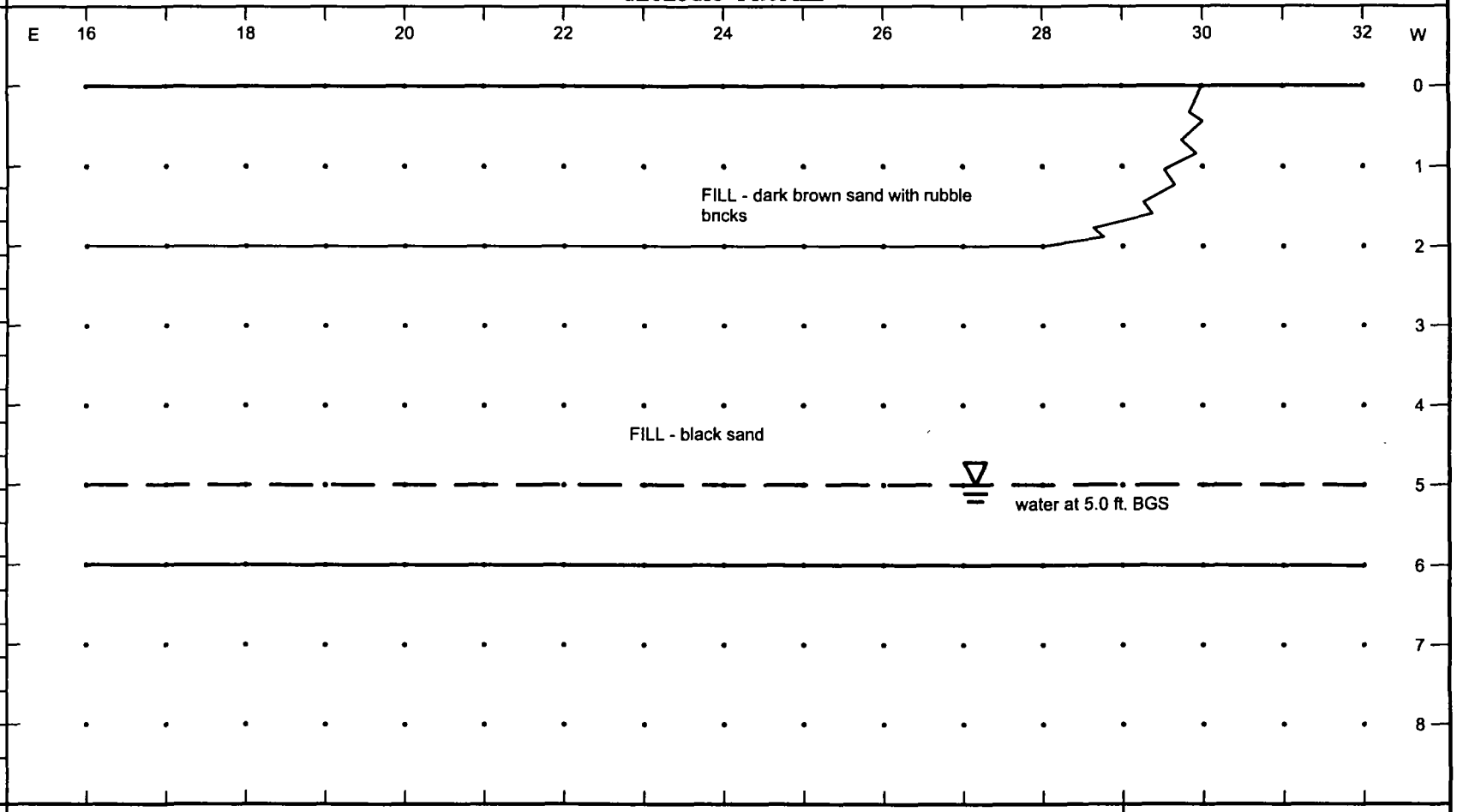
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-104
DATE/TIME STARTED 6/5/02 9:10
DATE/TIME COMPLETED 6/5/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060502-WP-016A
S-060502-WP-016B
S-060502-WP-016C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

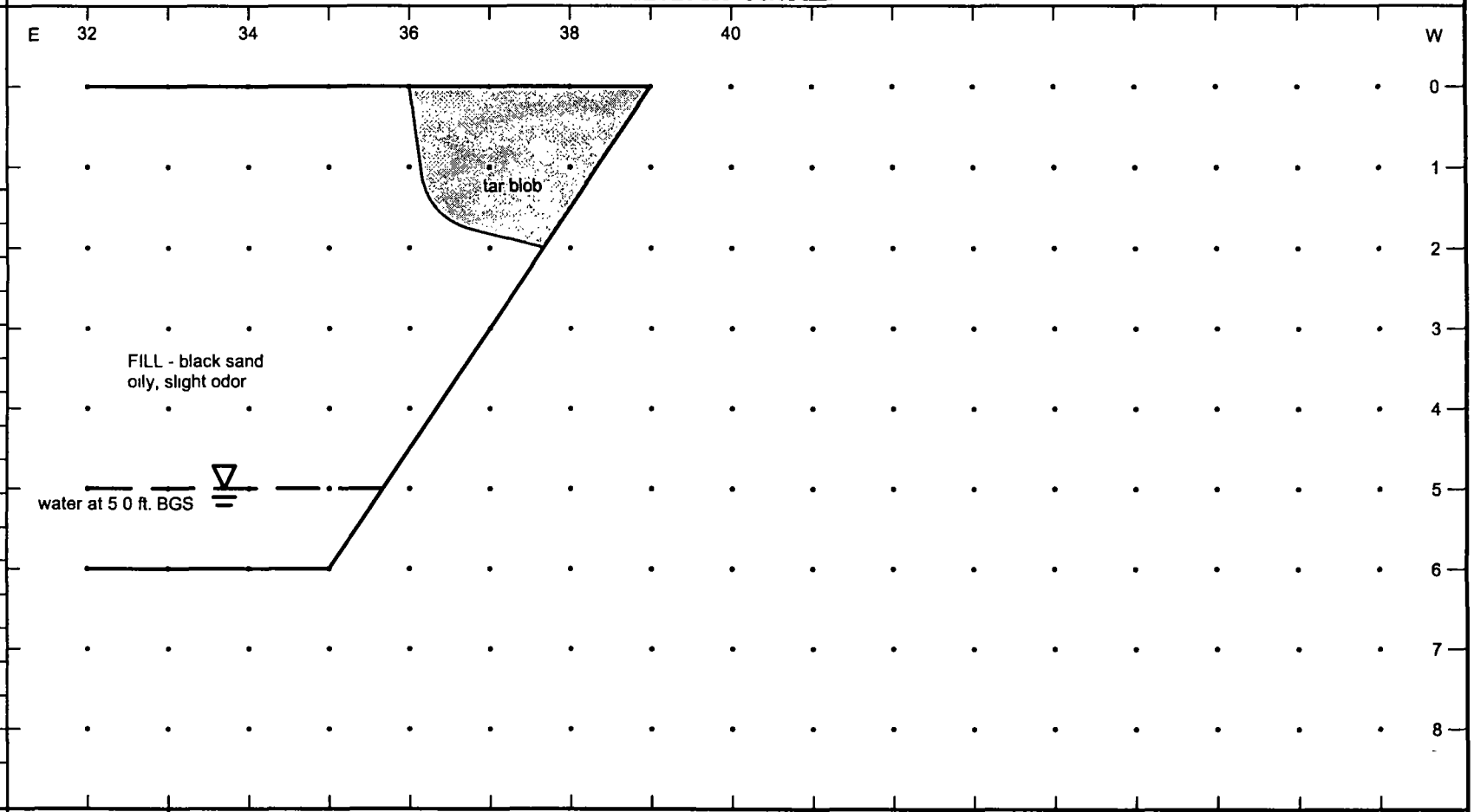
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-104
DATE/TIME STARTED 6/5/02 9:10
DATE/TIME COMPLETED 6/5/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN, ILLINOIS

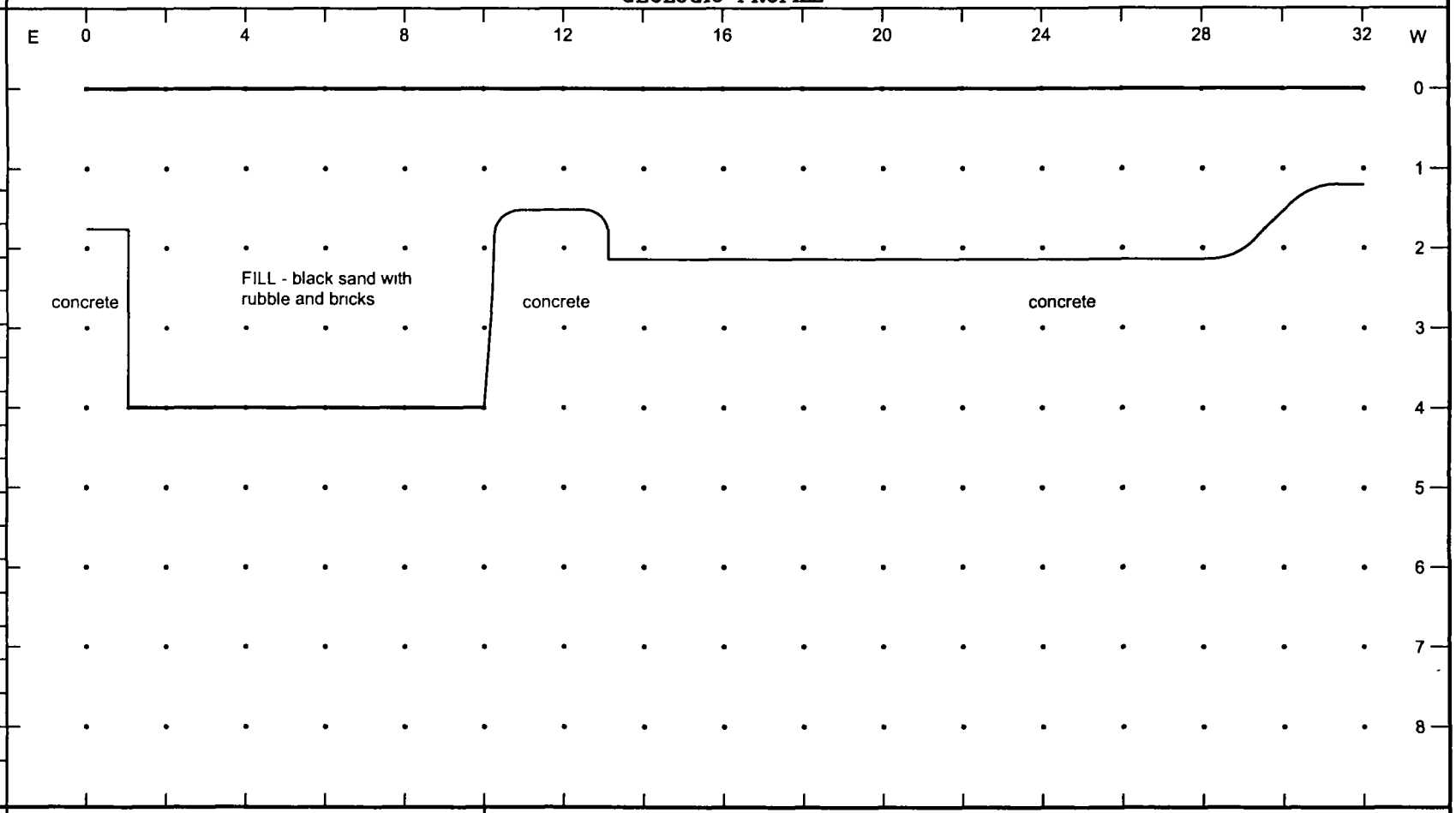
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-105
DATE/TIME STARTED 6/5/02 10:00
DATE/TIME COMPLETED 6/5/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

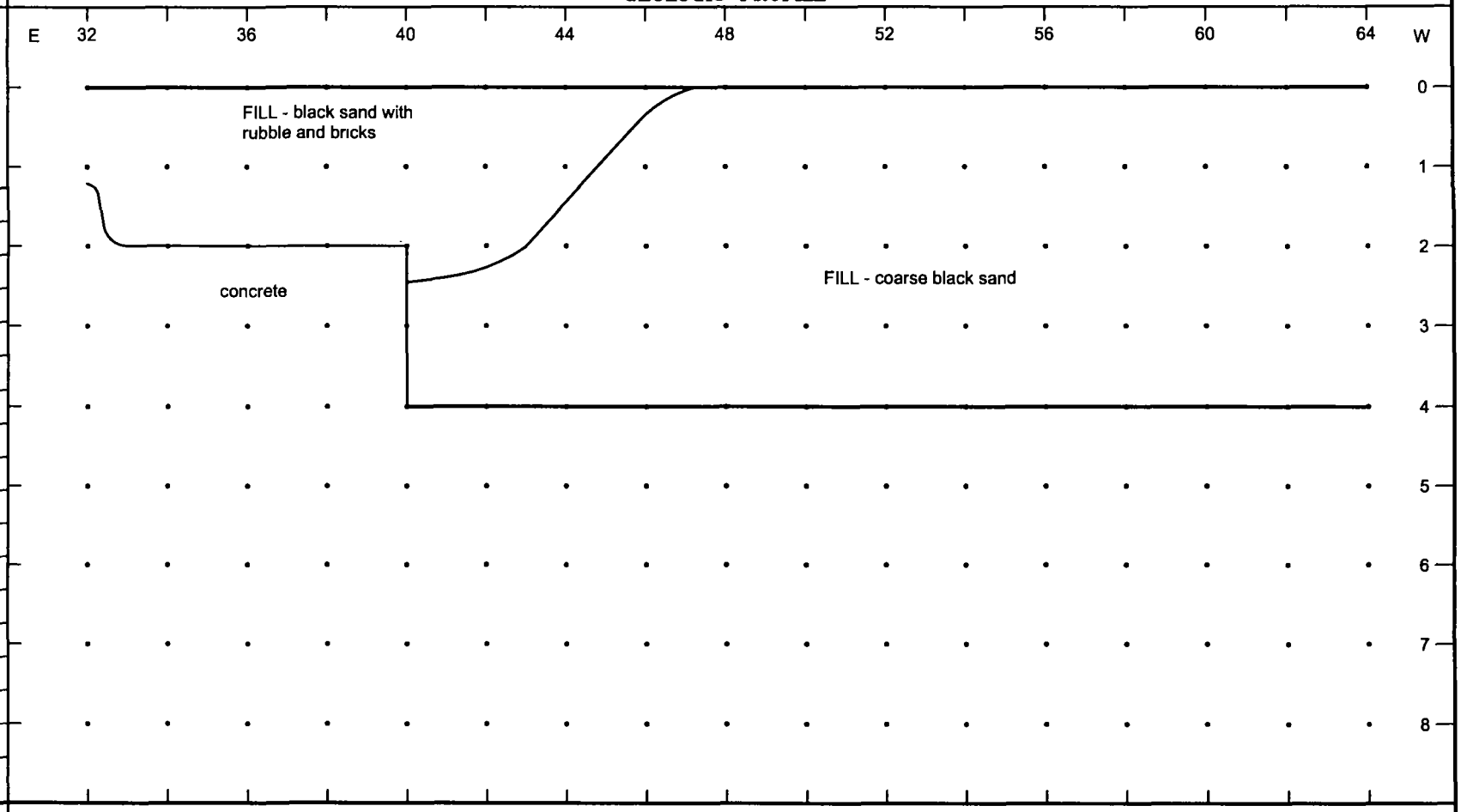
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-105
DATE/TIME STARTED 6/5/02
DATE/TIME COMPLETED 6/5/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

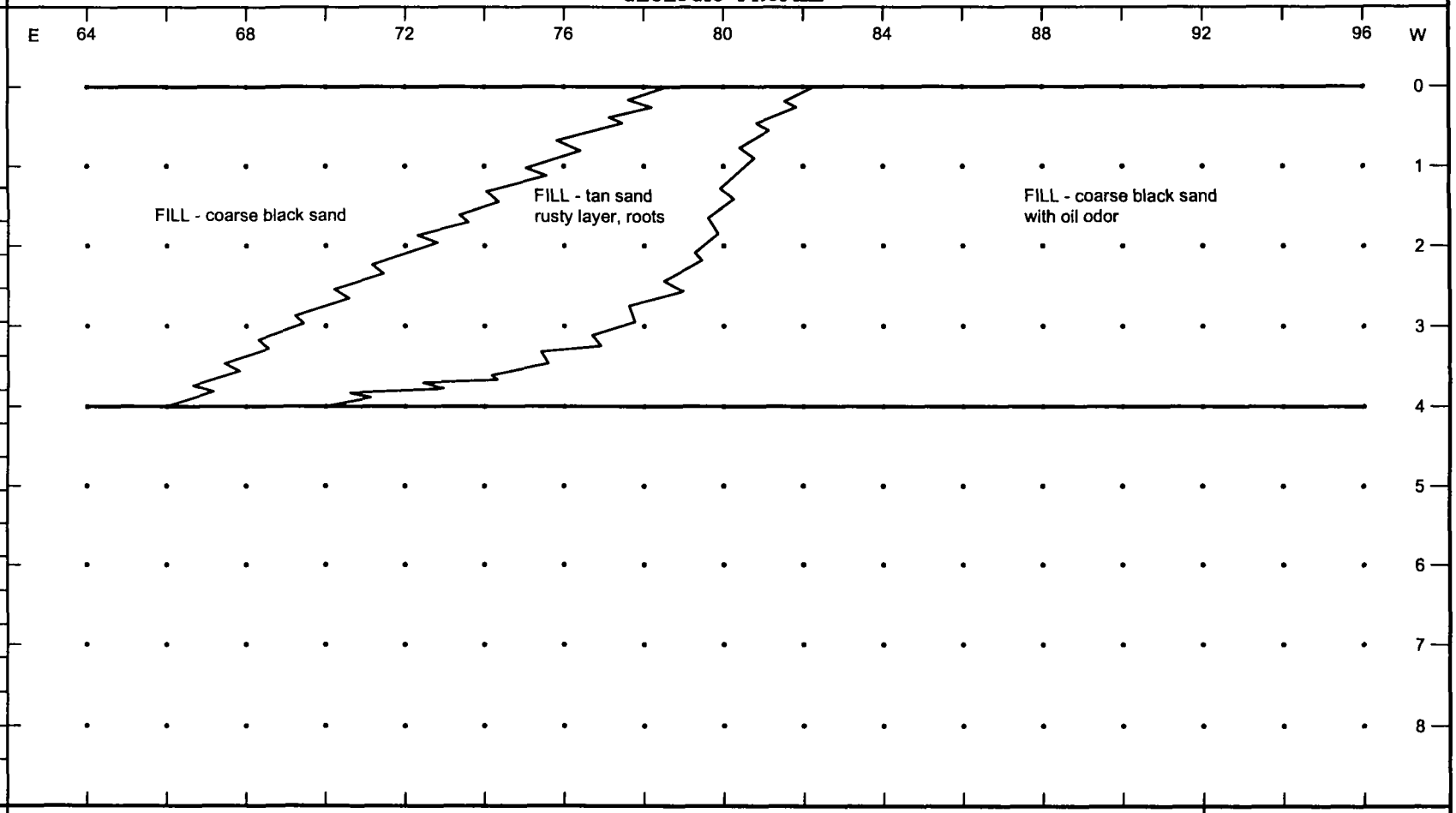
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-105
DATE/TIME STARTED 6/5/02
DATE/TIME COMPLETED 6/5/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060502-WP-019A
S-060502-WP-019B

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-105
DATE/TIME STARTED 6/5/02
DATE/TIME COMPLETED 6/5/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS				GEOLOGIC PROFILE
SAMPLE #	SAMPLE	INTERVA	PID/FI	E 96 100 W
				0
				1
				FILL - coarse black sand with oil odor
				2
				3
				4
				5
				6
				7
				8

NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

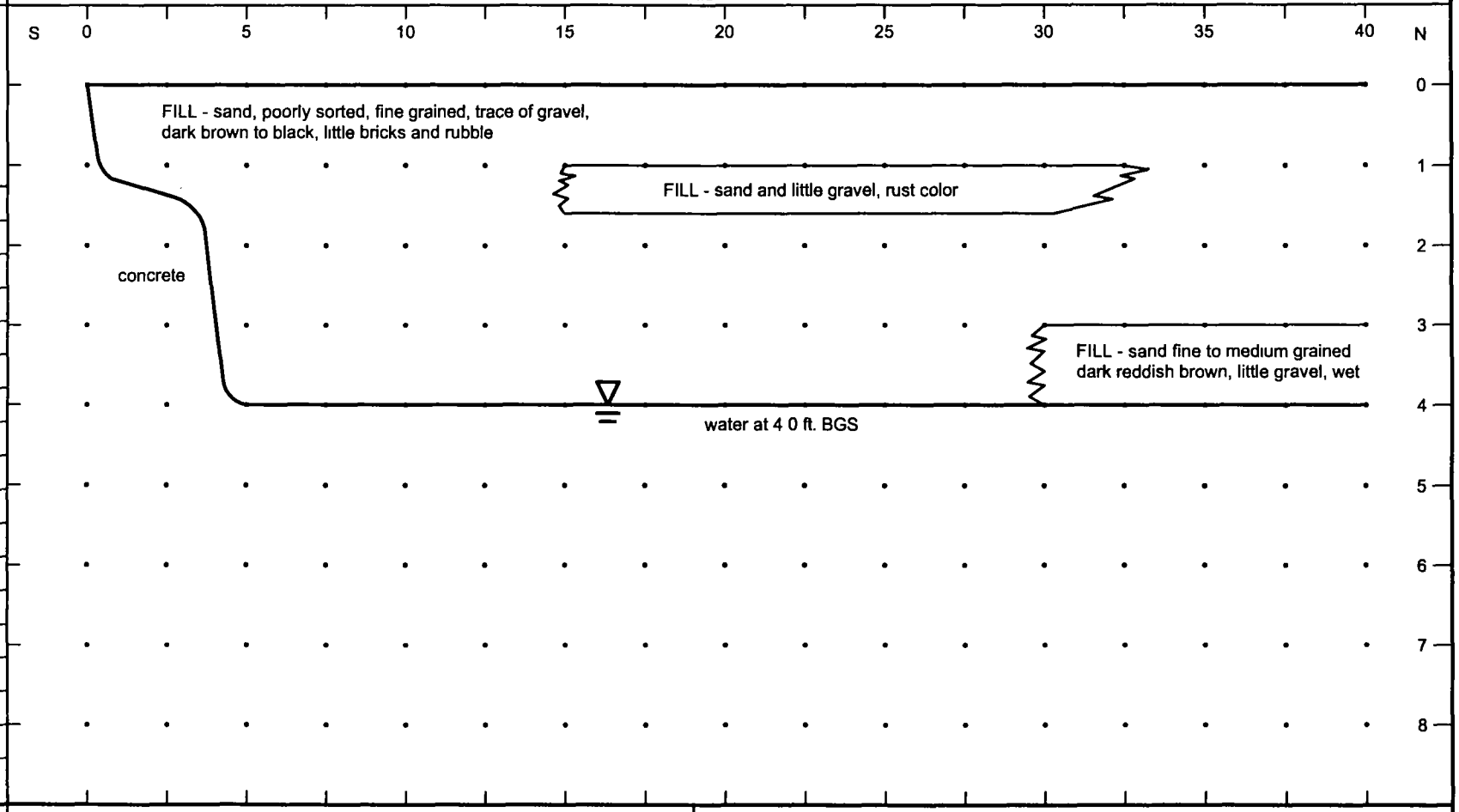
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-106
DATE/TIME STARTED 6/6/02 08:15
DATE/TIME COMPLETED 6/6/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060602-WP-021A
S-060602-WP-021B

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

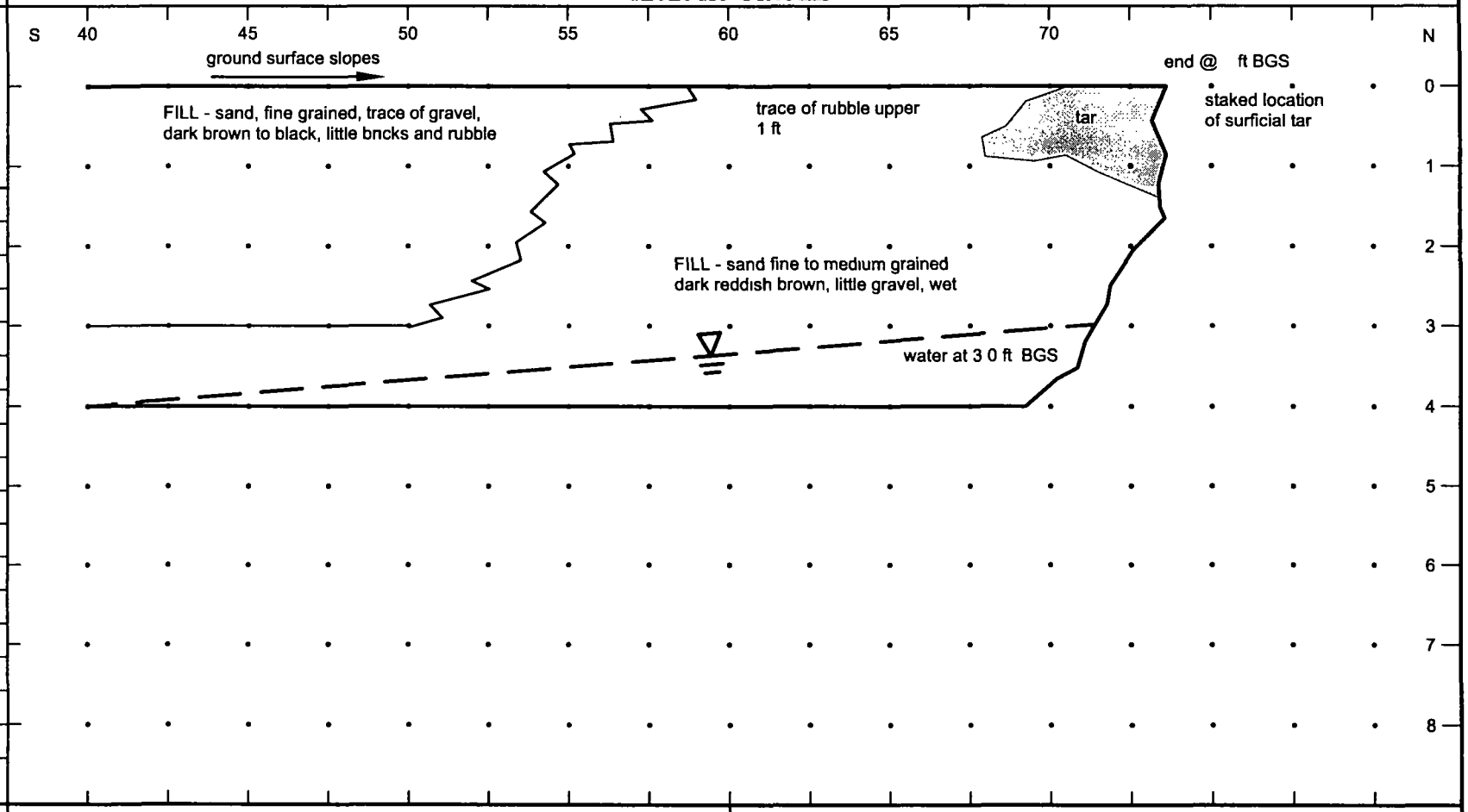
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-106
DATE/TIME STARTED 6/6/02 08:15
DATE/TIME COMPLETED 6/6/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060602-WP-022A 0 - 2
S-060602-WP-022B 2 - 4

TEST PIT STRATIGRAPHY LOG

PROJECT NAME: WAUKEGAN COKE SITE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, ILLINOIS

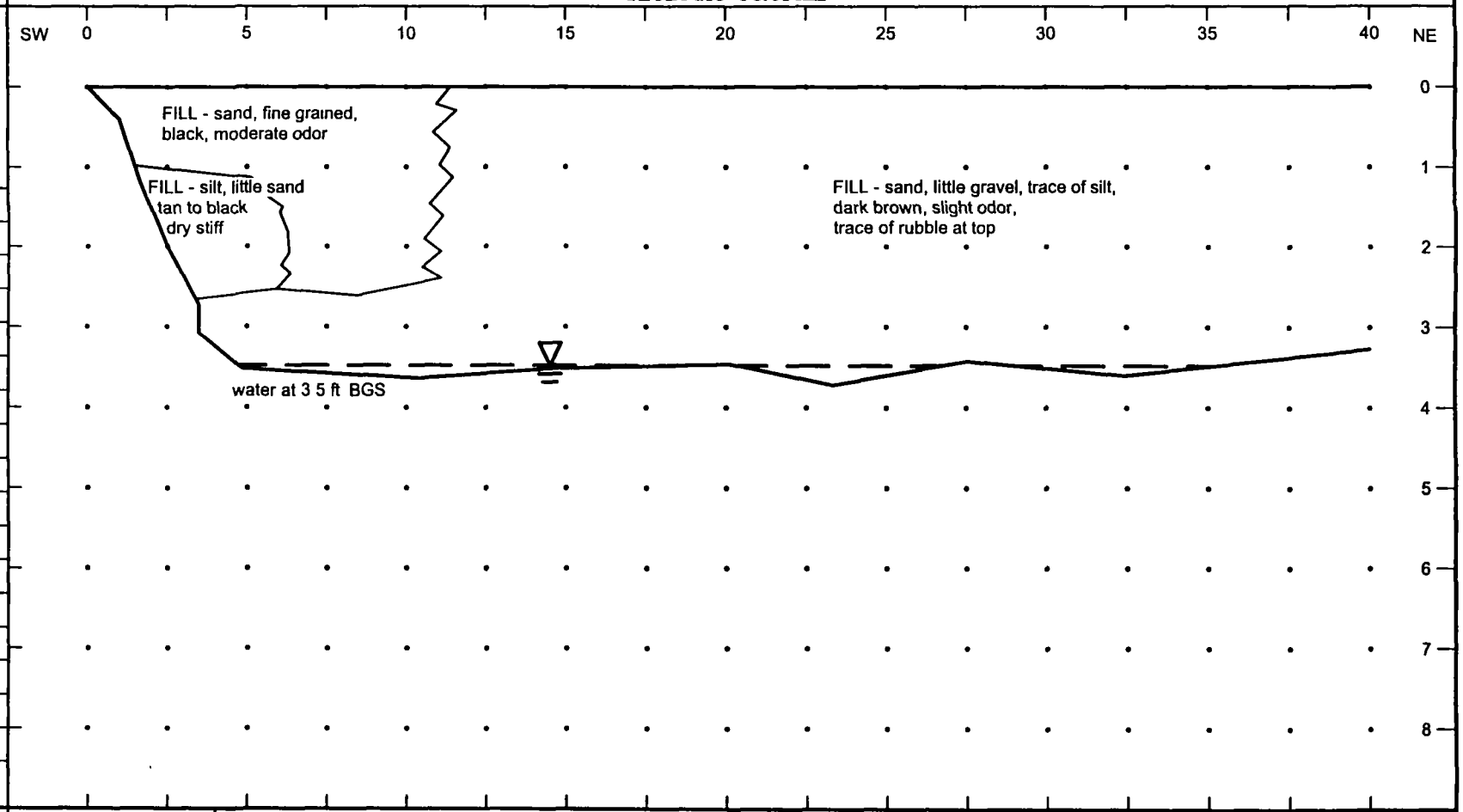
CONTRACTOR: ECI
NAME:
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-107
DATE/TIME STARTED: 6/6/02
DATE/TIME COMPLETED: 6/6/02
TEST PIT METHOD: TRACK HOE
CRA SUPERVISOR: W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060602-WP-023A
S-060602-WP-023B

S-060602-WP-024A
S-060602-WP-024B DUP

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

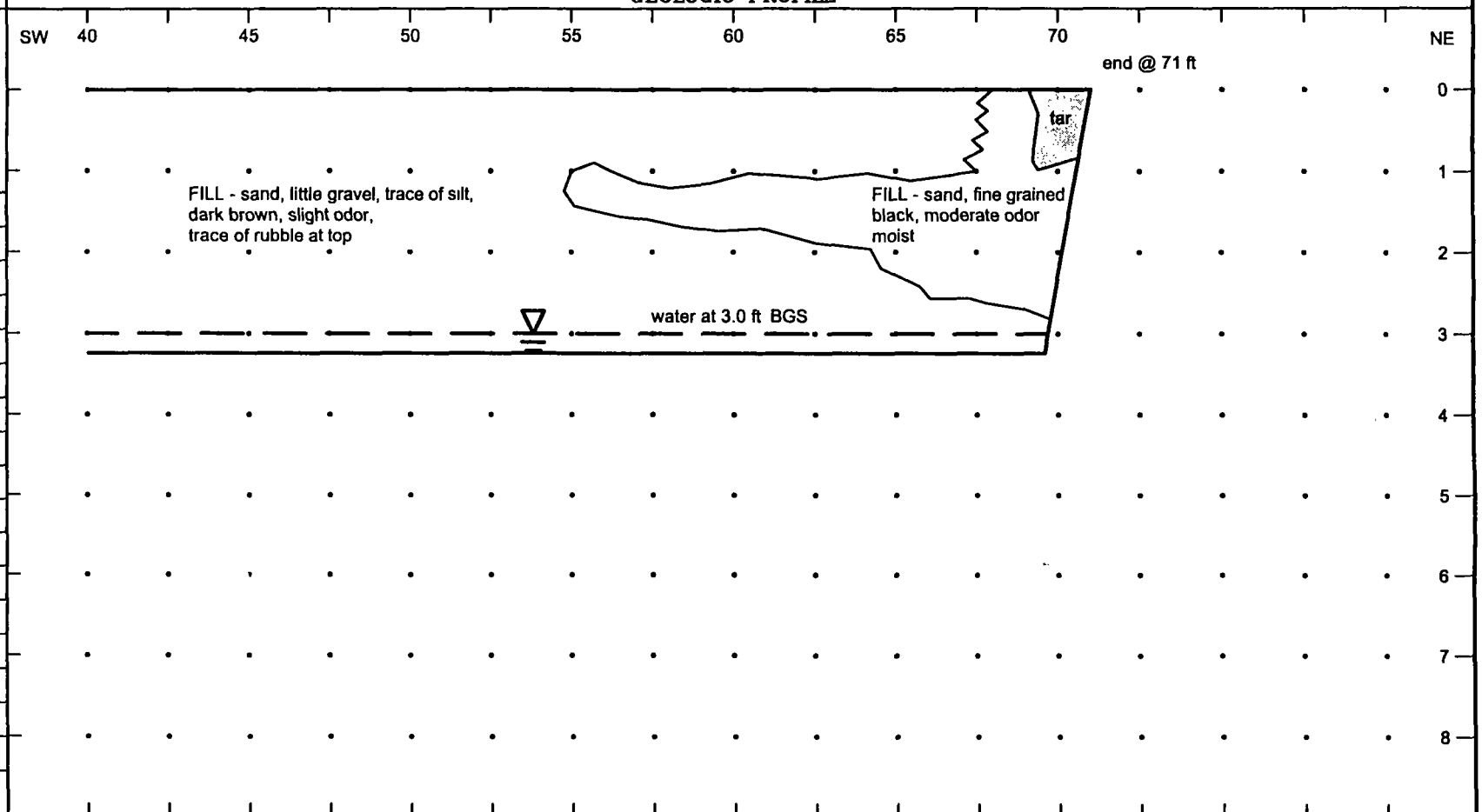
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-107
DATE/TIME STARTED 6/6/02
DATE/TIME COMPLETED 6/6/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060602-WP-026A
S-060602-WP-026B

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

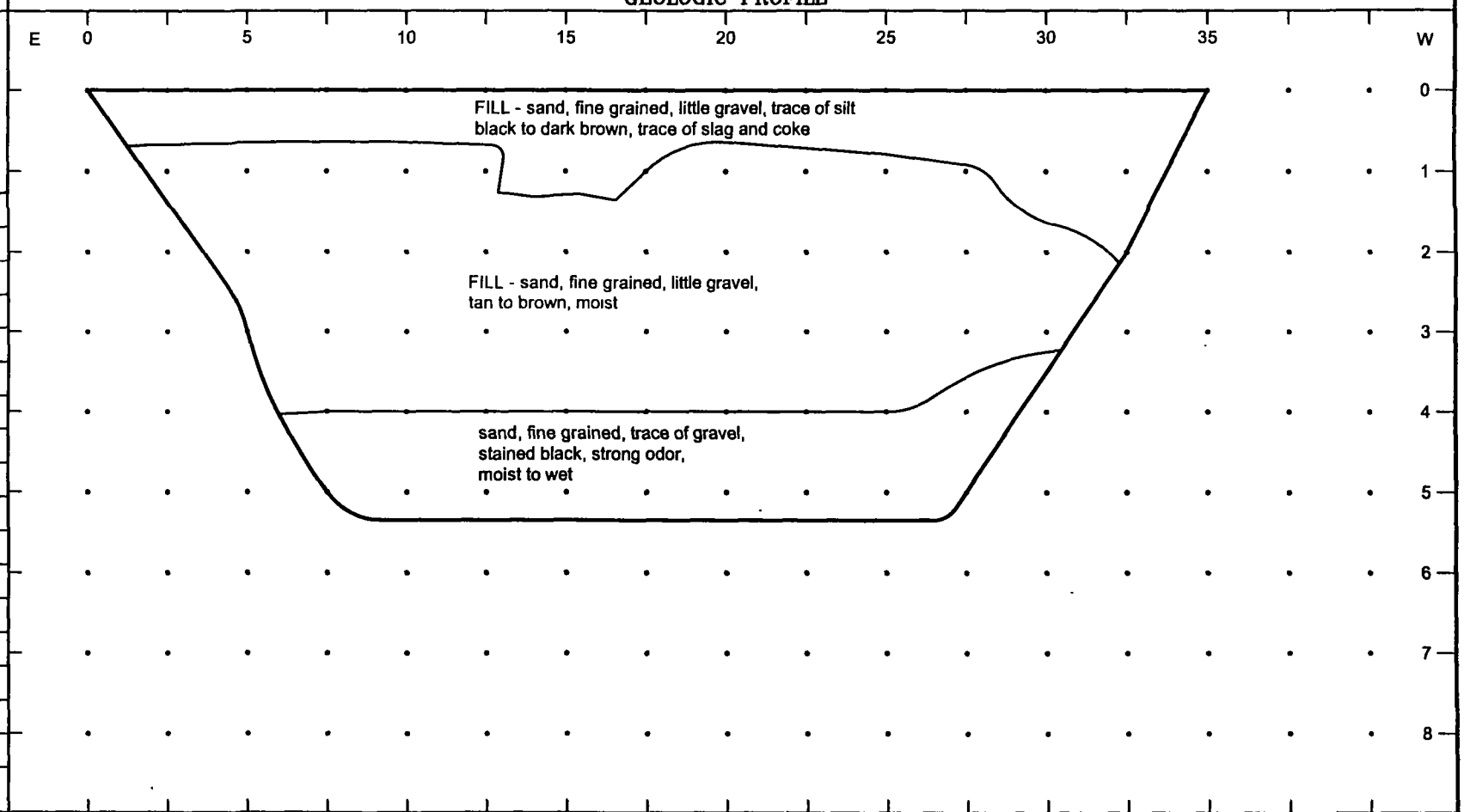
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-108
DATE/TIME STARTED 6/6/02
DATE/TIME COMPLETED 6/6/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060602-WP-027A
S-060602-WP-027B
S-060602-WP-027C

S-060602-WP-028A
S-060602-WP-028B
S-060602-WP-028C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

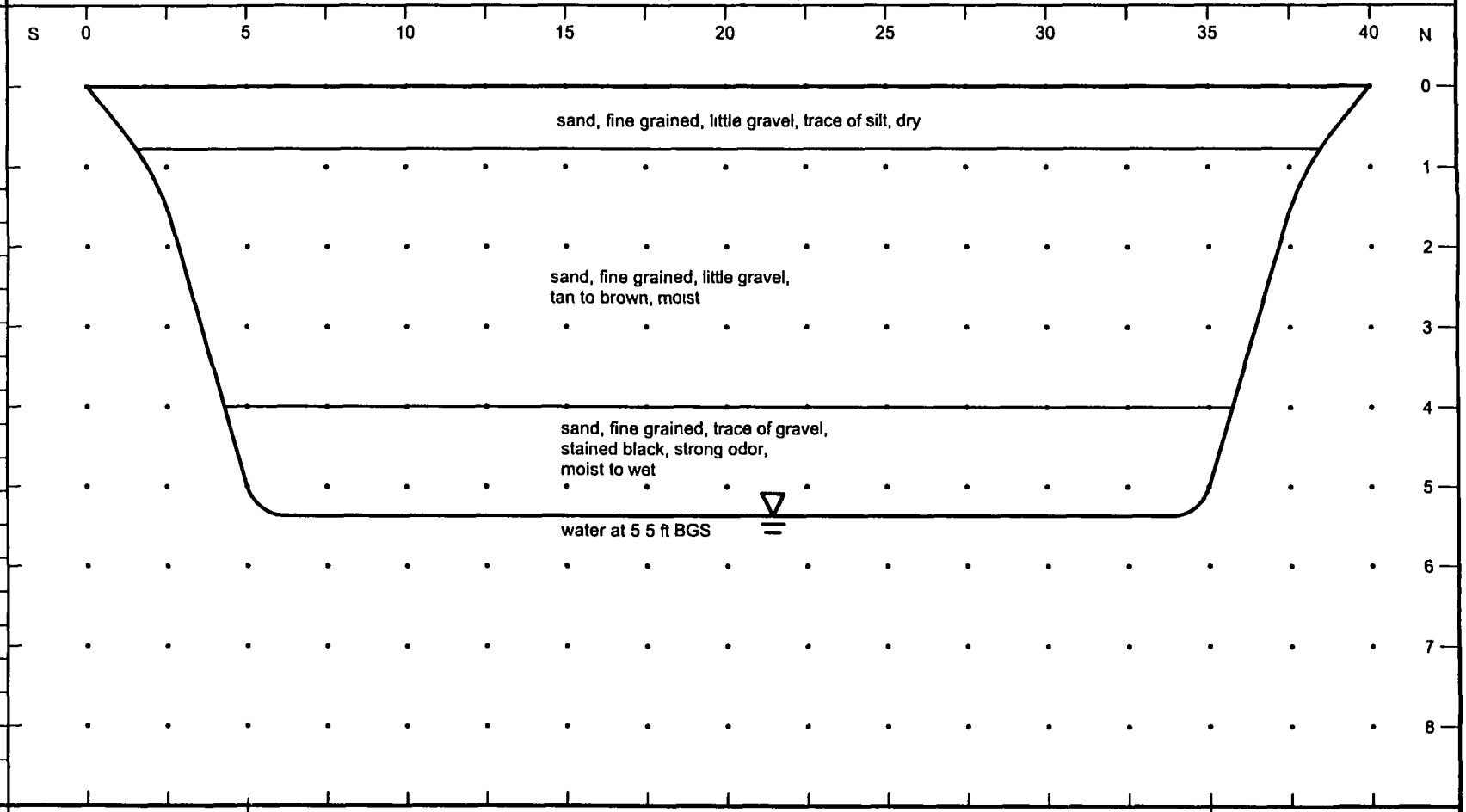
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-109
DATE/TIME STARTED 6/6/02
DATE/TIME COMPLETED 6/6/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060602-WP-030A
S-060602-WP-030B
S-060602-WP-030C

S-060602-WP-031A
S-060602-WP-031B
S-060602-WP-031C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

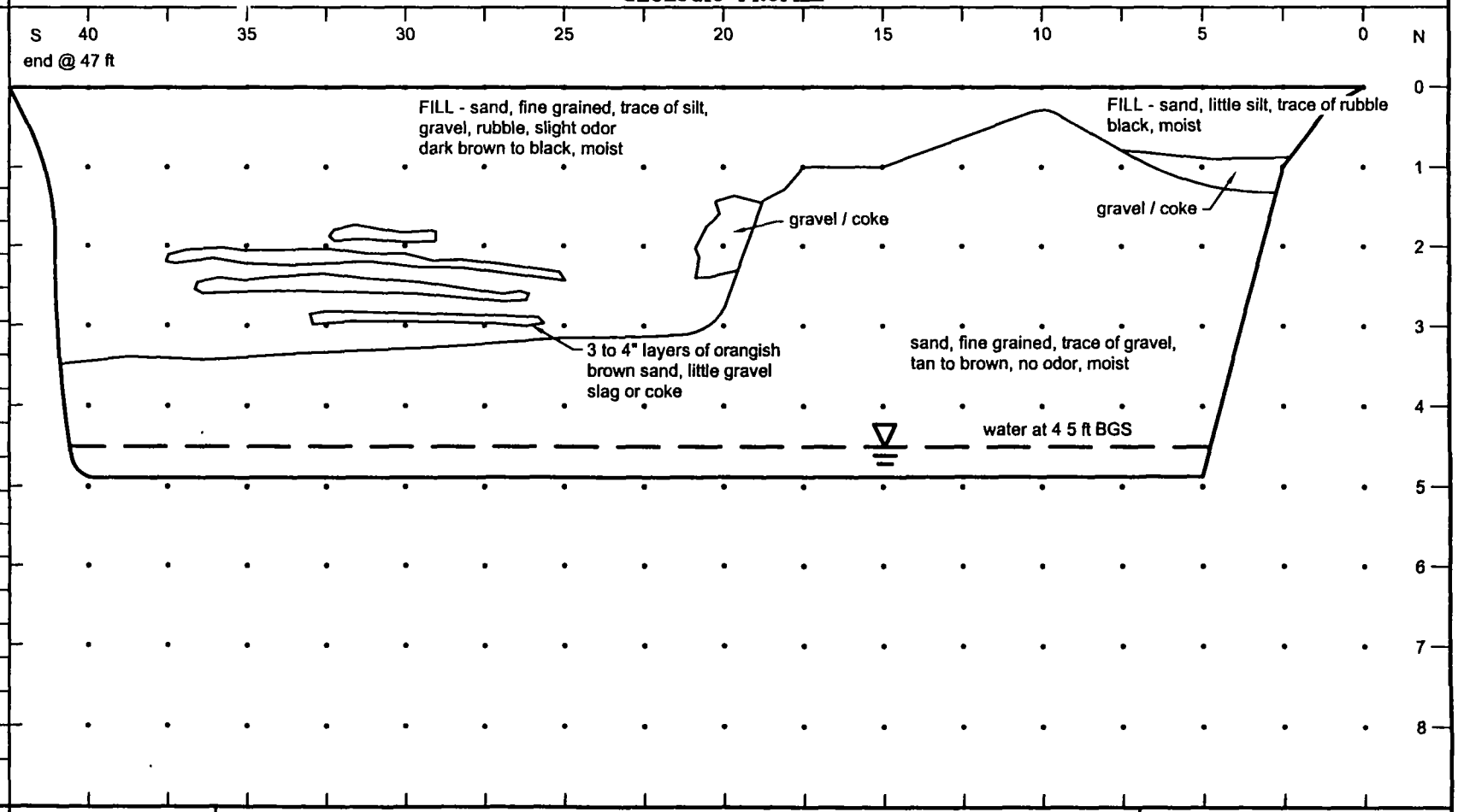
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-110
DATE/TIME STARTED 6/6/02
DATE/TIME COMPLETED 6/6/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060602-WP-033A
S-060602-WP-033B
S-060602-WP-033C

S-060602-WP-032A
S-060602-WP-032B
S-060602-WP-032C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

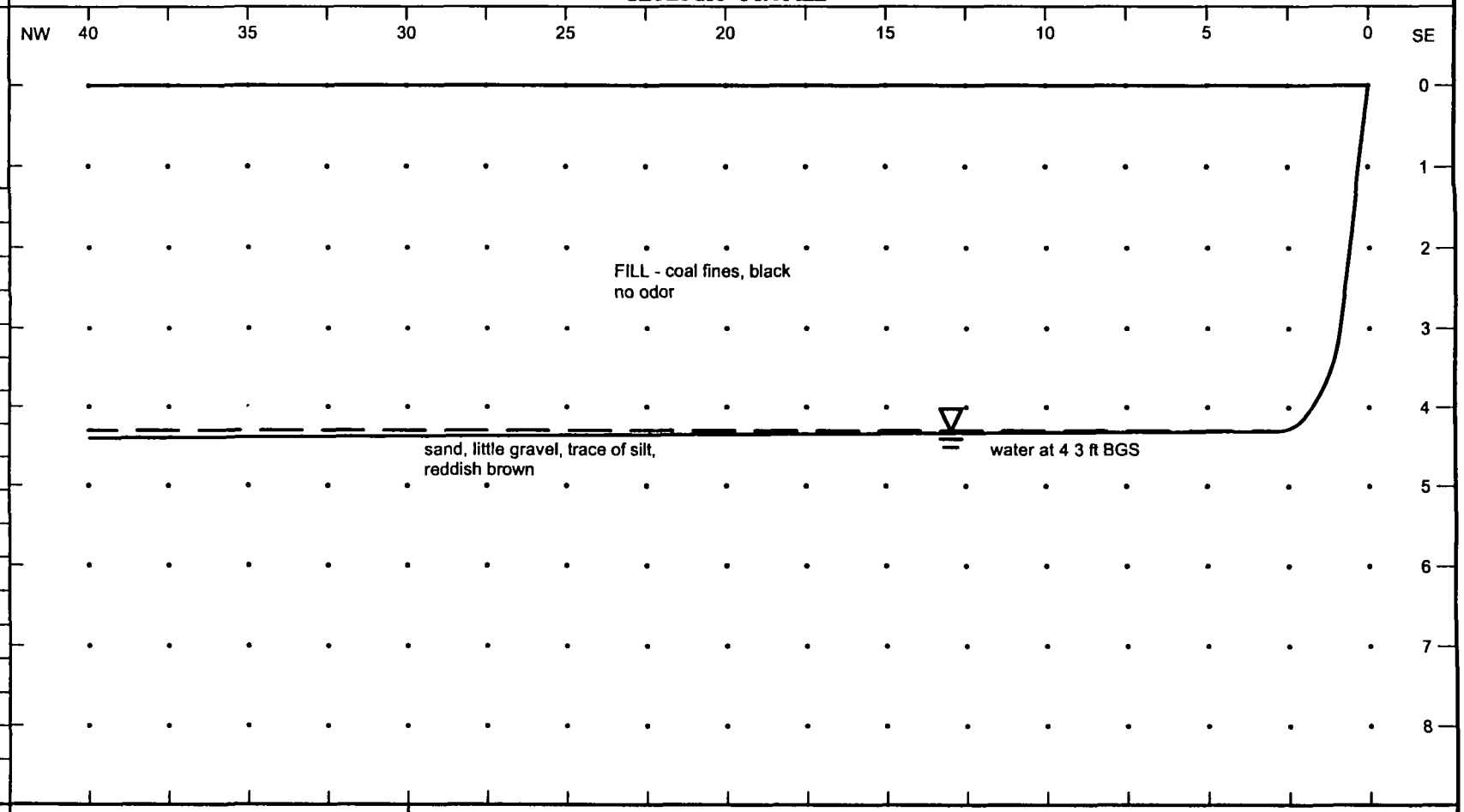
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-111
DATE/TIME STARTED 6/6/02 12:30
DATE/TIME COMPLETED 6/6/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN, ILLINOIS

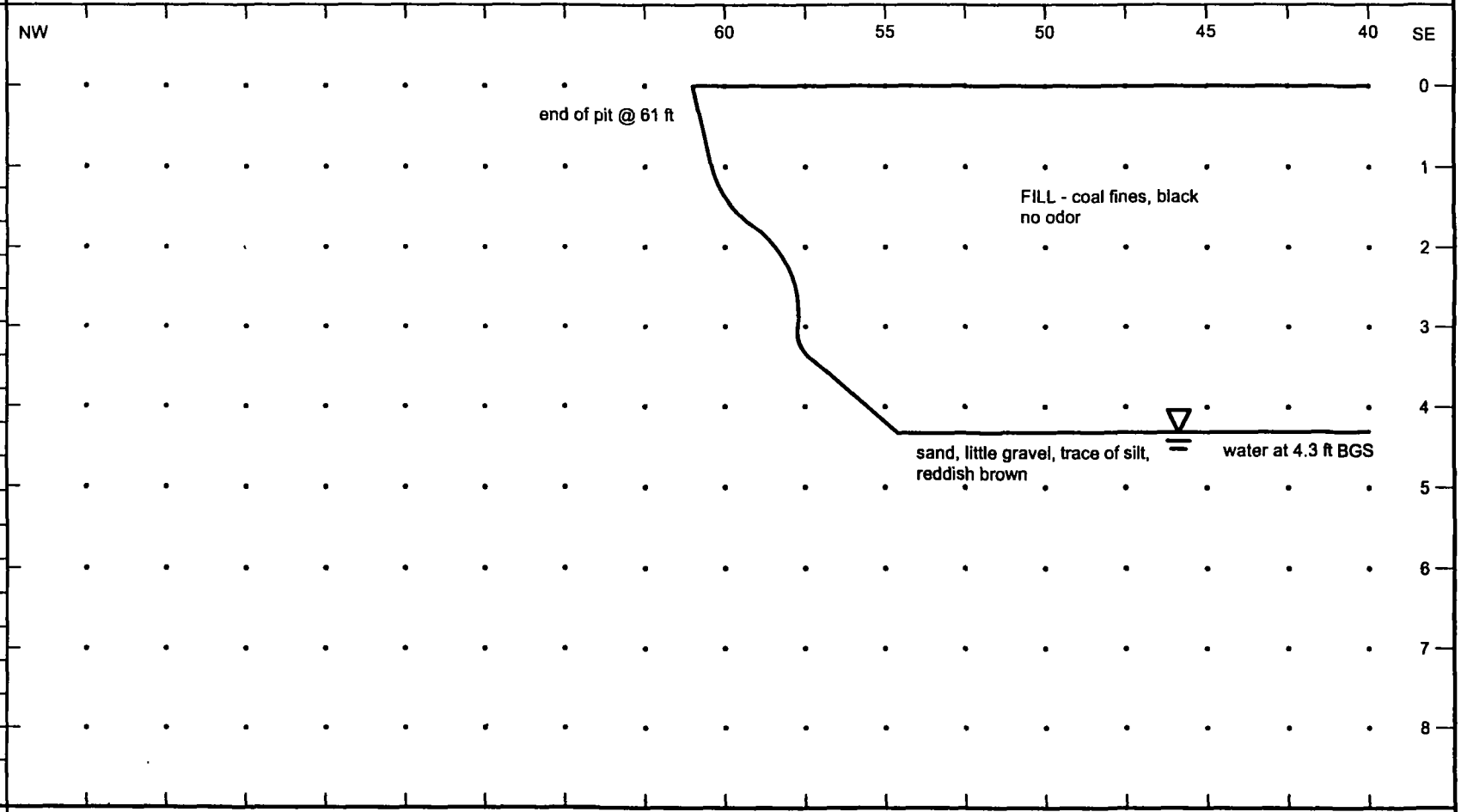
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-111
DATE/TIME STARTED 6/6/02
DATE/TIME COMPLETED 6/6/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN, ILLINOIS

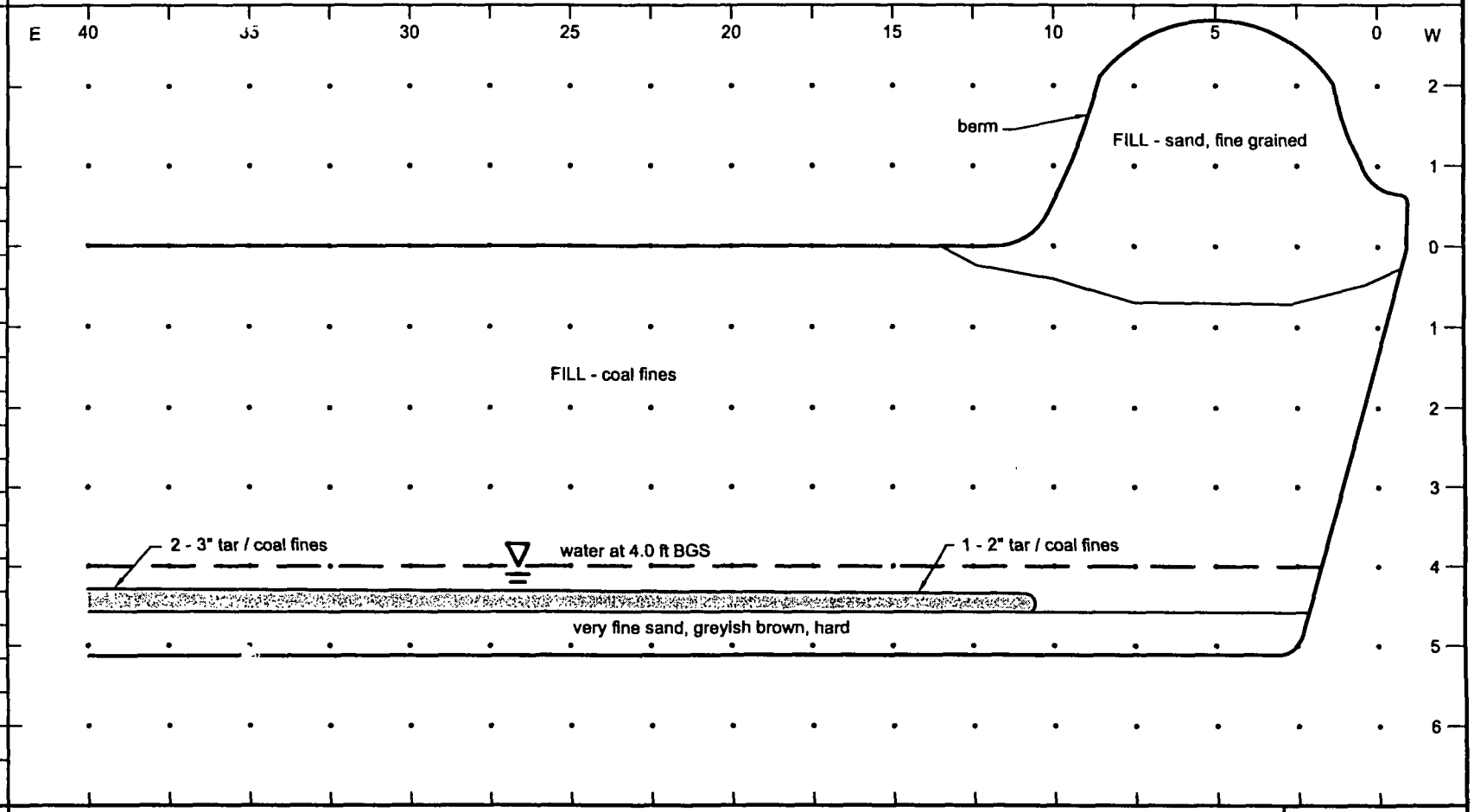
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-112
DATE/TIME STARTED 6/6/02
DATE/TIME COMPLETED 6/6/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060602-WP-036

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

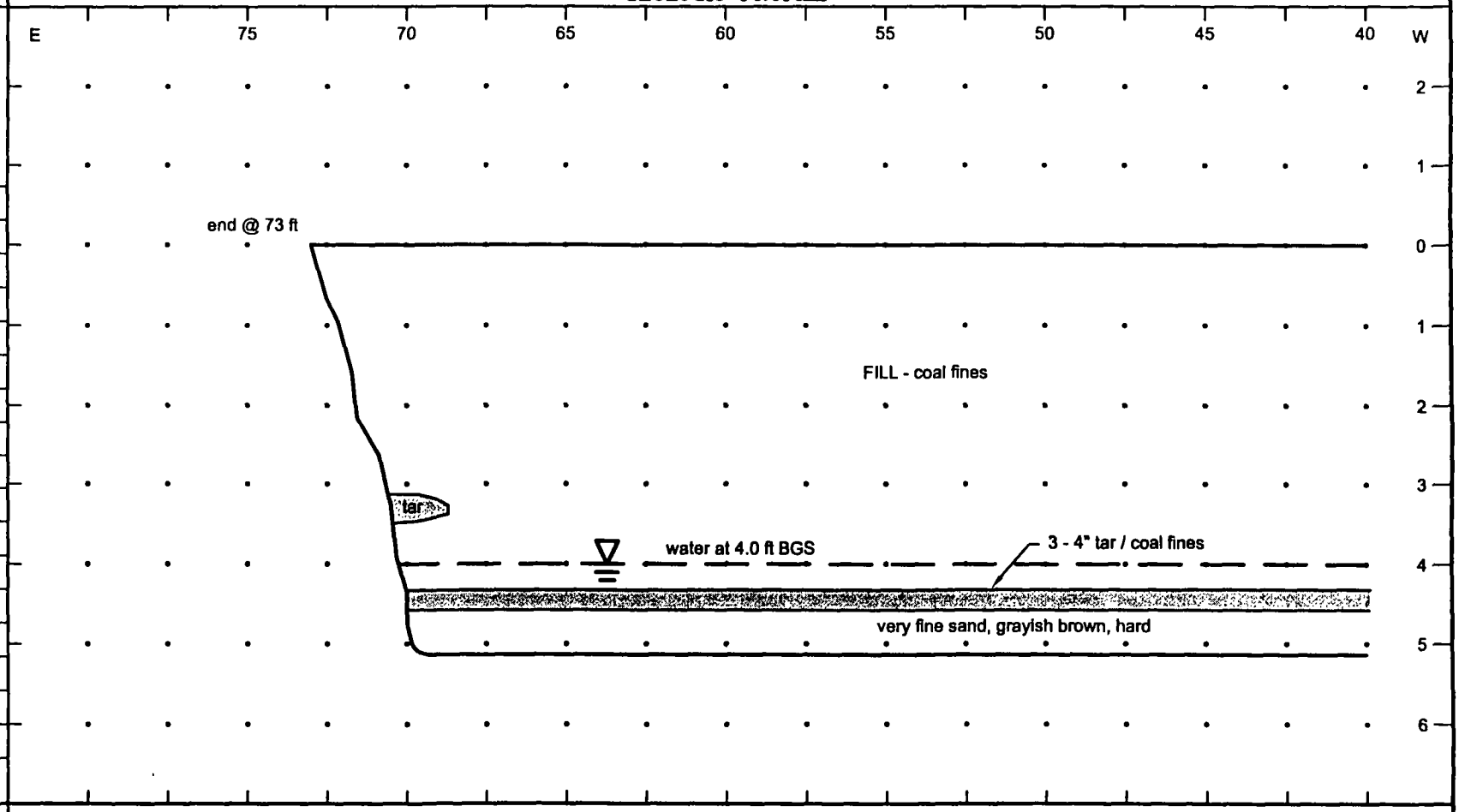
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-112
DATE/TIME STARTED 6/6/02
DATE/TIME COMPLETED 6/6/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

PROJECT NAME: WAUKEGAN COKE SITE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, ILLINOIS

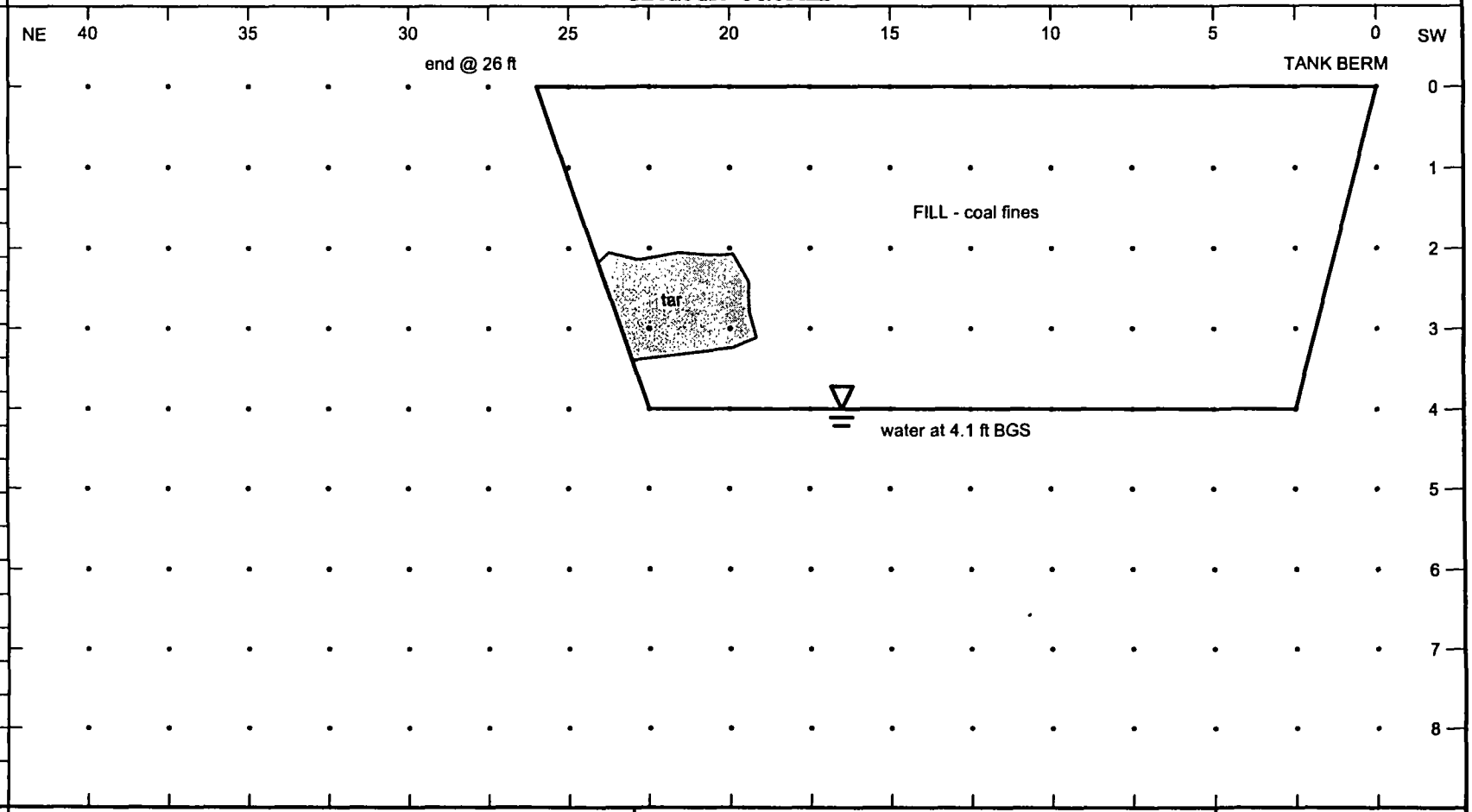
CONTRACTOR: ECI
NAME:
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-113
DATE/TIME STARTED: 6/6/02 14:27
DATE/TIME COMPLETED: 6/6/02
TEST PIT METHOD: TRACK HOE
CRA SUPERVISOR: W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060602-WP-040
S-060602-WP-041 DUP

S-060602-WP-039A
S-060602-WP-039B

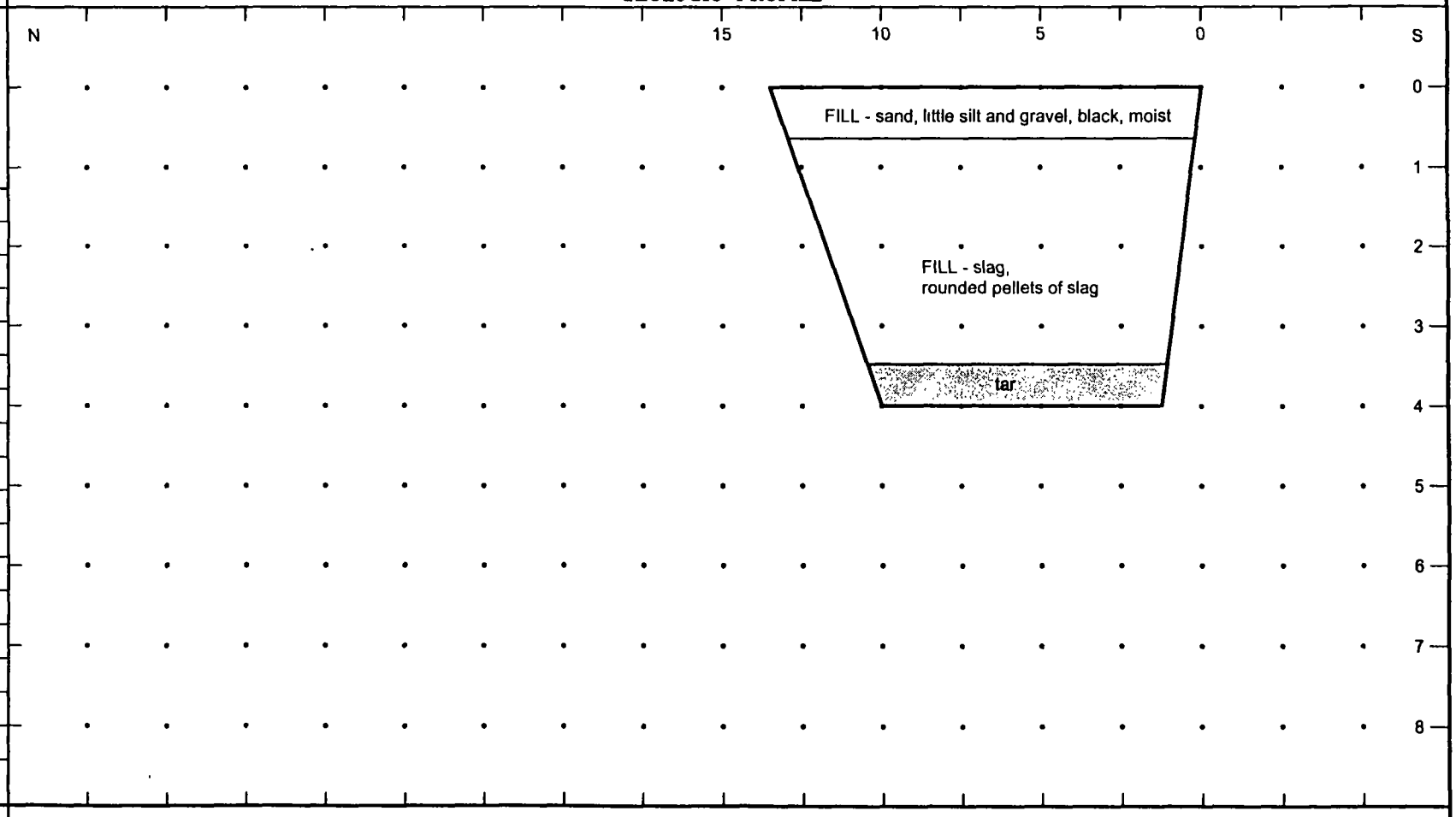
TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-114
DATE/TIME STARTED 6/6/02
DATE/TIME COMPLETED 6/6/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS				GEOLOGIC PROFILE
SAMPLE #	SAMPLE	INTERVA	PID/FI	



NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

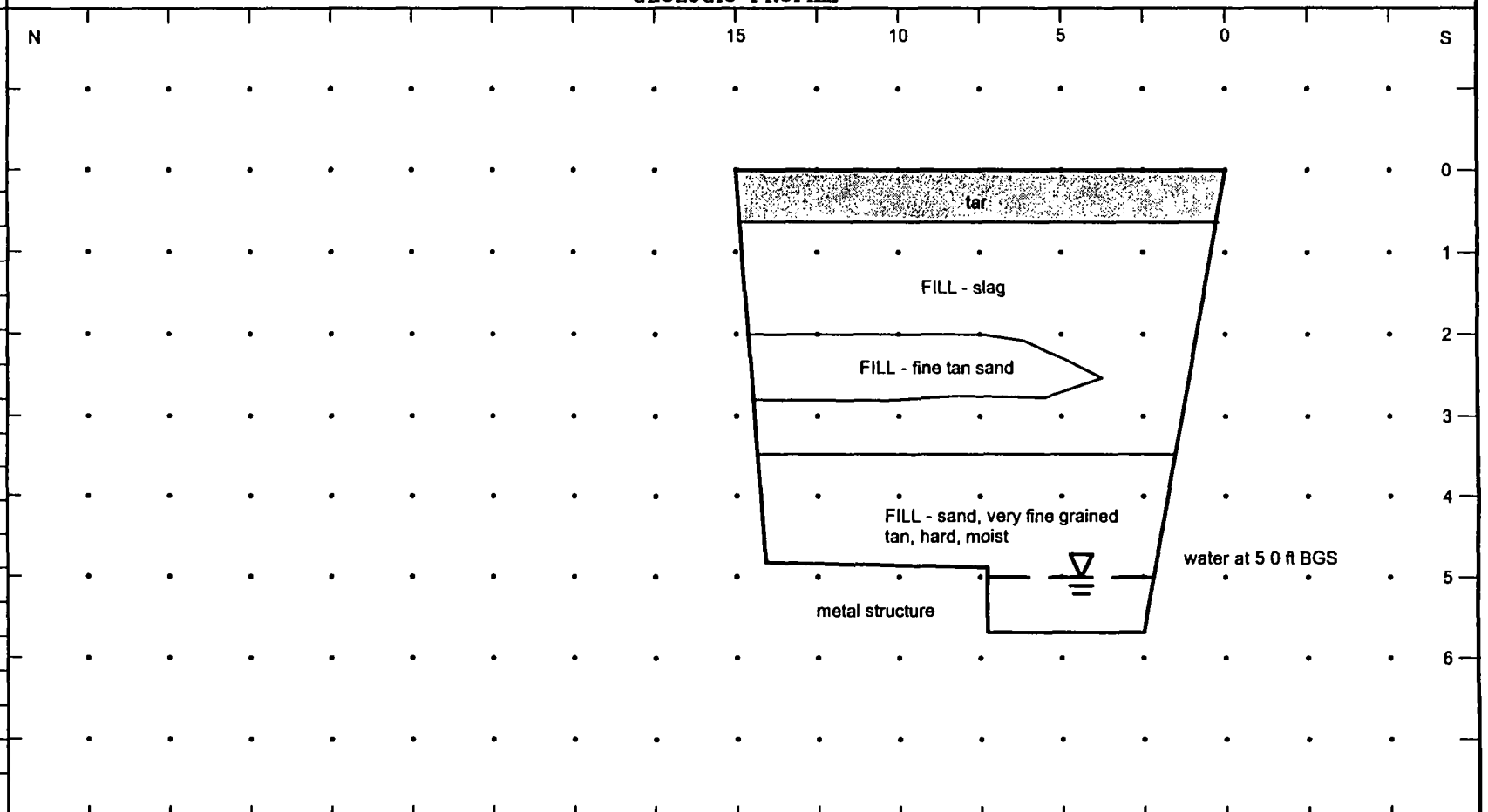
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-115
DATE/TIME STARTED 6/6/02
DATE/TIME COMPLETED 6/6/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060602-WP-044A 1 - 3
S-060602-WP-044B 3 - 5

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

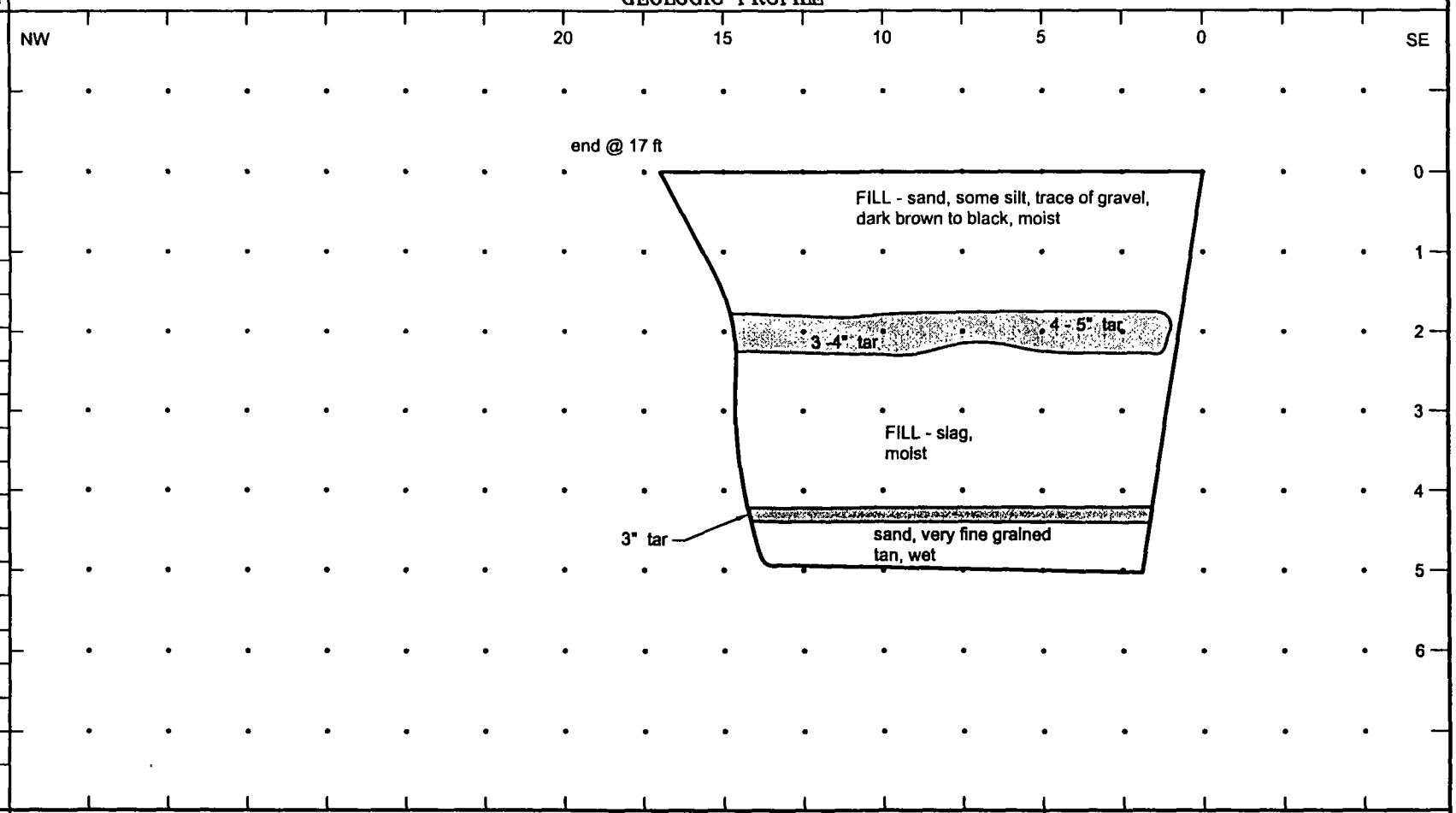
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-116
DATE/TIME STARTED 6/6/02 15:36
DATE/TIME COMPLETED 6/6/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

ADJACENT TO TANK FOUNDATION

S-060602-WP-045 5

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

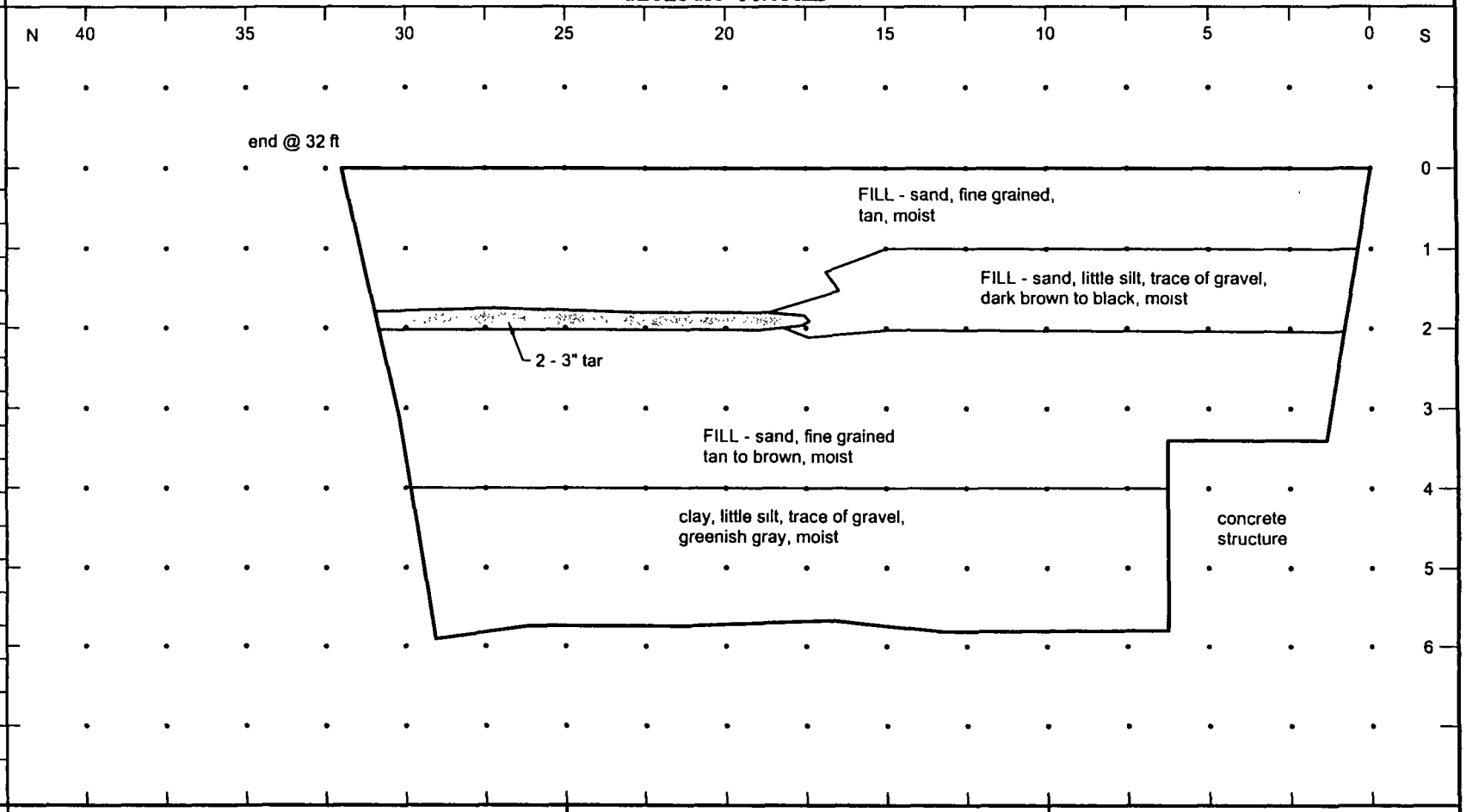
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-117
DATE/TIME STARTED 6/6/02
DATE/TIME COMPLETED 6/6/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

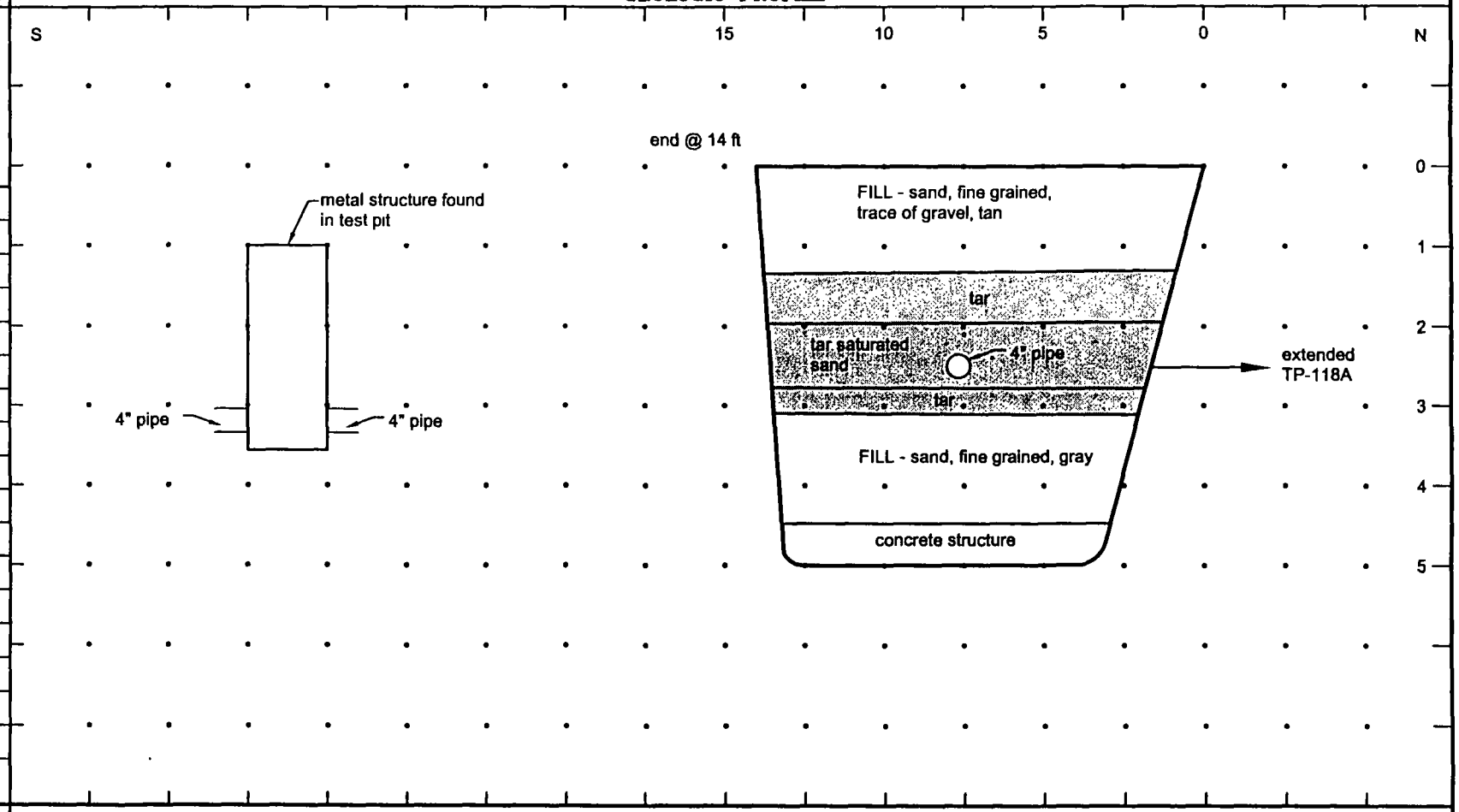
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-118
DATE/TIME STARTED 6/7/02 08:10
DATE/TIME COMPLETED 6/7/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

4" PIPELINE RAN E-W IN CENTER OF EXCAVATION WE FOUND METAL STRUTURE.

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

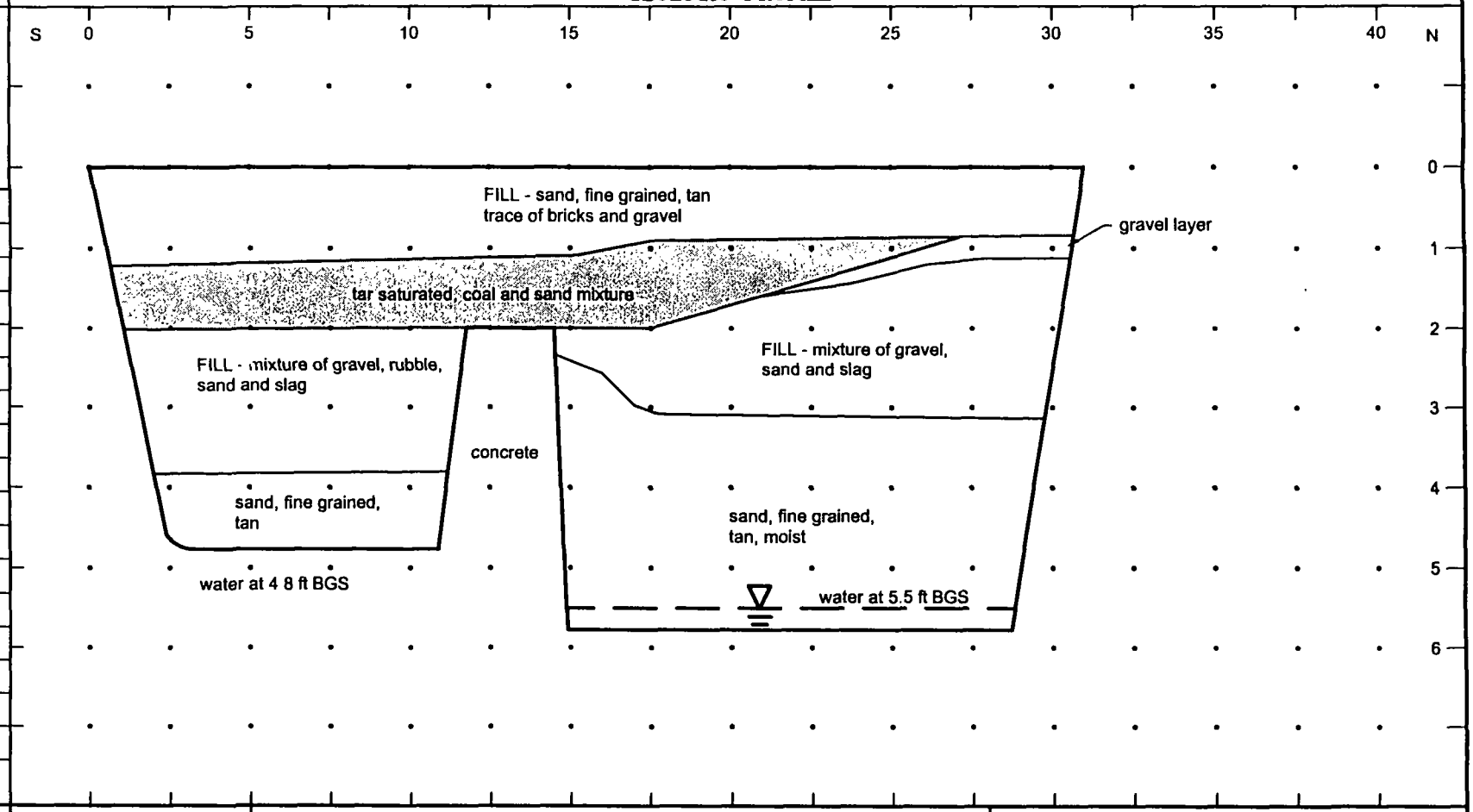
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-118A
DATE/TIME STARTED 6/7/02
DATE/TIME COMPLETED 6/7/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060702-WP-049A
S-060702-WP-049B
S-060702-WP-049C ms/msd
S-060702-WP-052 Geotech

S-060702-WP-050A
S-060702-WP-050B
S-060702-WP-050C
S-060702-WP-051 DUP

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

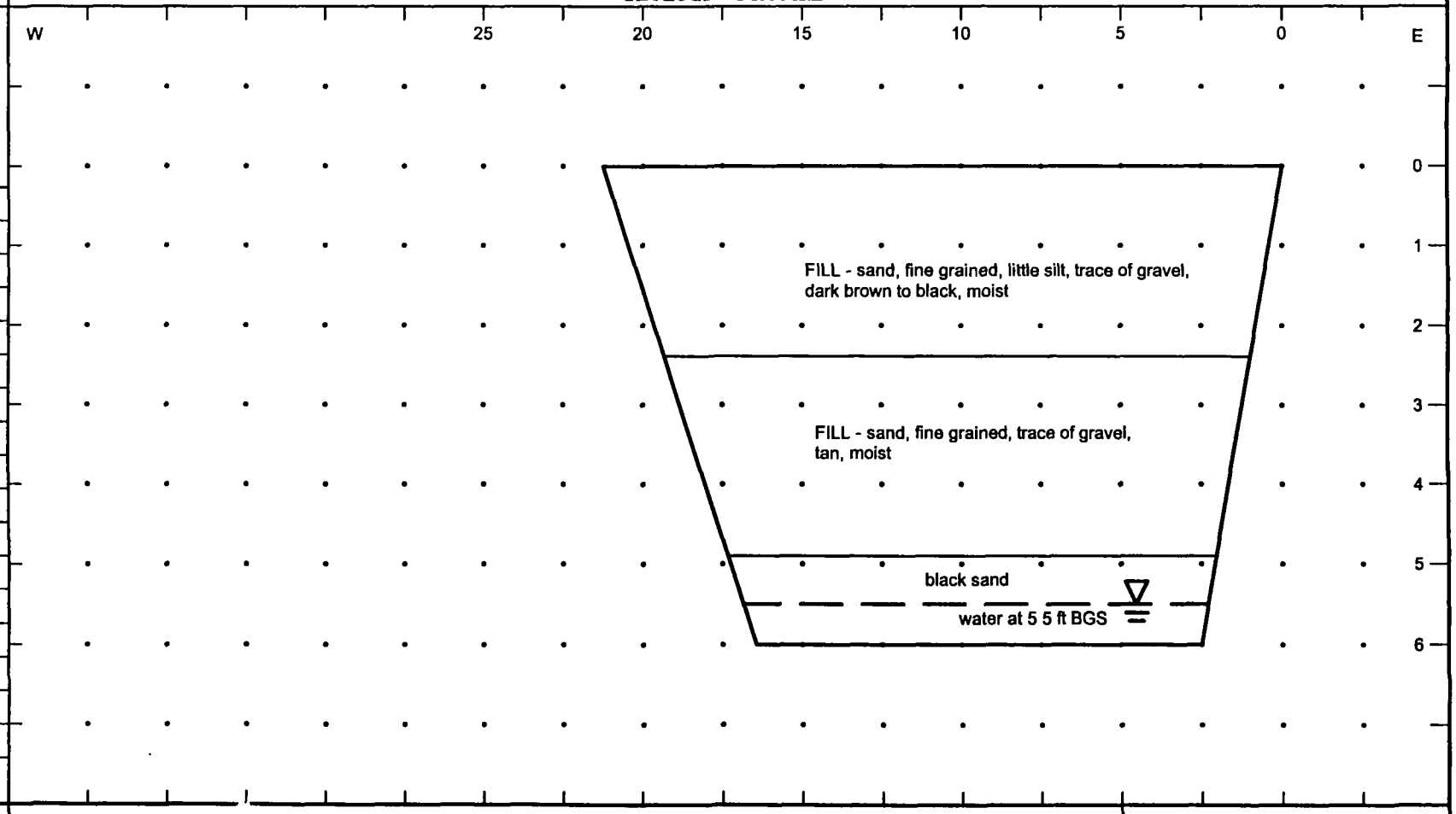
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-119
DATE/TIME STARTED 6/7/02
DATE/TIME COMPLETED 6/7/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

NO ODORS

S-060702-WP-048A
S-060702-WP-048B
S-060702-WP-048C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN, ILLINOIS

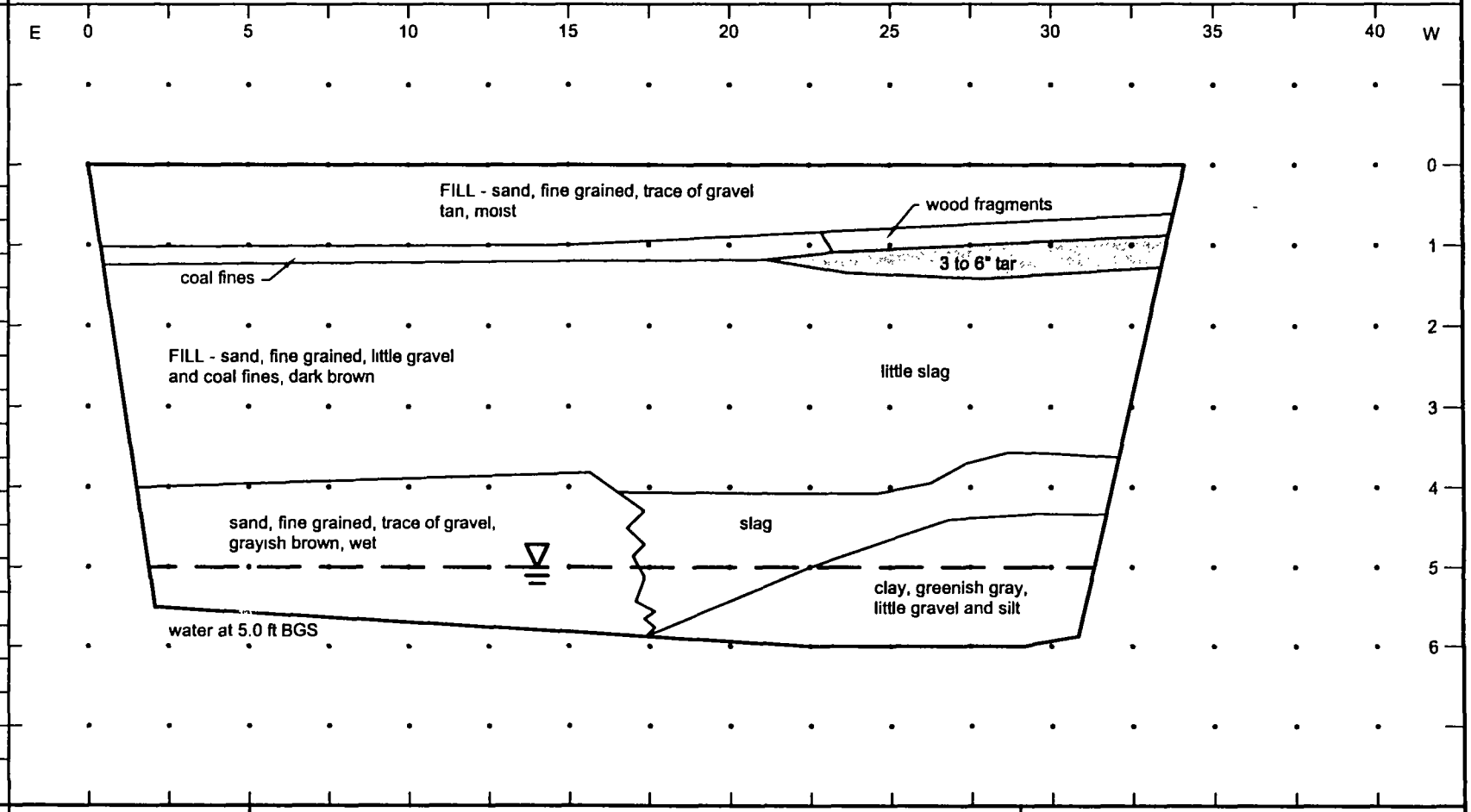
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-120
DATE/TIME STARTED 6/7/02
DATE/TIME COMPLETED 6/7/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060702-WP-054A
S-060702-WP-054B
S-060702-WP-054C
S-060702-WP-056

Geotechnical composite of 2' to 4' interval

S-060702-WP-055A
S-060702-WP-055B
S-060702-WP-055C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

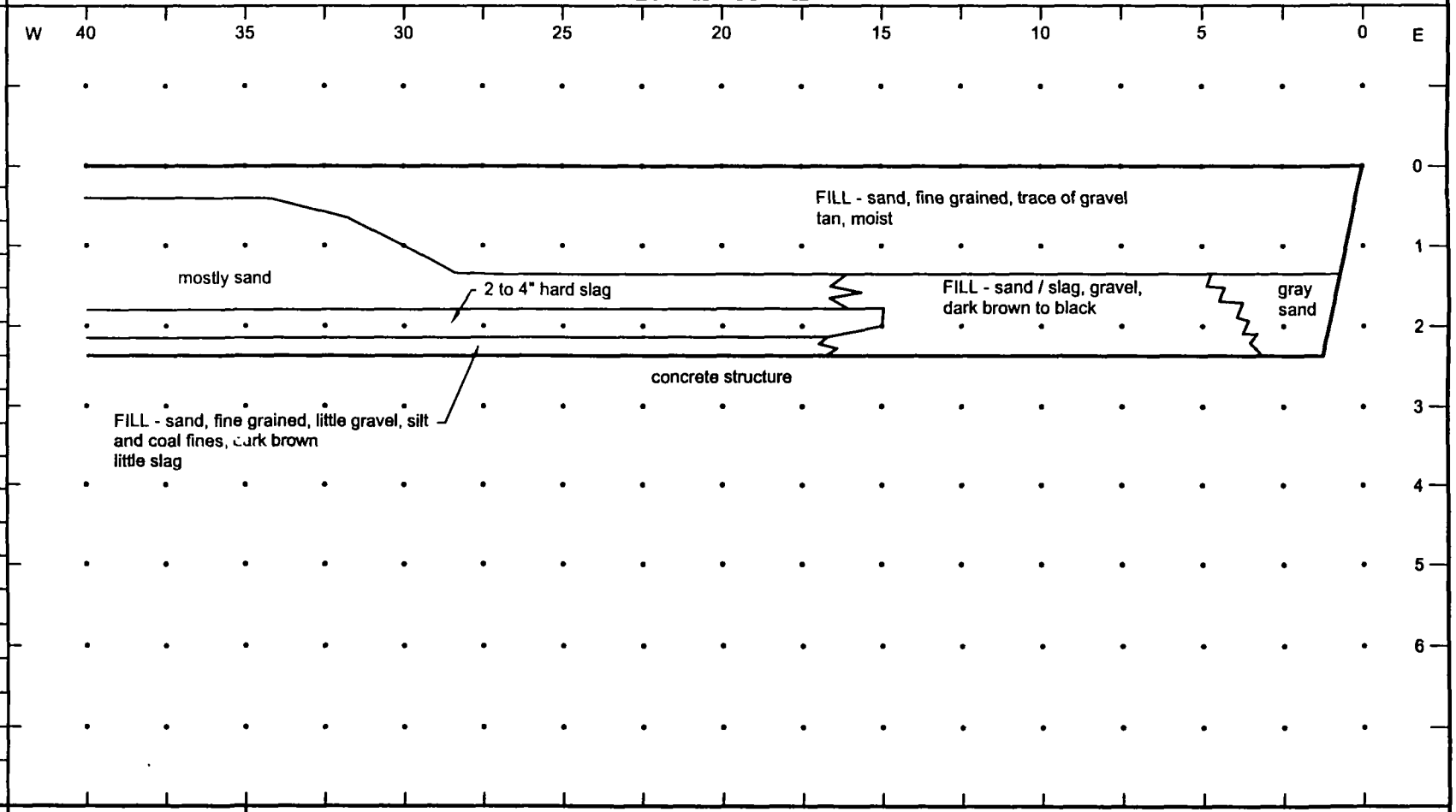
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-121
DATE/TIME STARTED 6/7/02
DATE/TIME COMPLETED 6/7/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN, ILLINOIS

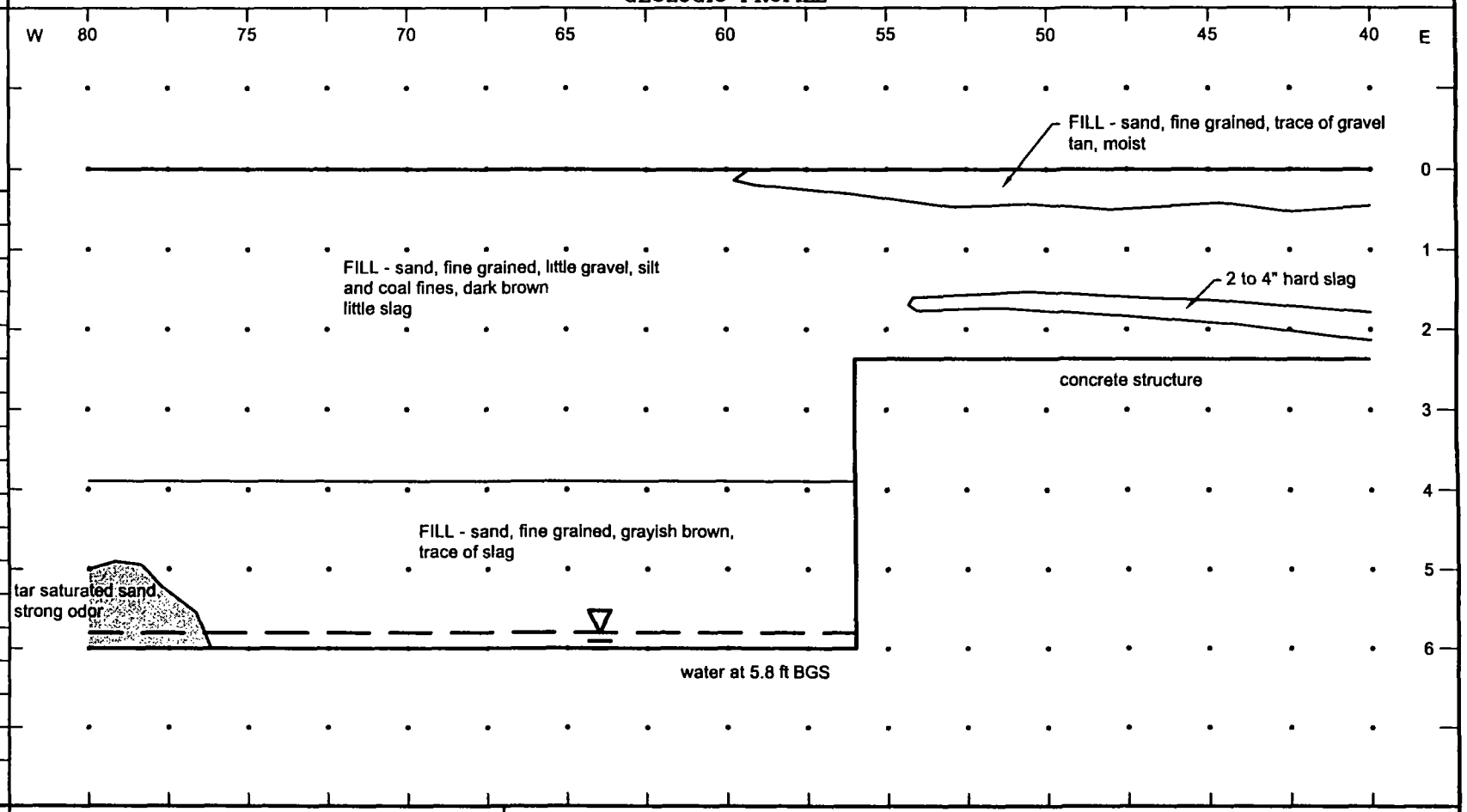
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-121
DATE/TIME STARTED 6/7/02
DATE/TIME COMPLETED 6/7/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060702-WP-058A
S-060702-WP-058B
S-060702-WP-058C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN, ILLINOIS

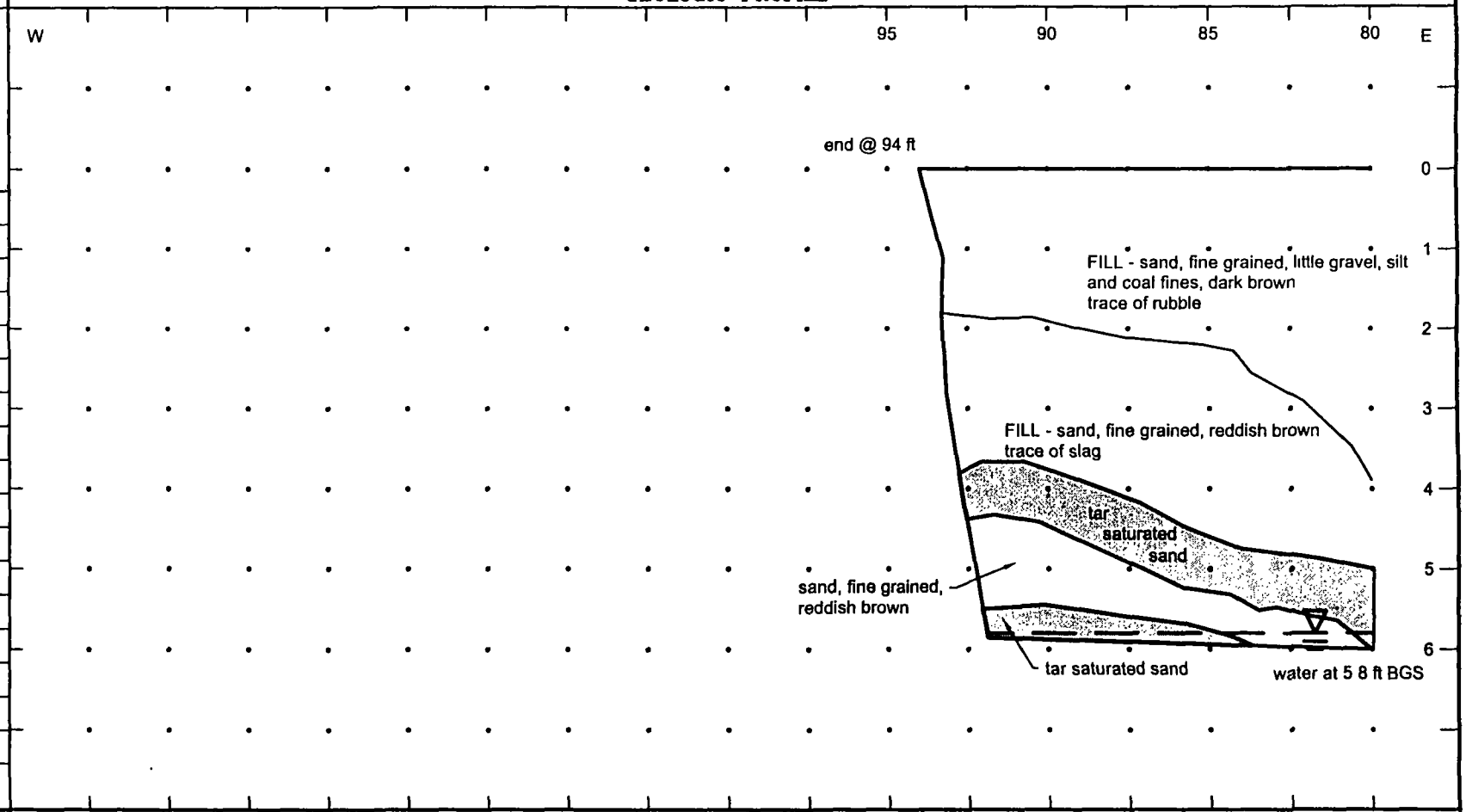
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-121
DATE/TIME STARTED 6/7/02
DATE/TIME COMPLETED 6/7/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060702-WP-059A
S-060702-WP-059B
S-060702-WP-059C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

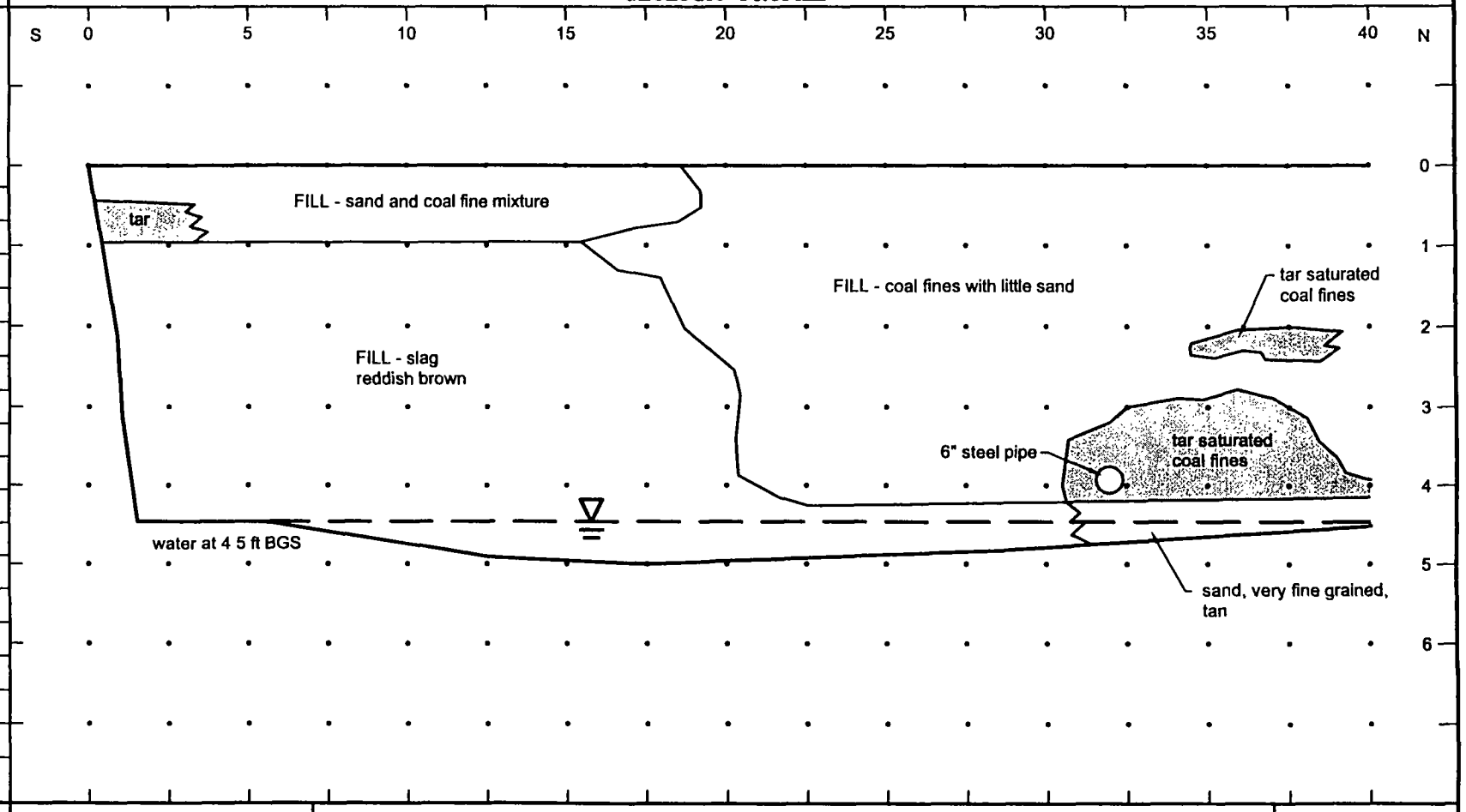
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-122
DATE/TIME STARTED 6/7/02
DATE/TIME COMPLETED 6/7/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060702-WP-062A
S-060702-WP-062B

S-060702-WP-063

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

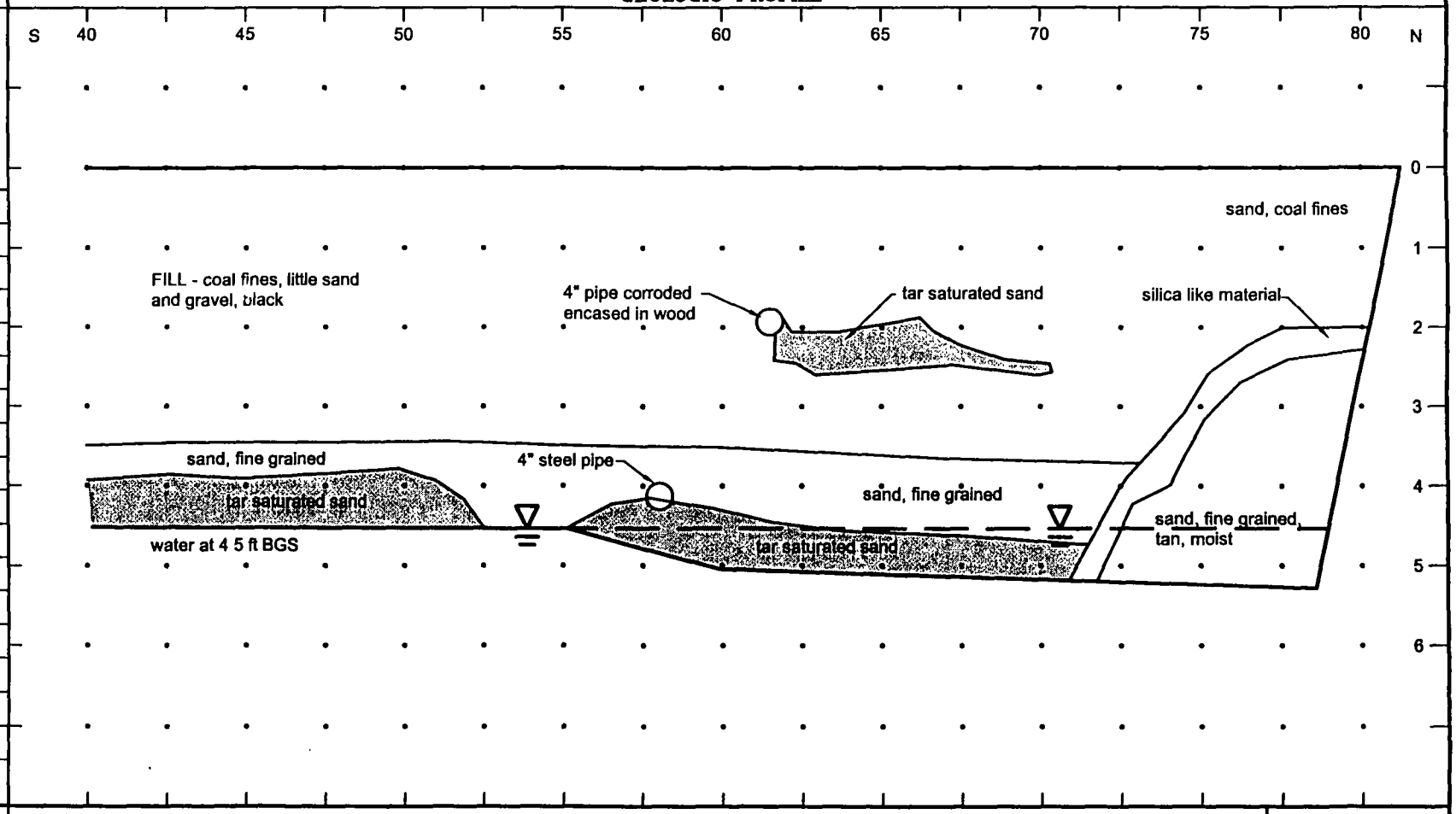
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-122
DATE/TIME STARTED 6/7/02
DATE/TIME COMPLETED 6/7/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060702-WP-064A
S-060702-WP-064B
S-060702-WP-064C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

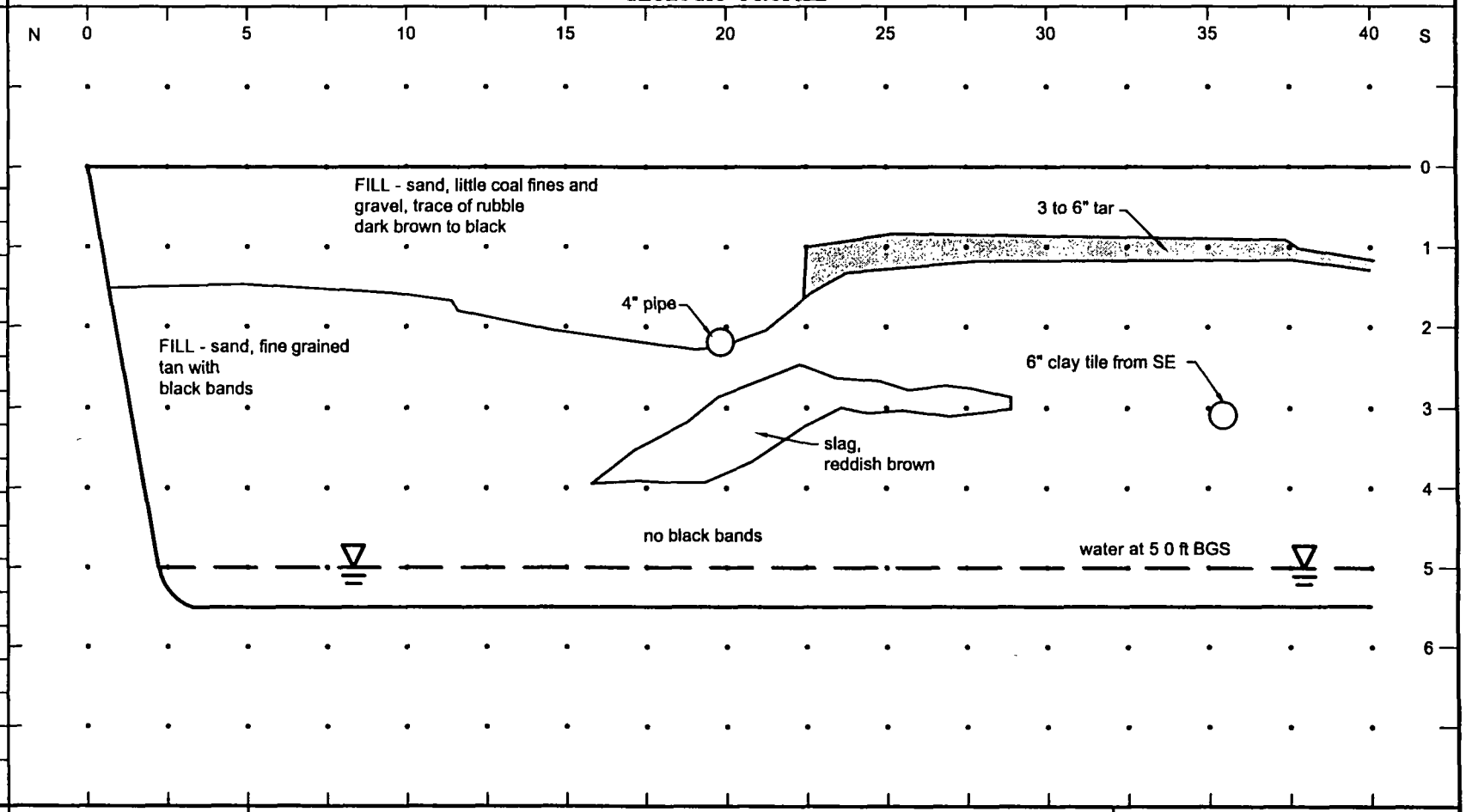
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-123
DATE/TIME STARTED 6/7/02
DATE/TIME COMPLETED 6/7/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060702-WP-068A
S-060702-WP-068B

S-060702-WP-069A
S-060702-WP-069B

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

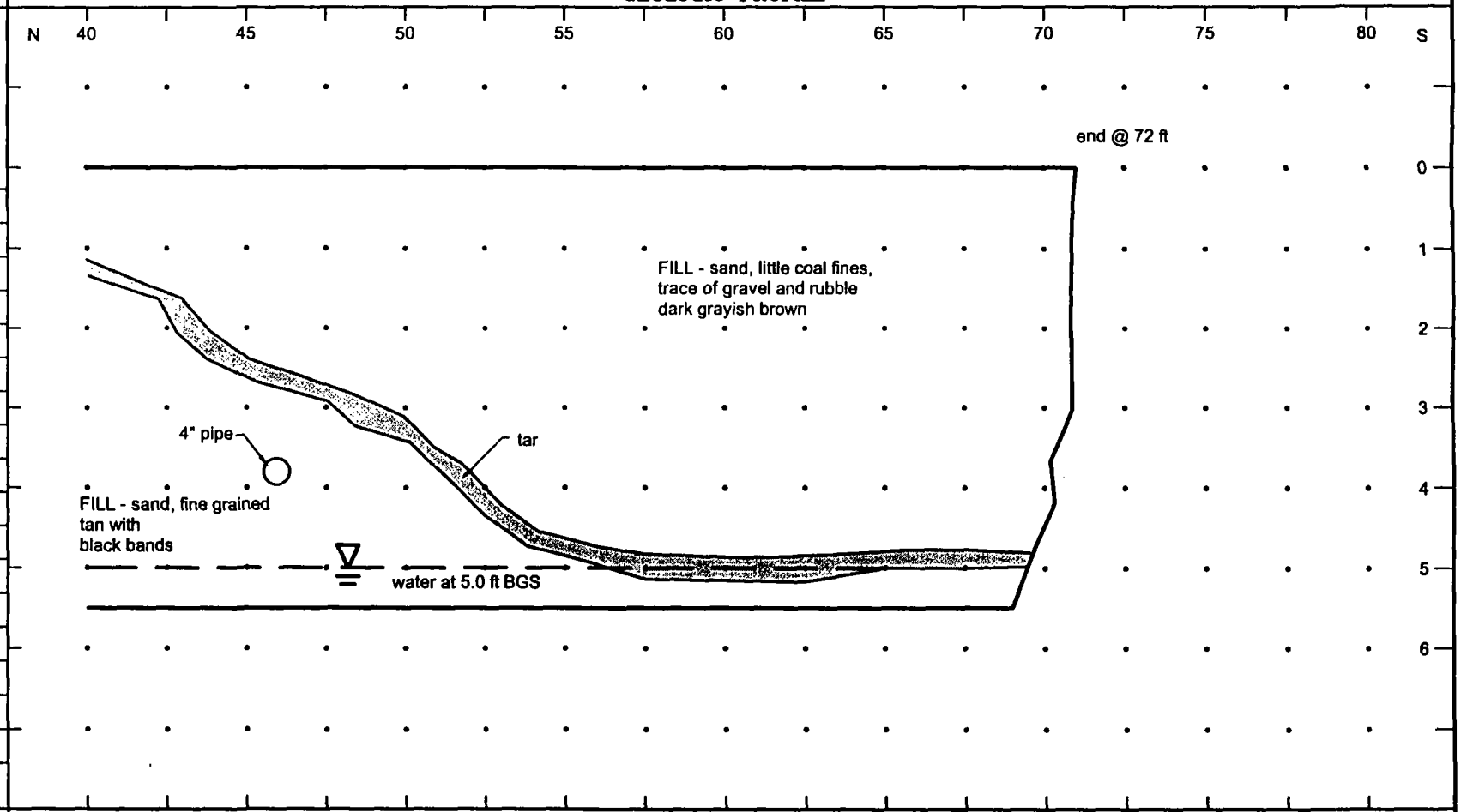
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-123
DATE/TIME STARTED 6/7/02
DATE/TIME COMPLETED 6/7/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-060702-WP-070A
S-060702-WP-070B

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

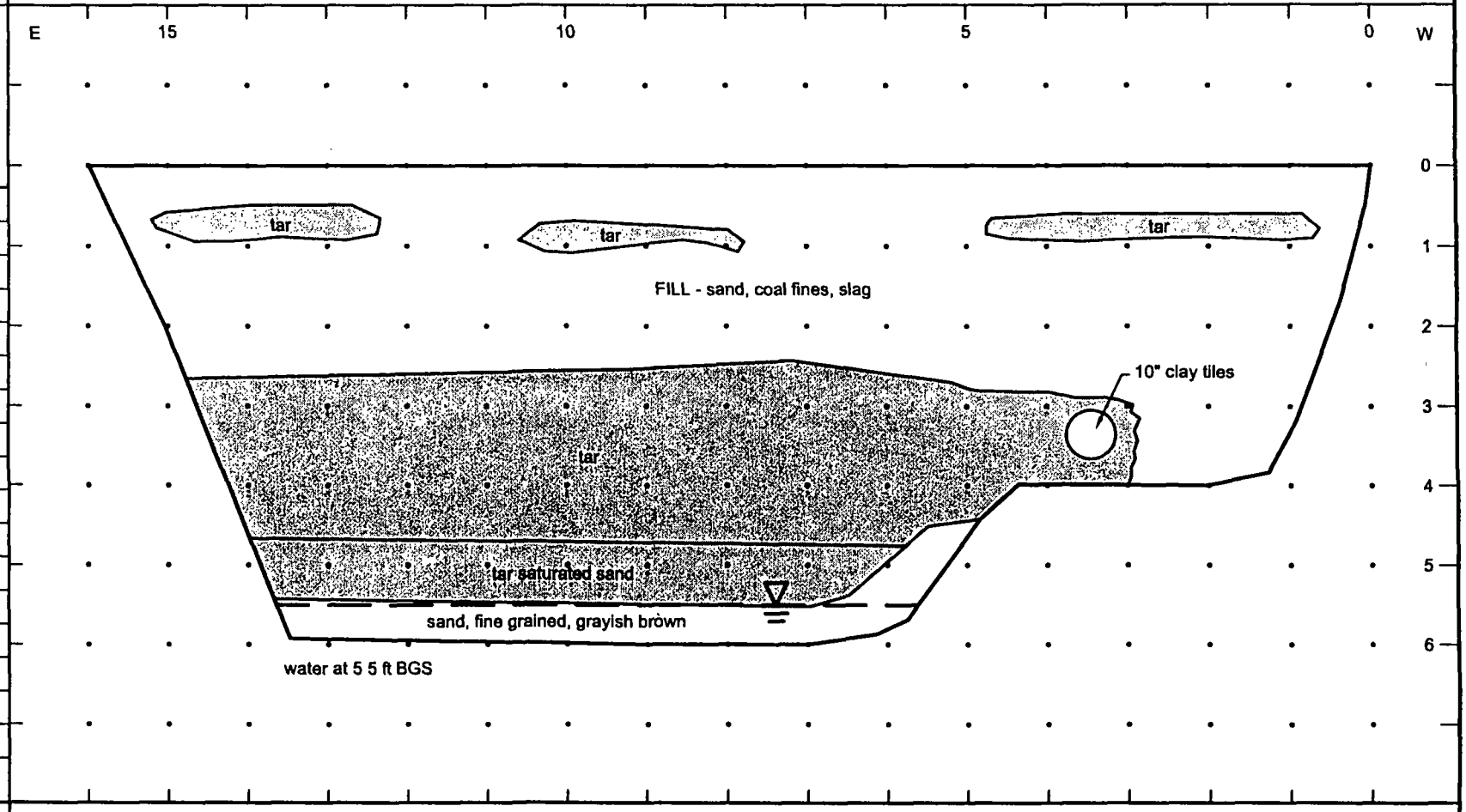
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-124
DATE/TIME STARTED 6/10/02
DATE/TIME COMPLETED 6/10/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

Collected Waste Characterization sample of tar
S-061002-WP-071

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

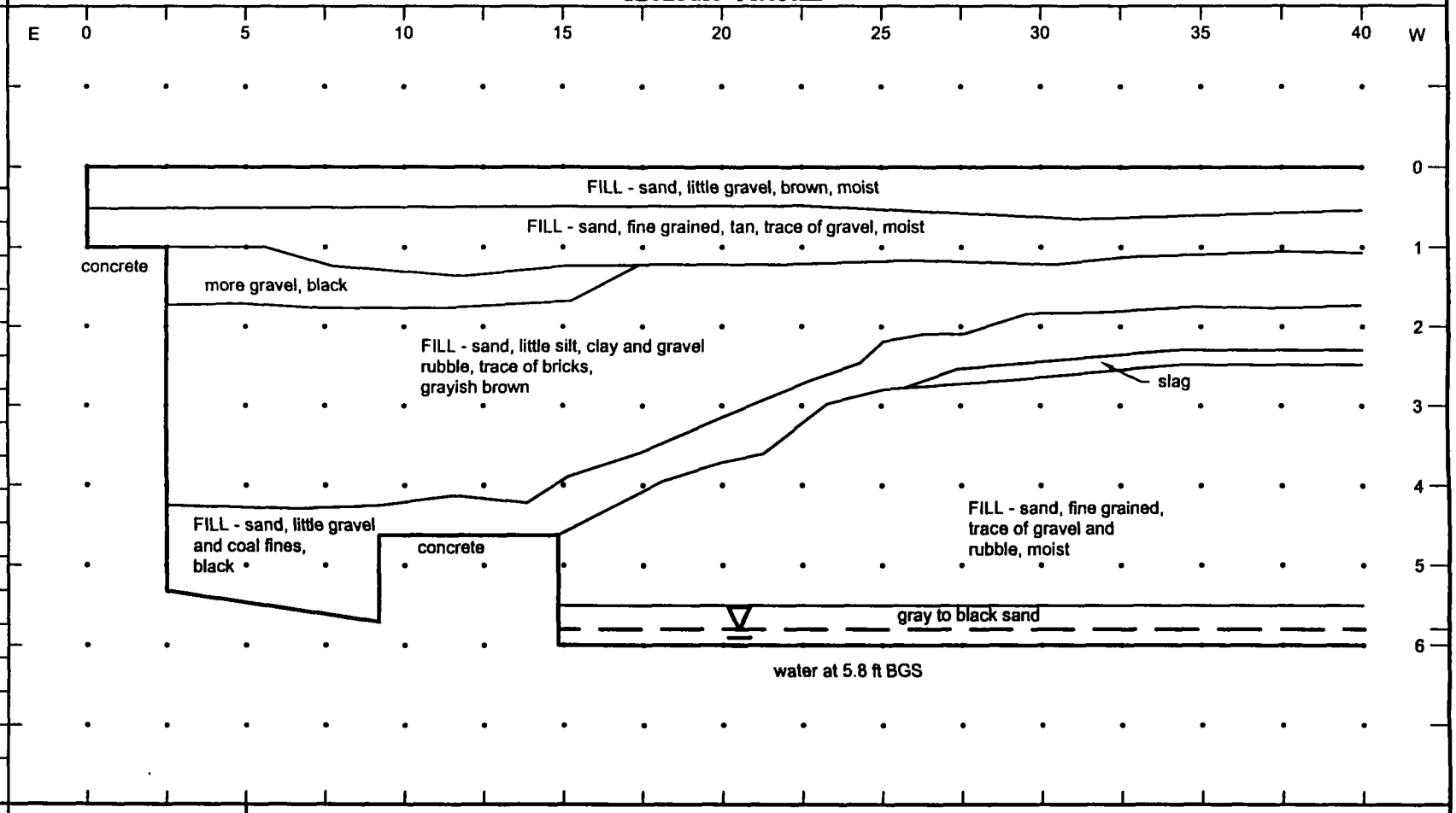
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-125
DATE/TIME STARTED 6/10/02
DATE/TIME COMPLETED 6/10/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061002-WP-072A 0 - 2
S-061002-WP-072B 2 - 4
S-061002-WP-072C 4 - 6

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

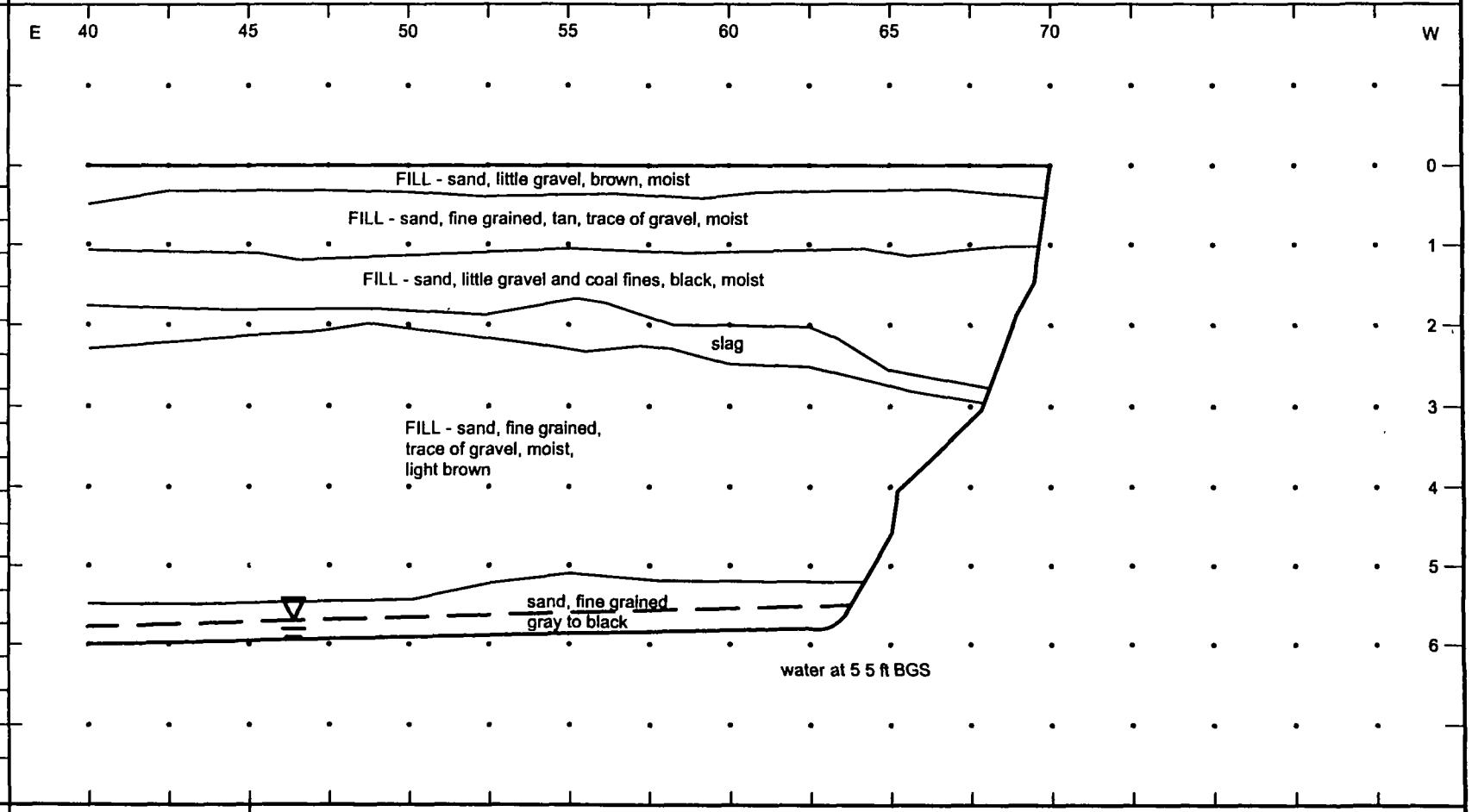
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-125
DATE/TIME STARTED 6/10/02
DATE/TIME COMPLETED 6/10/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061002-WP-073A
S-061002-WP-073B
S-061002-WP-073C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

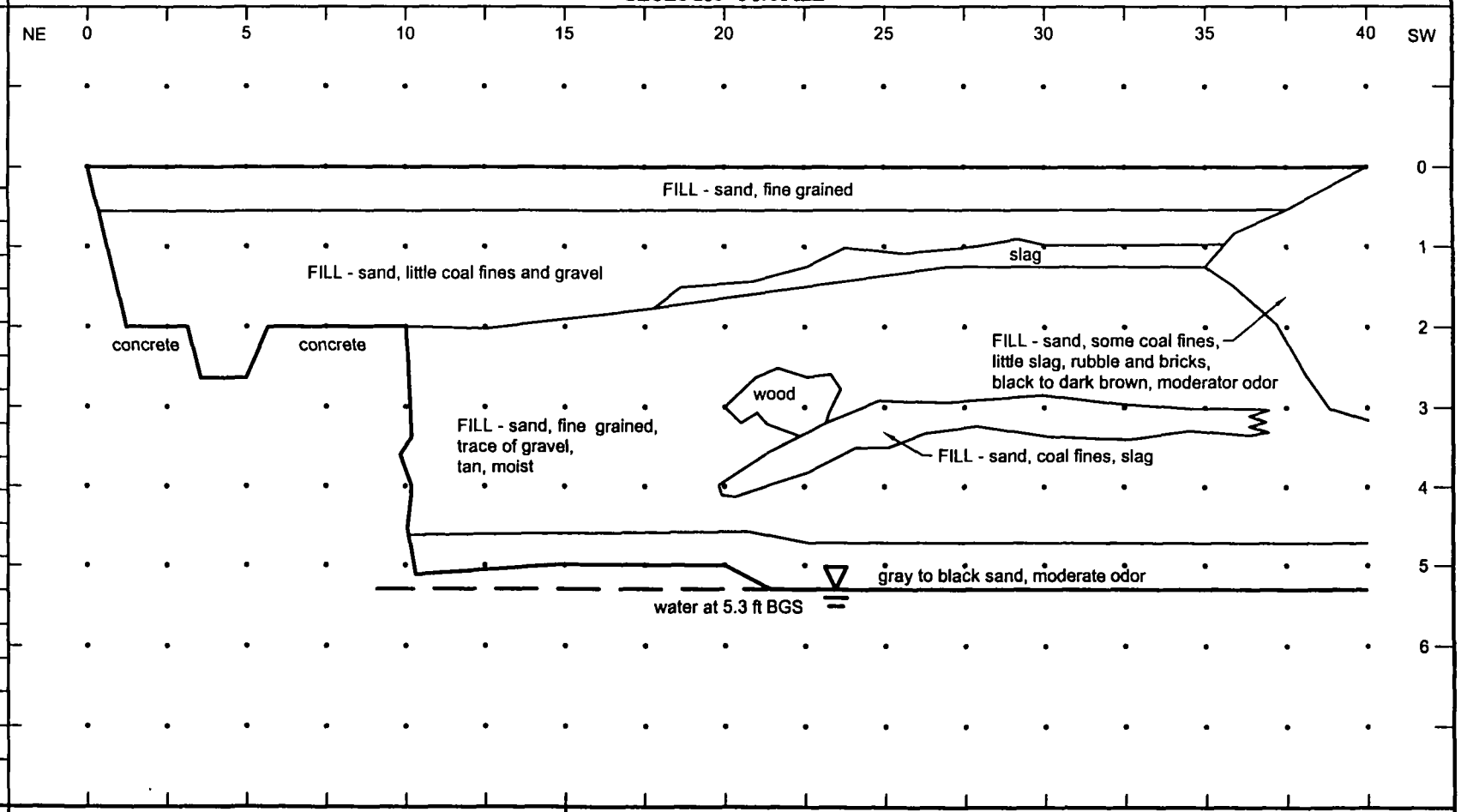
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-126
DATE/TIME STARTED 6/10/02
DATE/TIME COMPLETED 6/10/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061002-WP-075A
S-061002-WP-075B
S-061002-WP-075C
S-061002-WP-077 DUP

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

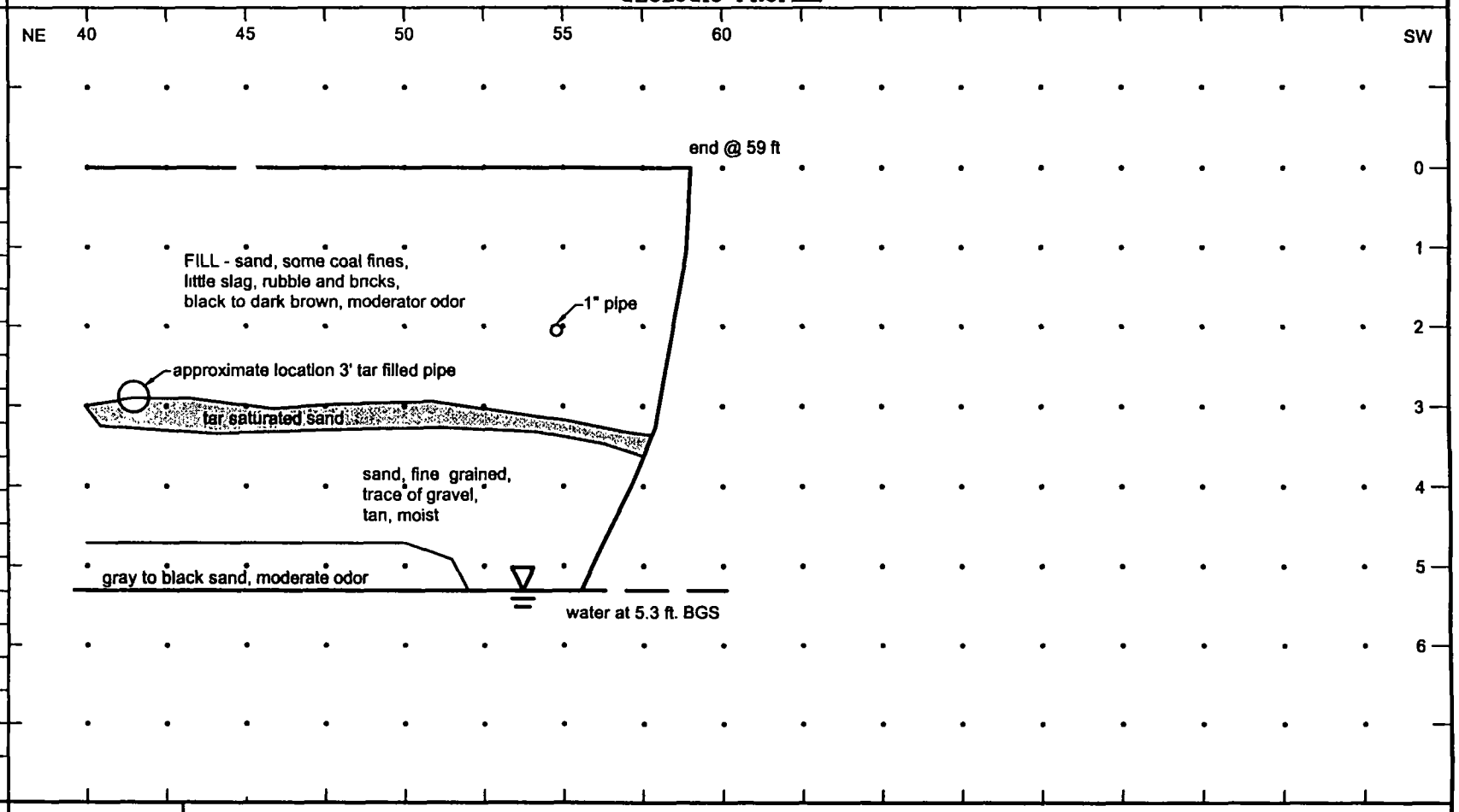
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-126
DATE/TIME STARTED 6/10/02
DATE/TIME COMPLETED 6/10/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061002-WP-076B tar
S-061002-WP-076C sand

TEST PIT STRATIGRAPHY LOG

PROJECT NAME: WAUKEGAN COKE SITE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, ILLINOIS

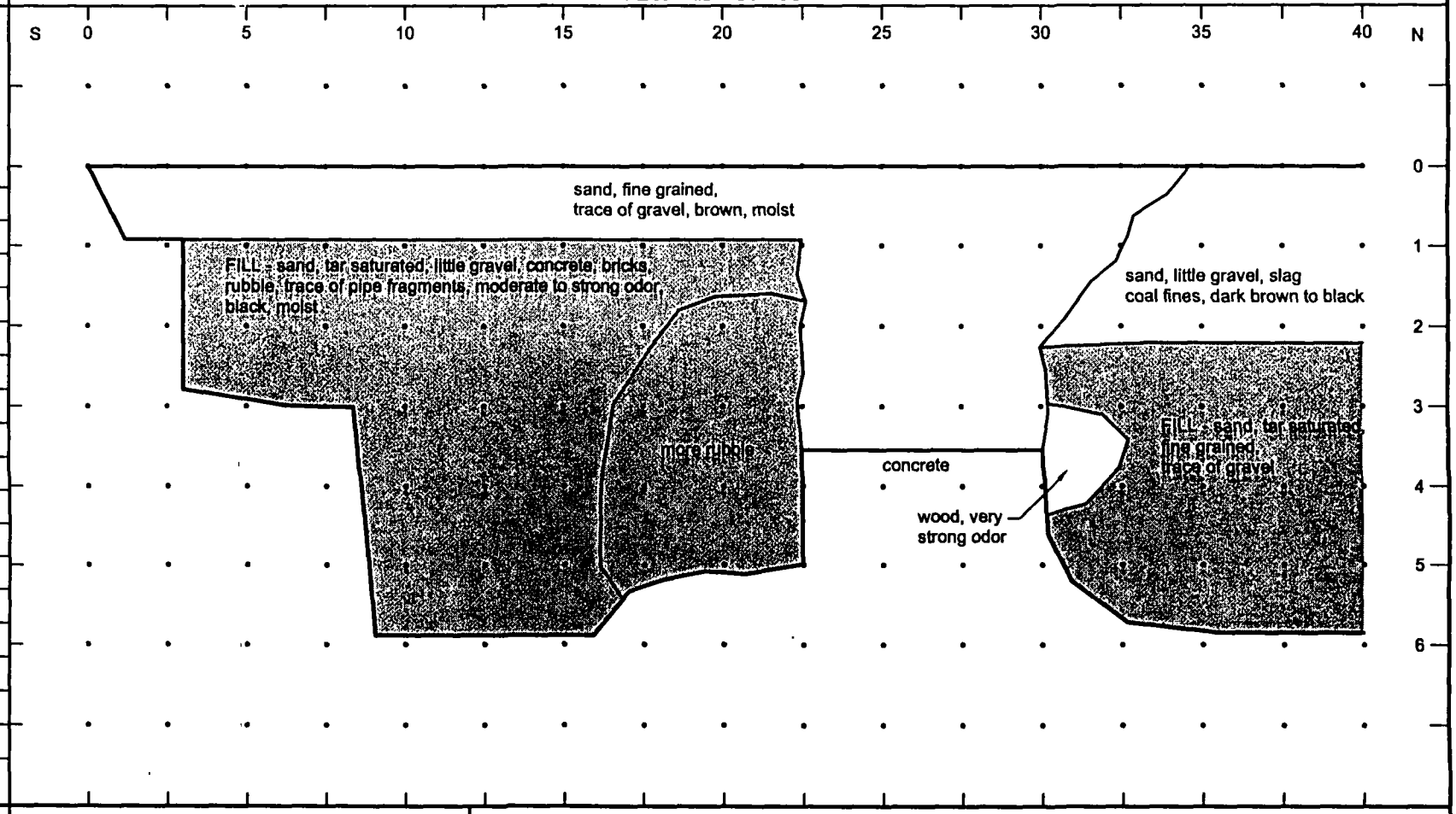
CONTRACTOR: ECI
NAME:
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-127
DATE/TIME STARTED: 6/10/02
DATE/TIME COMPLETED: 6/10/02
TEST PIT METHOD: TRACK HOE
CRA SUPERVISOR: W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061002-WP-079A
S-061002-WP-079B
S-061002-WP-079C

Waste Characterization
S-061002-WP-081

TEST PIT STRATIGRAPHY LOG

PROJECT NAME: WAUKEGAN COKE SITE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, ILLINOIS

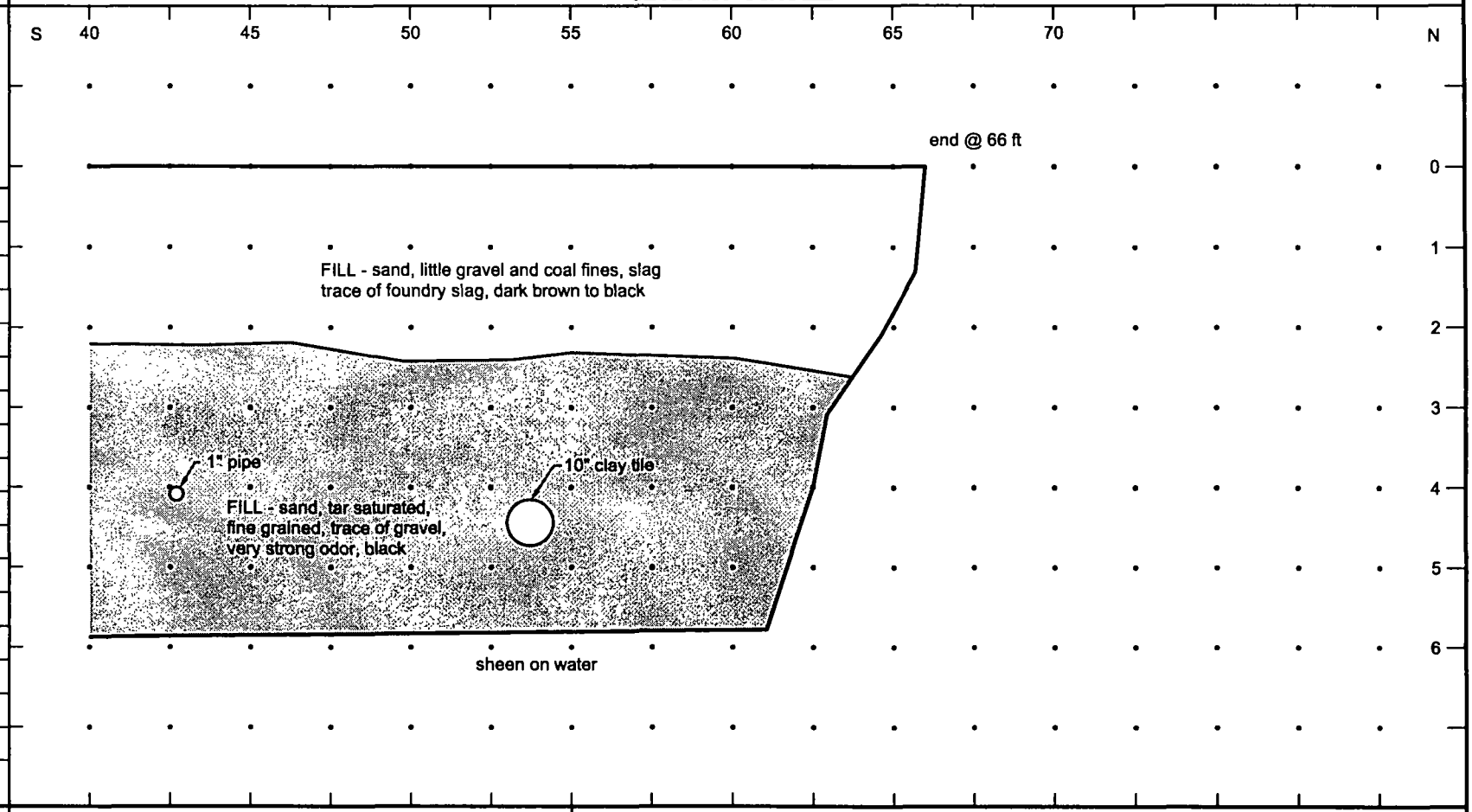
CONTRACTOR: ECI
NAME:
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-127
DATE/TIME STARTED: 6/10/02
DATE/TIME COMPLETED: 6/10/02
TEST PIT METHOD: TRACK HOE
CRA SUPERVISOR: W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061002-WP-080A
S-061002-WP-080B
S-061002-WP-080C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

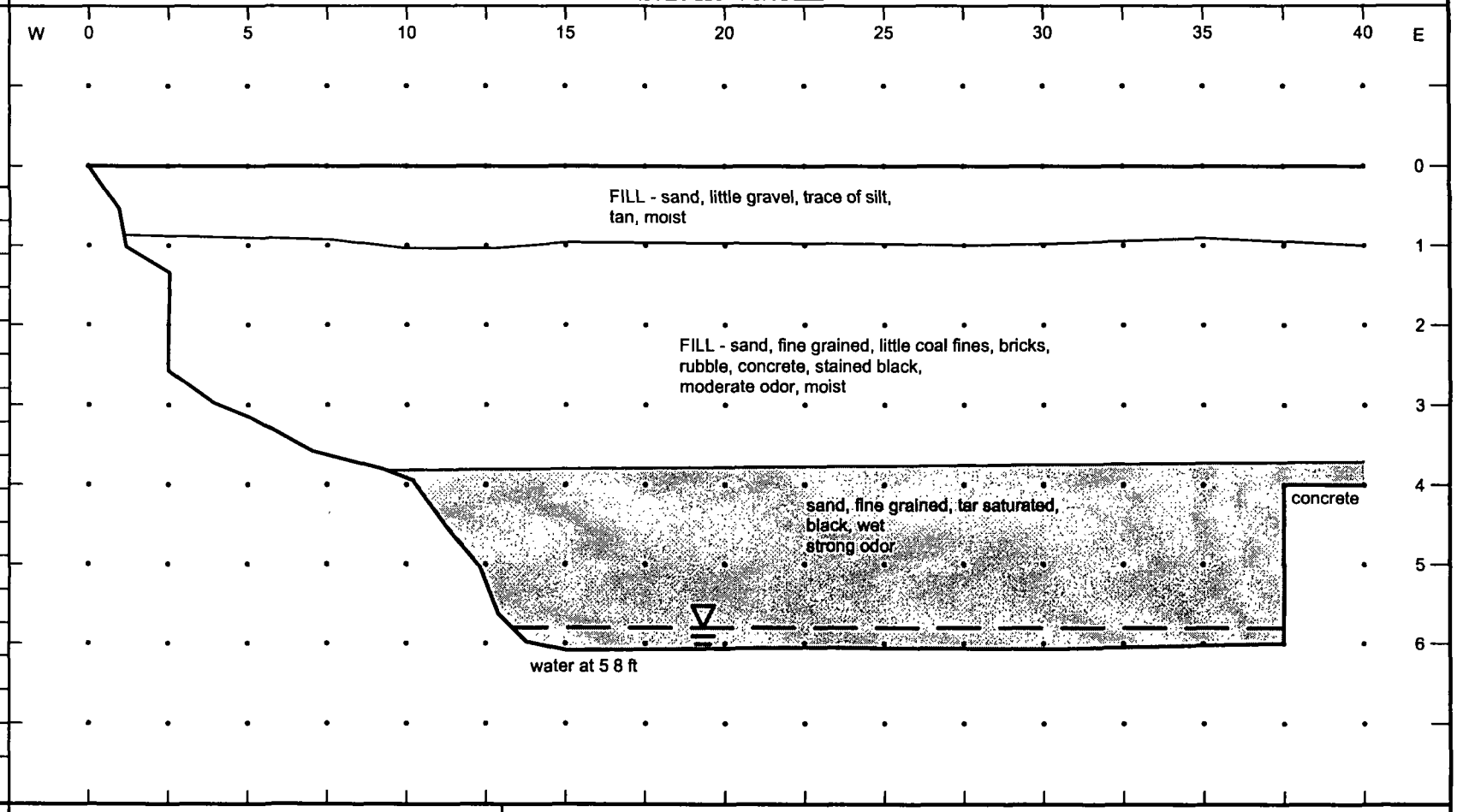
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-128
DATE/TIME STARTED 6/10/02
DATE/TIME COMPLETED 6/10/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061002-WP-083A
S-061002-WP-083B
S-061002-WP-083C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

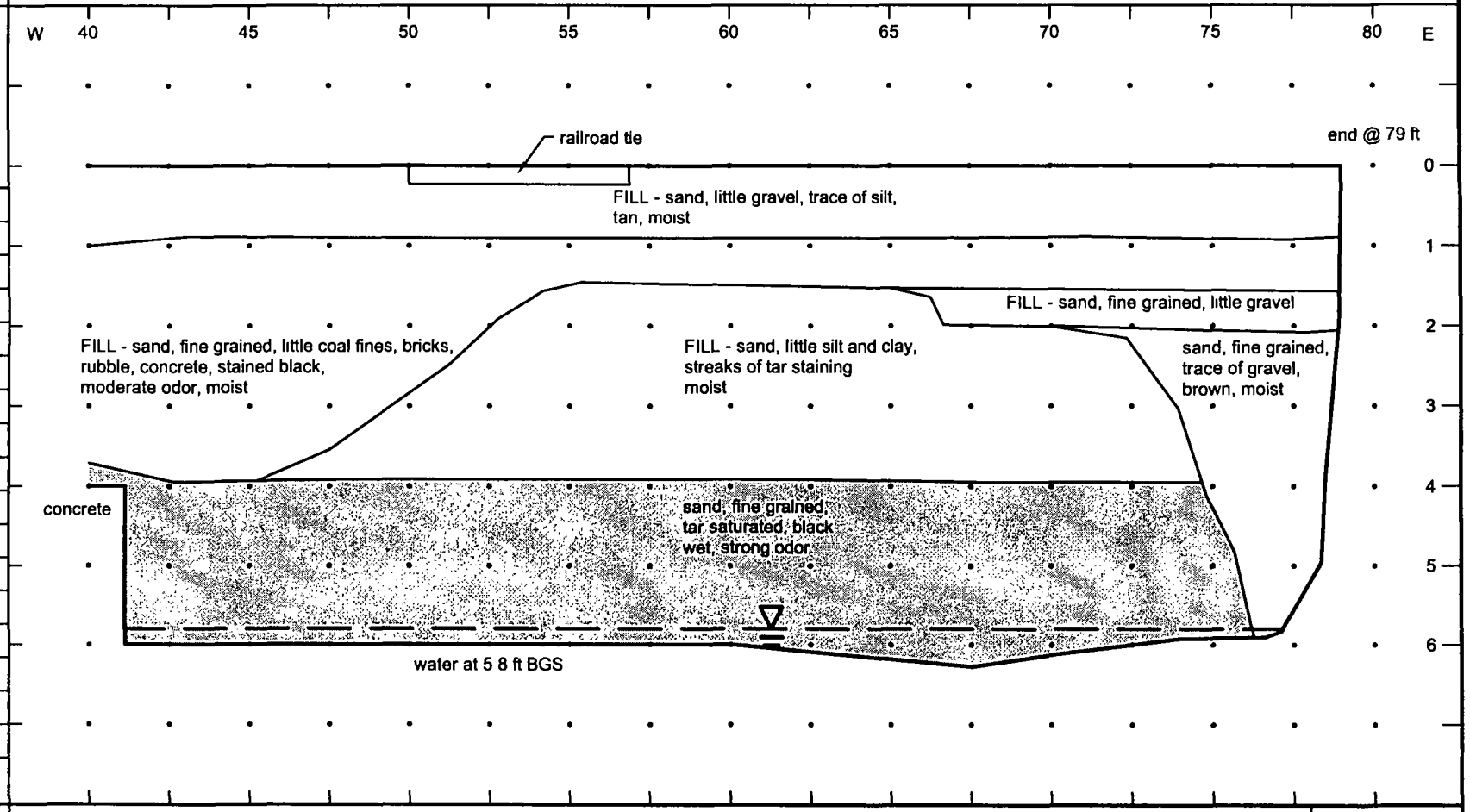
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-128
DATE/TIME STARTED 6/10/02
DATE/TIME COMPLETED 6/10/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061002-WP-084A
S-061002-WP-084B
S-061002-WP-084C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME: WAUKEGAN COKE SITE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, ILLINOIS

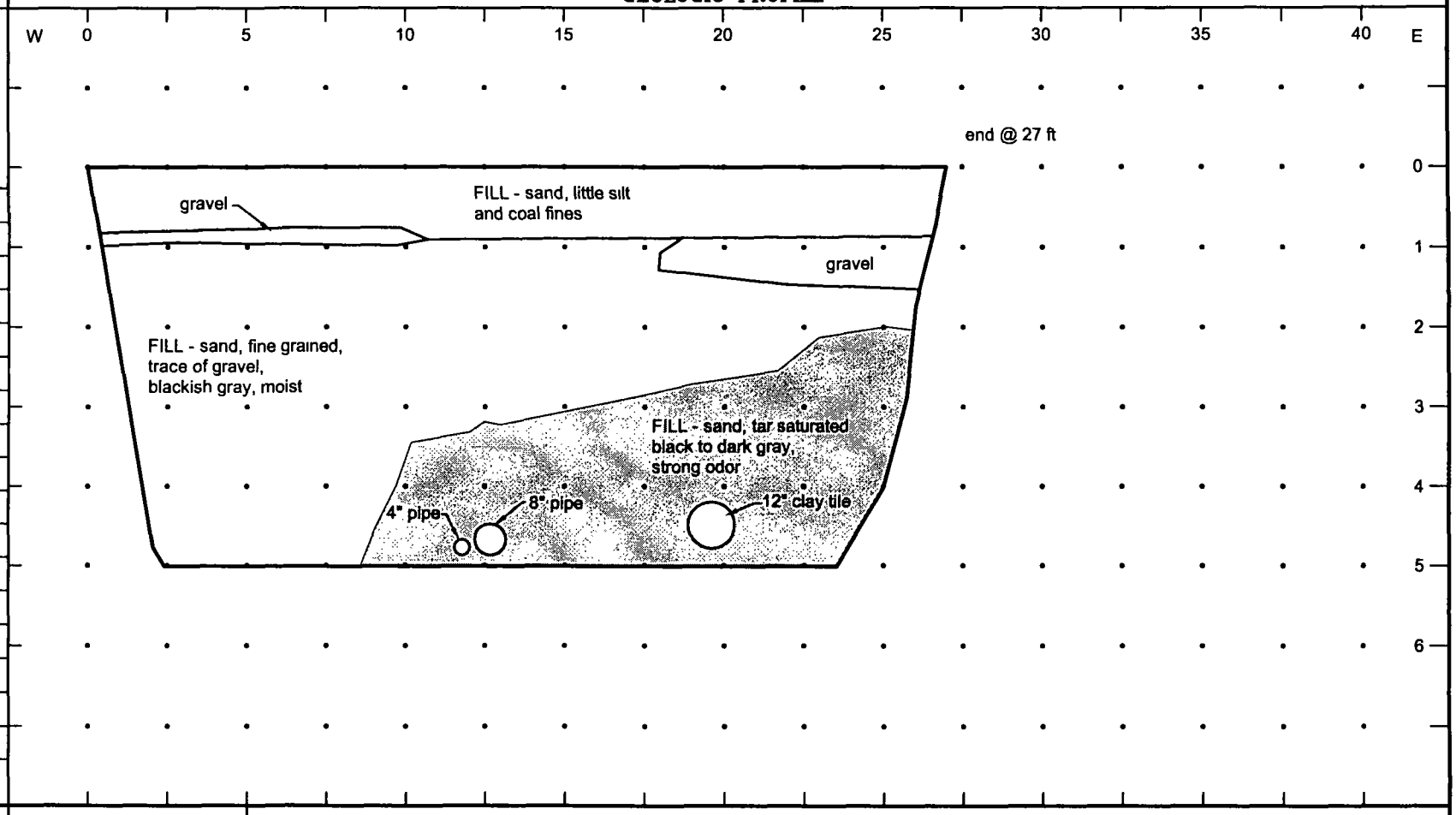
CONTRACTOR: ECI
NAME:
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-129
DATE/TIME STARTED: 6/10/02
DATE/TIME COMPLETED: 6/10/02
TEST PIT METHOD: TRACK HOE
CRA SUPERVISOR: W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061002-WP-085A
S-061002-WP-085B
S-061002-WP-085C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

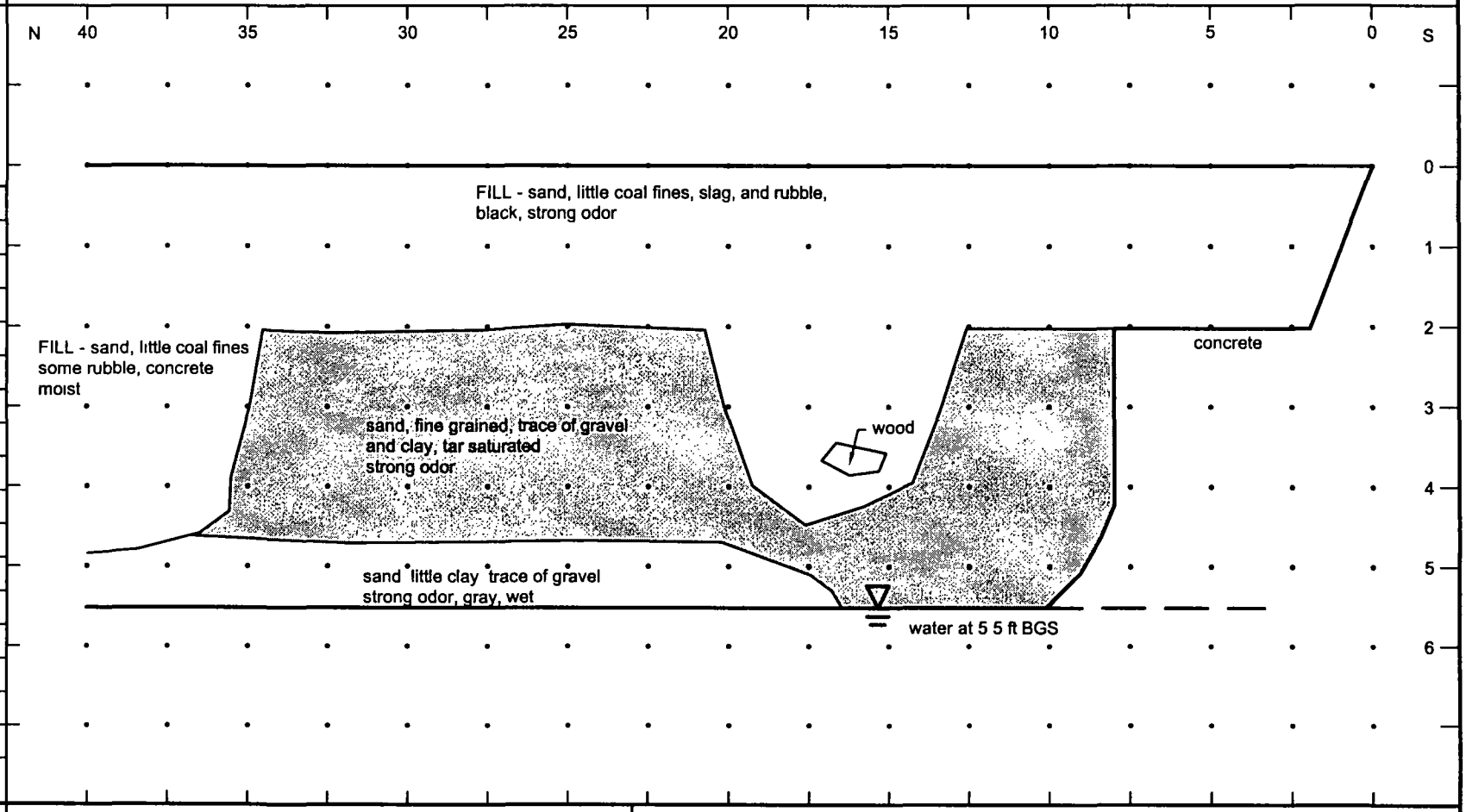
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-130
DATE/TIME STARTED 6/11/02
DATE/TIME COMPLETED 6/11/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061102-WP-087A
S-061102-WP-087B
S-061102-WP-087C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN, ILLINOIS

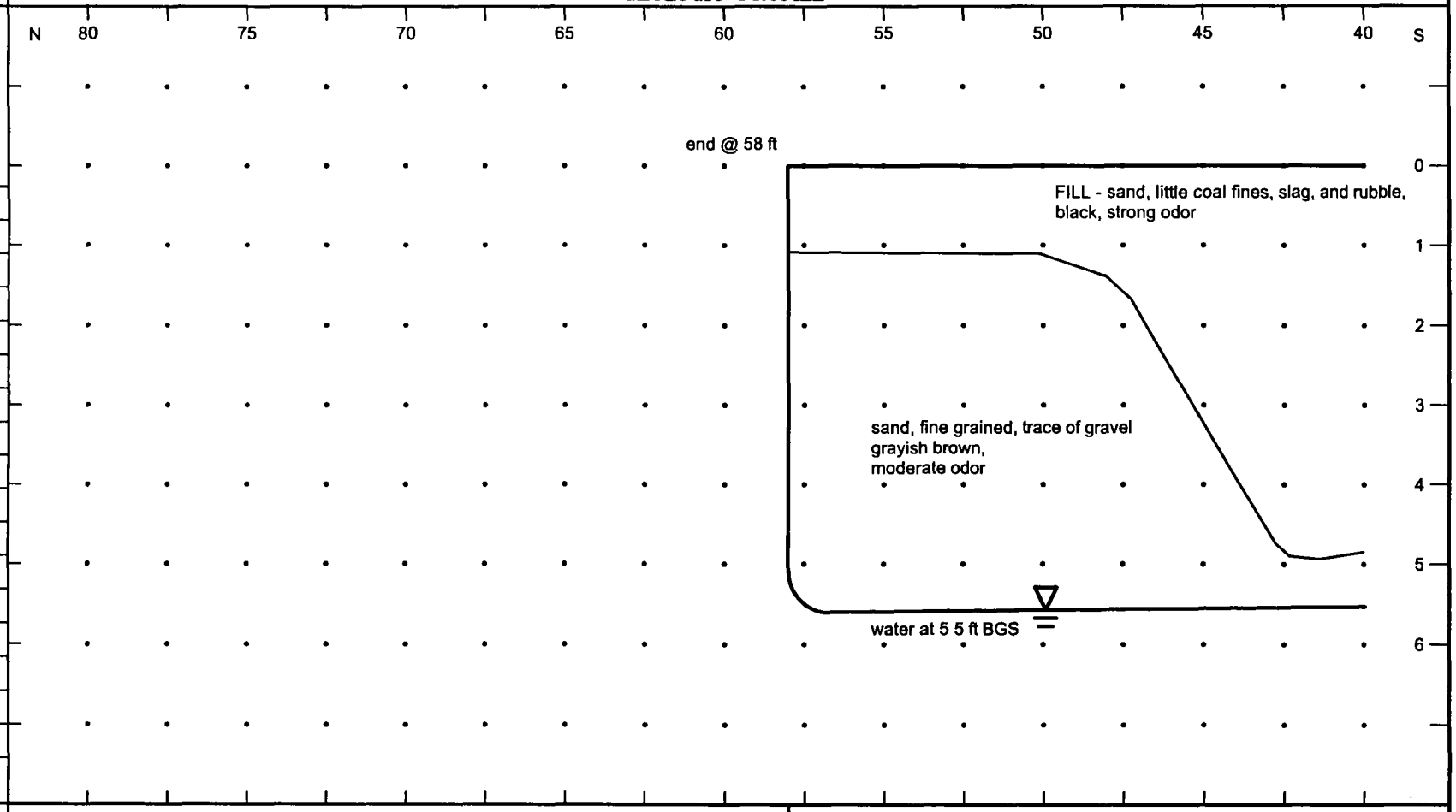
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-130
DATE/TIME STARTED 6/11/02
DATE/TIME COMPLETED 6/11/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061102-WP-088A
S-061102-WP-088B
S-061102-WP-088C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

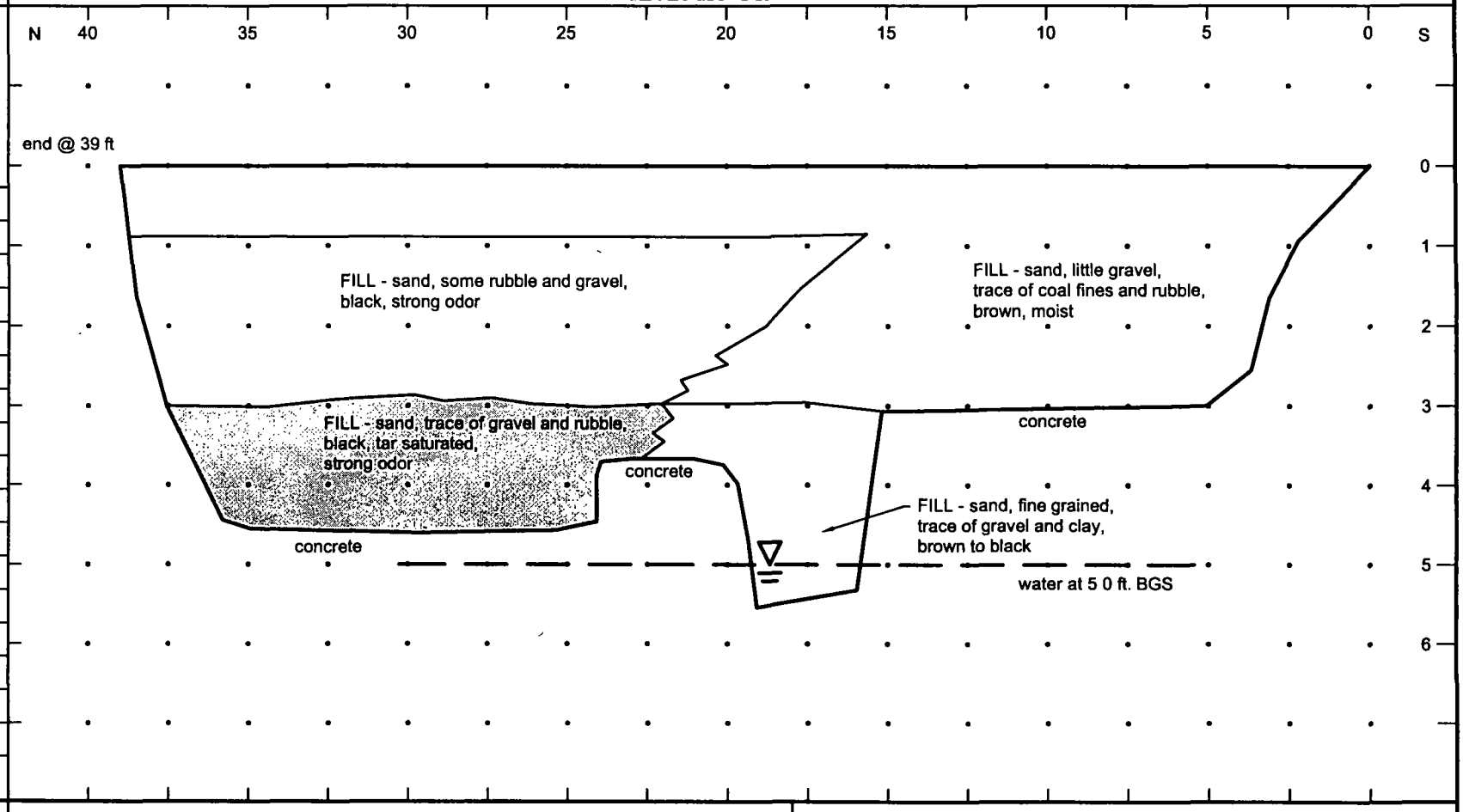
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-131
DATE/TIME STARTED 6/11/02
DATE/TIME COMPLETED 6/11/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061102-WP-090A
S-061102-WP-090B
S-061102-WP-090C
S-061102-WP-091B DUP

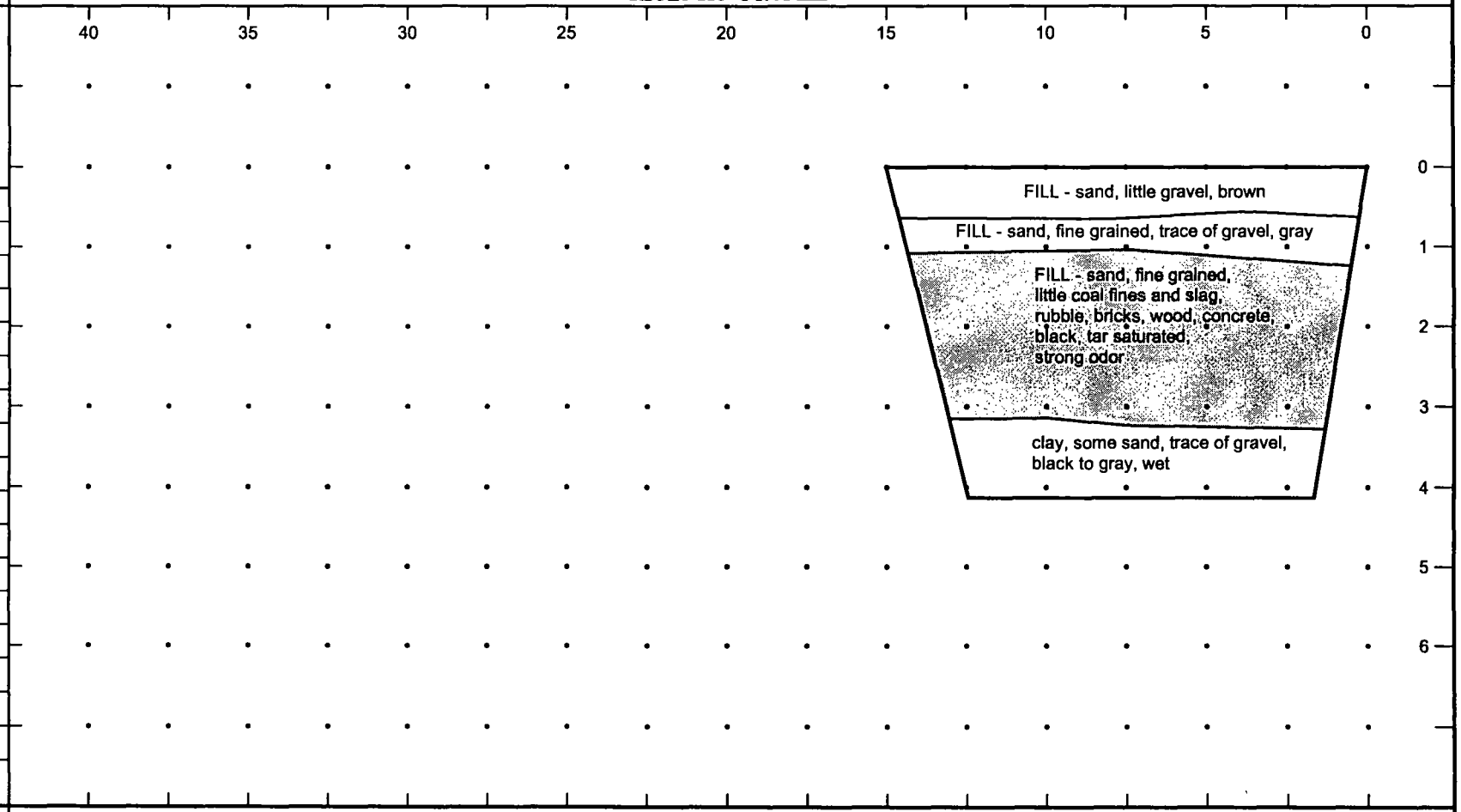
TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-132
DATE/TIME STARTED 6/11/02
DATE/TIME COMPLETED 6/11/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS				GEOLOGIC PROFILE
SAMPLE #	SAMPLE	INTERVA	PID/FI	



NOTES AND COMMENTS

NO SAMPLES COLLECTED

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

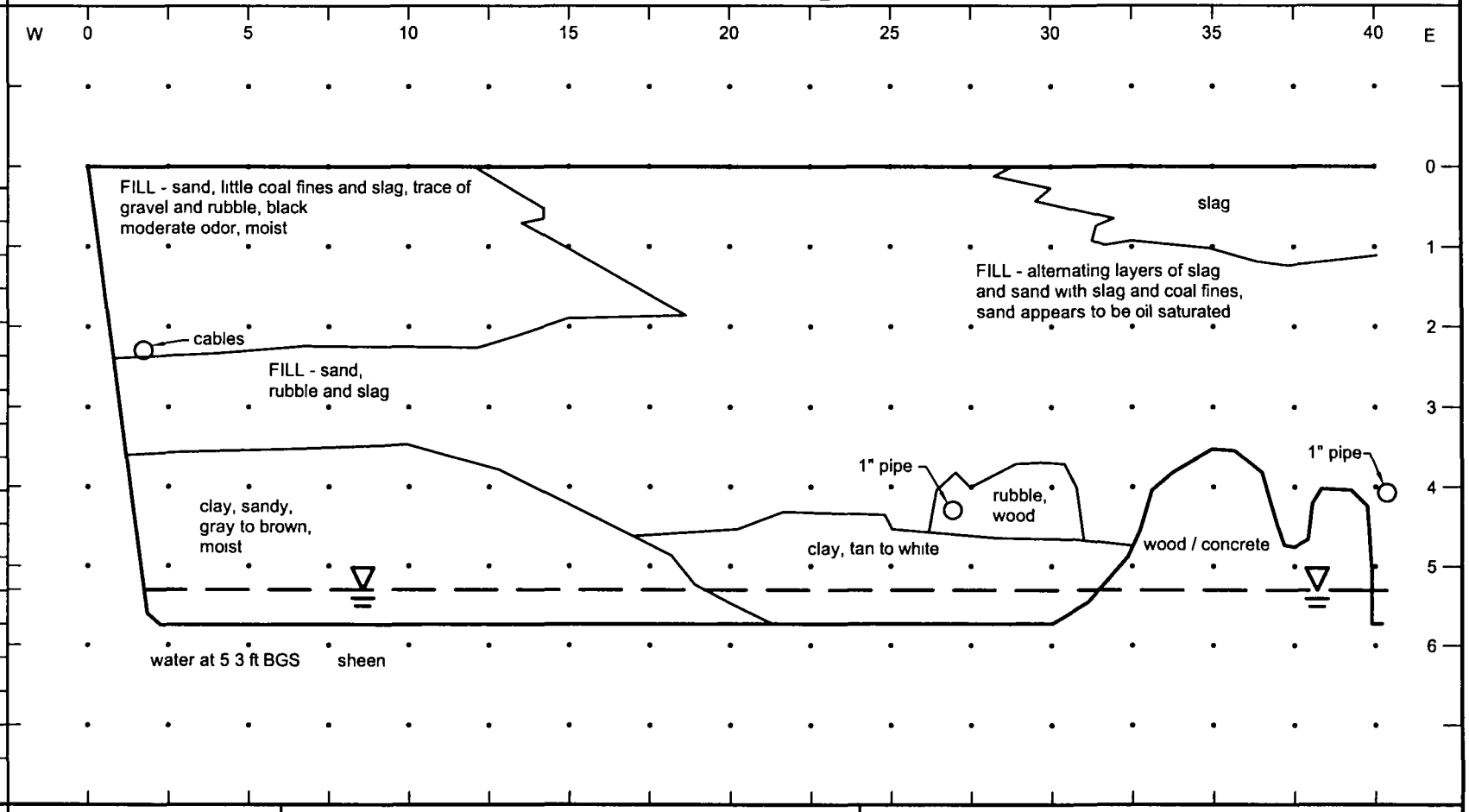
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-133
DATE/TIME STARTED 6/11/02
DATE/TIME COMPLETED 6/11/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061102-WP-092A
S-061102-WP-092B
S-061102-WP-092C

S-061102-WP-093A
S-061102-WP-093B
S-061102-WP-093C

TEST PIT STRATIGRAPHY LOG

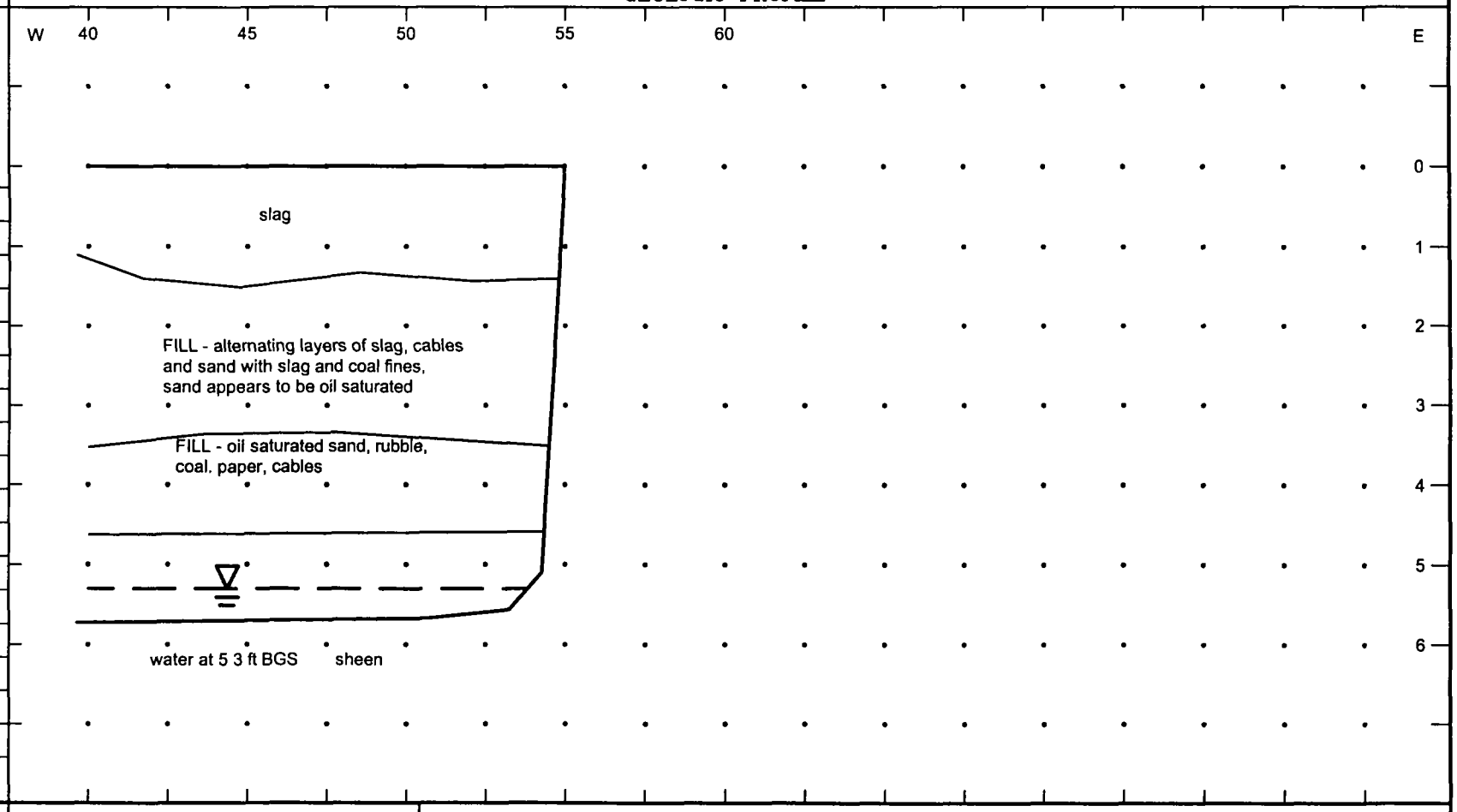
PROJECT NAME: WAUKEGAN COKE SITE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, ILLINOIS

CONTRACTOR: ECI
NAME:
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-133
DATE/TIME STARTED: 6/11/02
DATE/TIME COMPLETED: 6/11/02
TEST PIT METHOD: TRACK HOE
CRA SUPERVISOR: W. POCHRON/T. LEO

SAMPLE DETAILS | GEOLOGIC PROFILE

SAMPLE #	SAMPLE	INTERVA	PID/FI



NOTES AND COMMENTS

S-061102-WP-094A
S-061102-WP-094B
S-061102-WP-094C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN, ILLINOIS

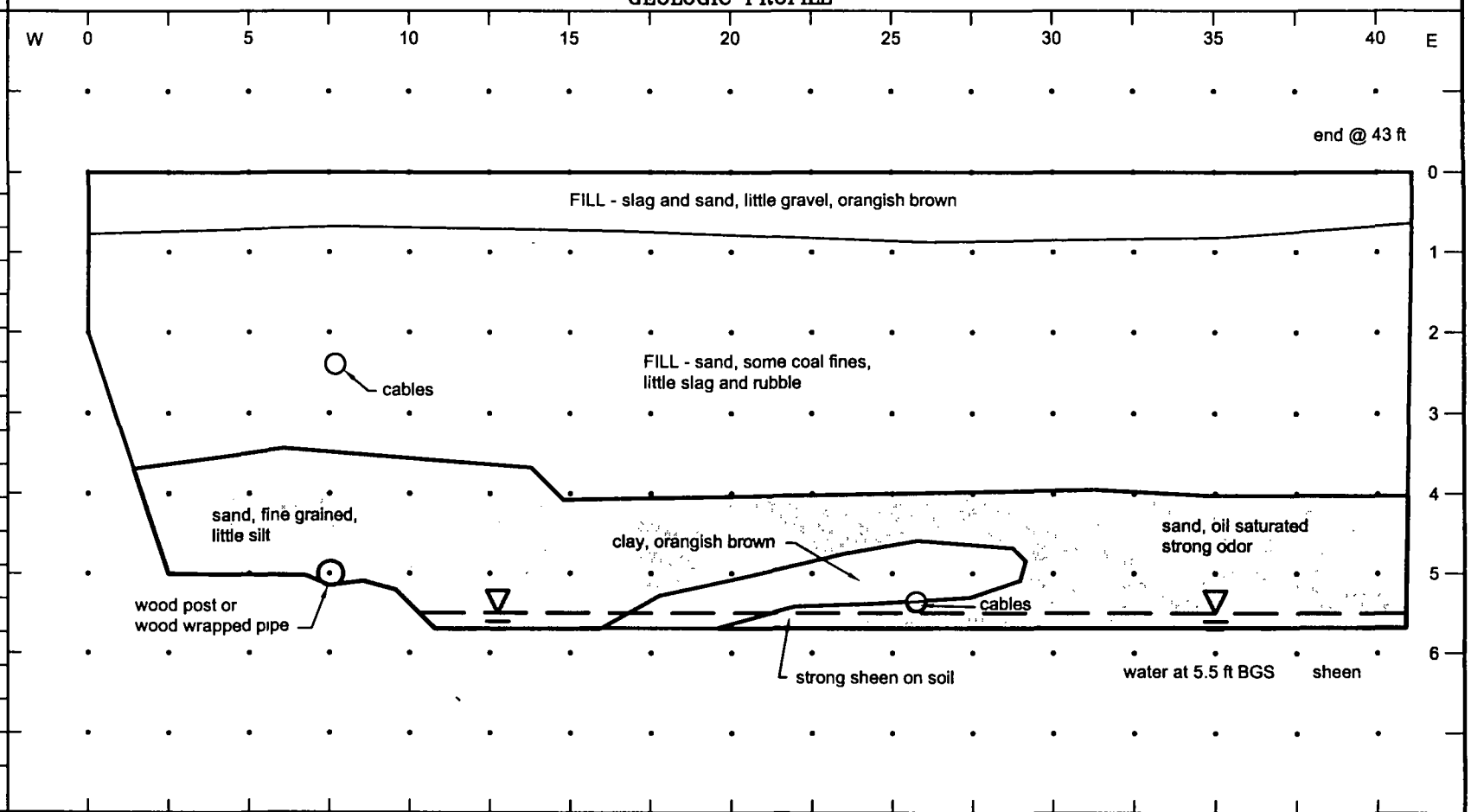
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-134
DATE/TIME STARTED 6/11/02
DATE/TIME COMPLETED 6/11/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061102-WP-097A
S-061102-WP-097B
S-061102-WP-097C

S-061102-WP-099C

S-061102-WP-097A
S-061102-WP-097B
S-061102-WP-097C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

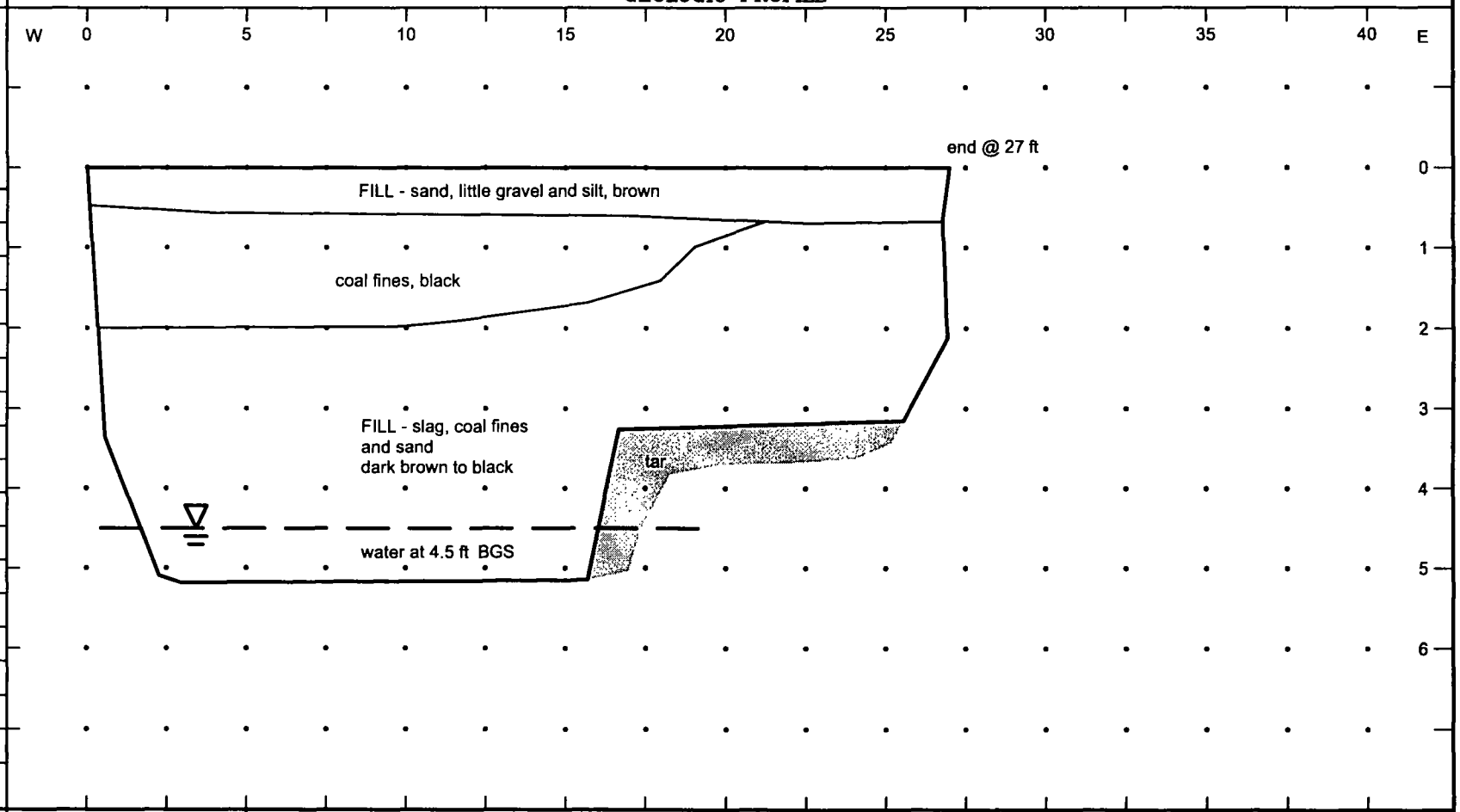
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-135
DATE/TIME STARTED 6/11/02
DATE/TIME COMPLETED 6/11/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061102-WP-0101A
S-061102-WP-0101B

S-061102-WP-0102A

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

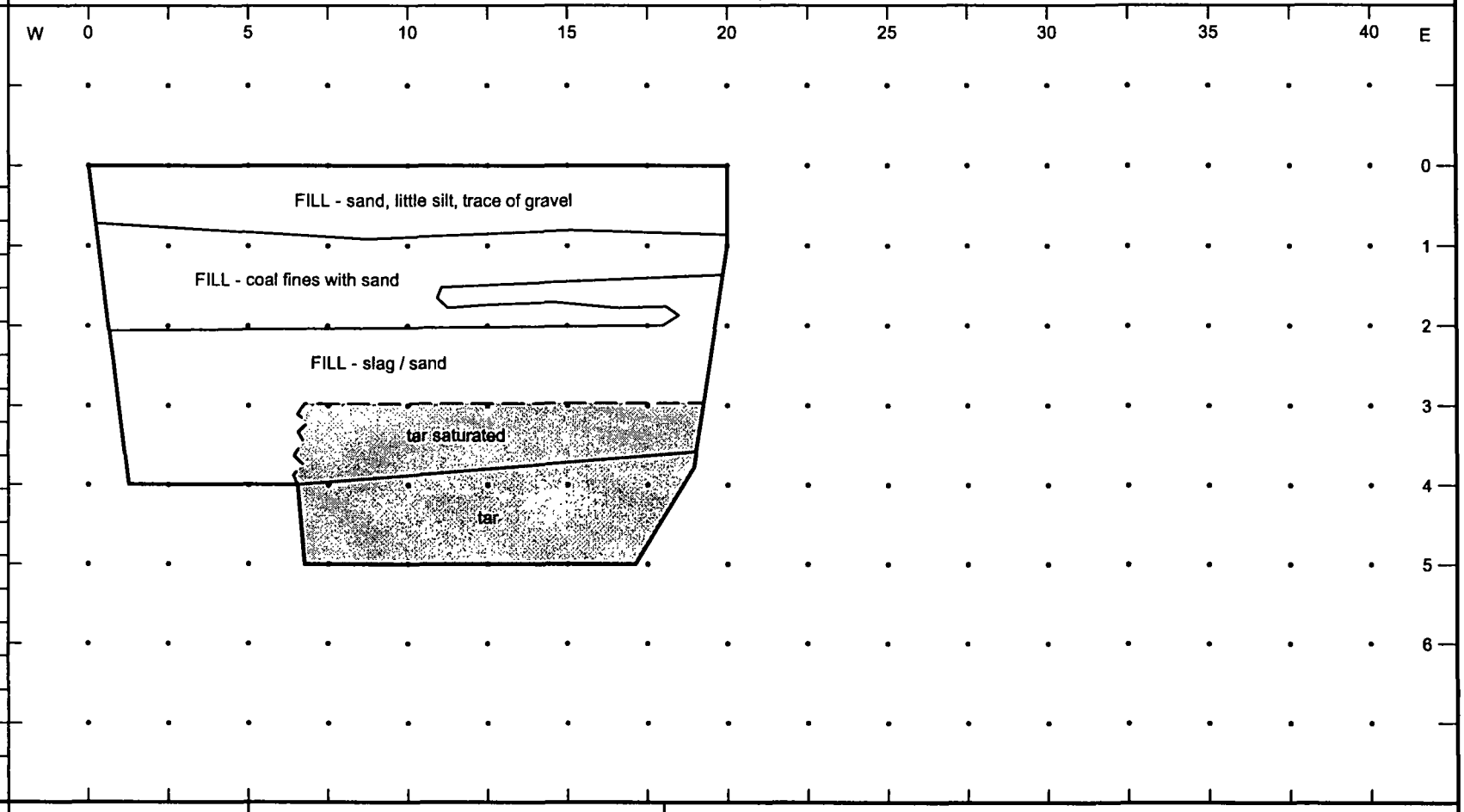
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-136
DATE/TIME STARTED 6/11/02 14:34
DATE/TIME COMPLETED 6/11/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

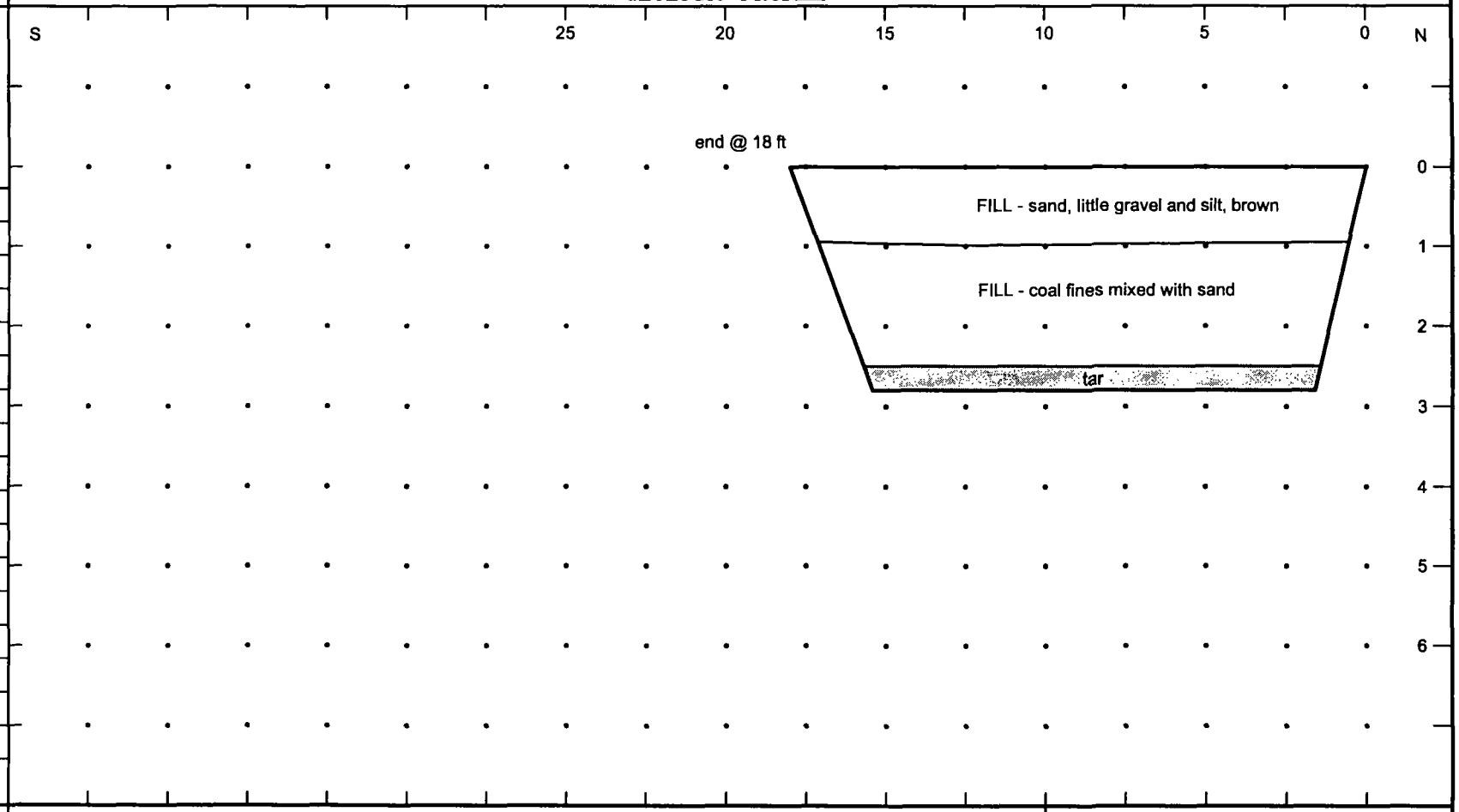
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-137
DATE/TIME STARTED 6/12/02 08:40
DATE/TIME COMPLETED 6/12/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061202-WP-0106A 0 - 2
S-061202-WP-0106B 0 - 2 DUP

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

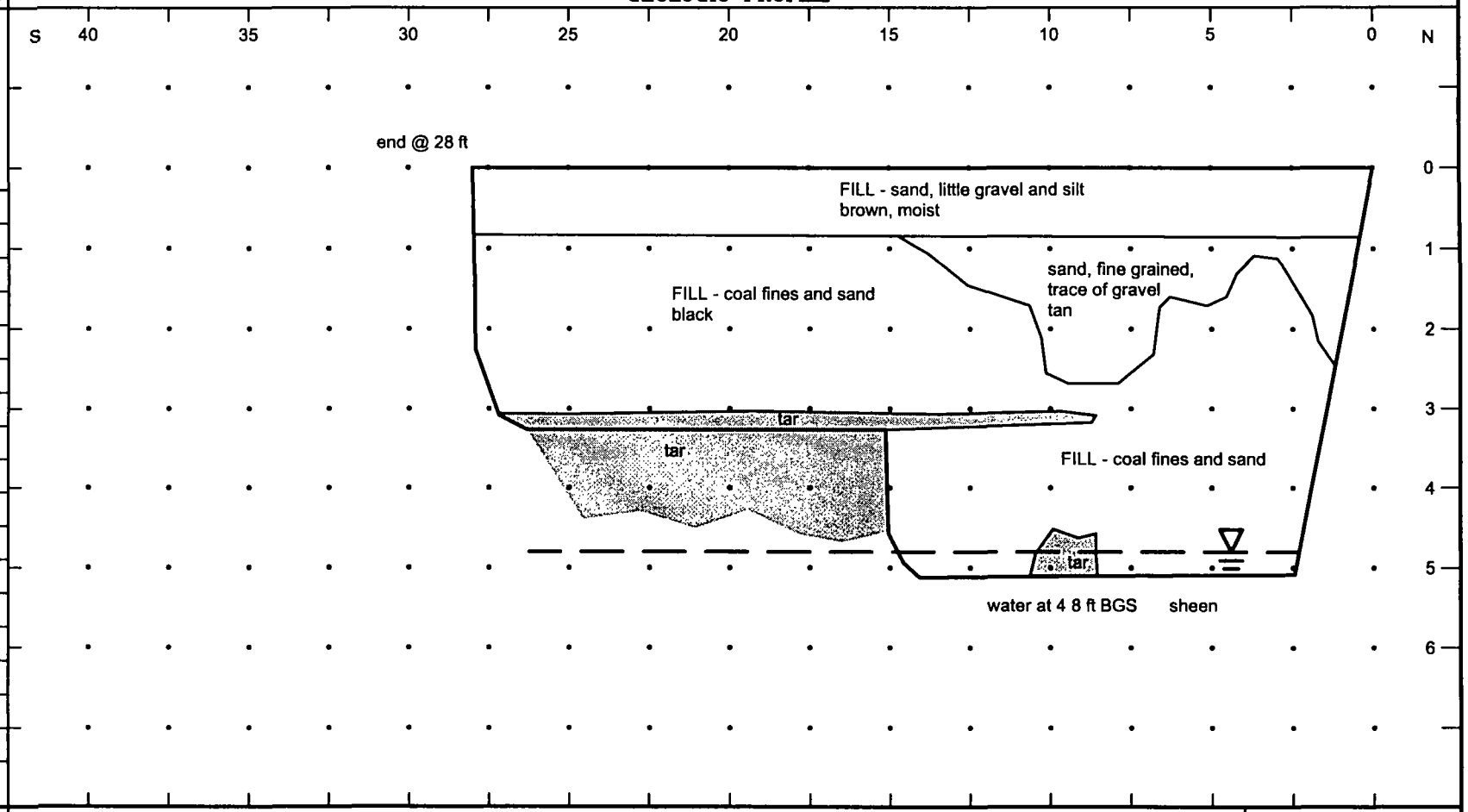
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-138
DATE/TIME STARTED 6/12/02
DATE/TIME COMPLETED 6/12/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061202-WP-0108A
S-061202-WP-0108B
S-061202-WP-0108C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN, ILLINOIS

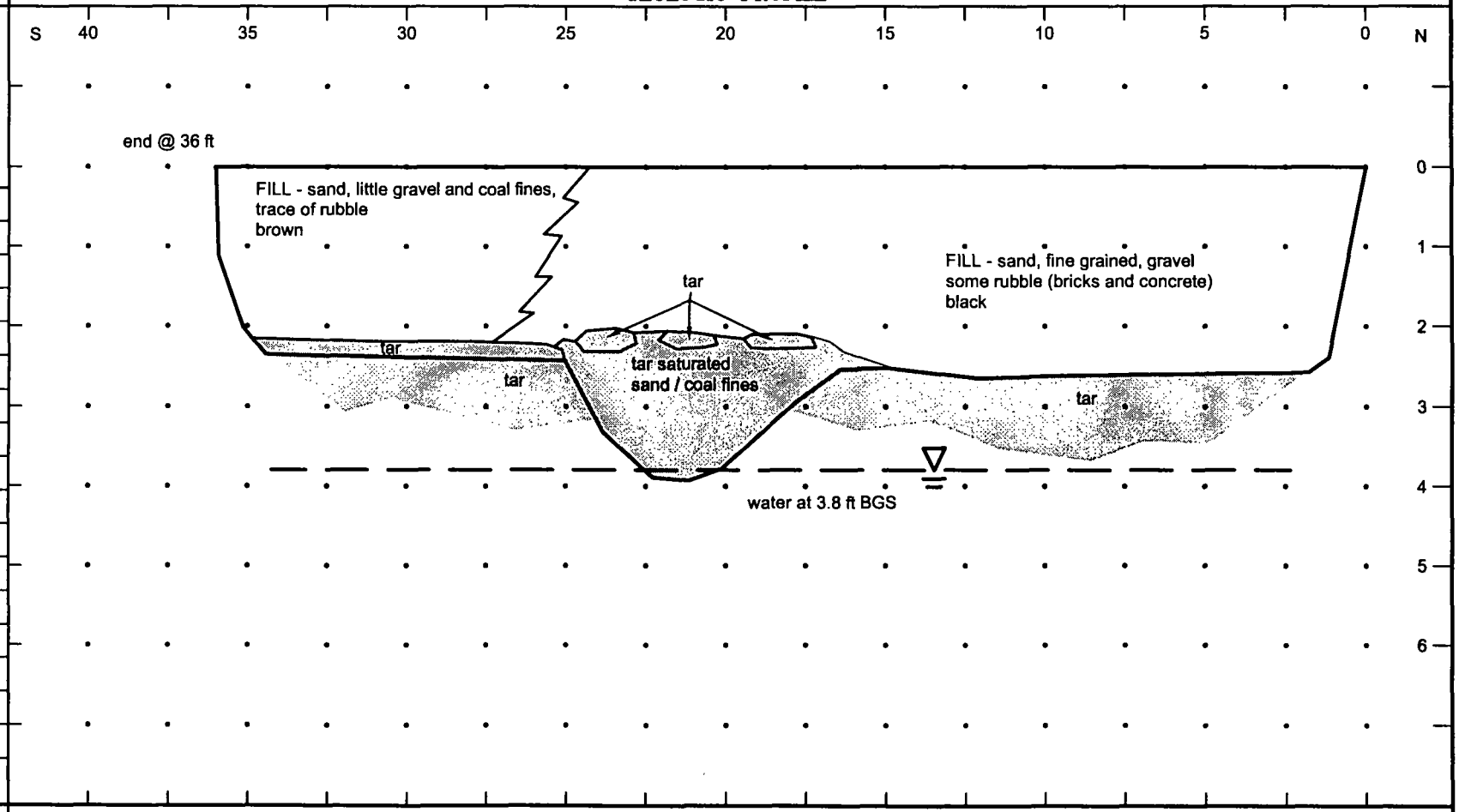
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-139
DATE/TIME STARTED 6/12/02
DATE/TIME COMPLETED 6/12/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

NO SAMPLES COLLECTED

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

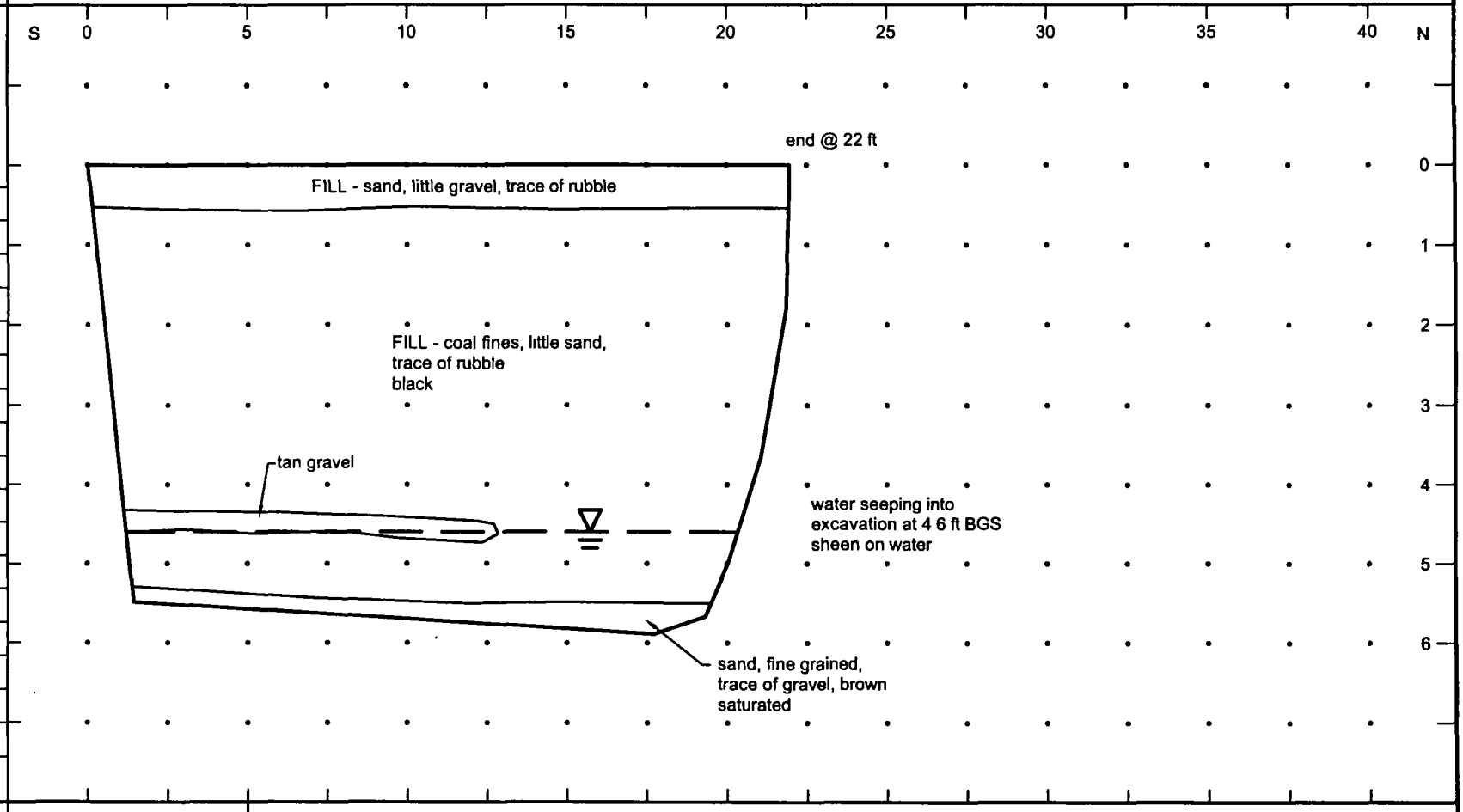
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-140
DATE/TIME STARTED 6/12/02
DATE/TIME COMPLETED 6/12/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061202-WP-0110A ms / msd
S-061202-WP-0110B
S-061202-WP-0110C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

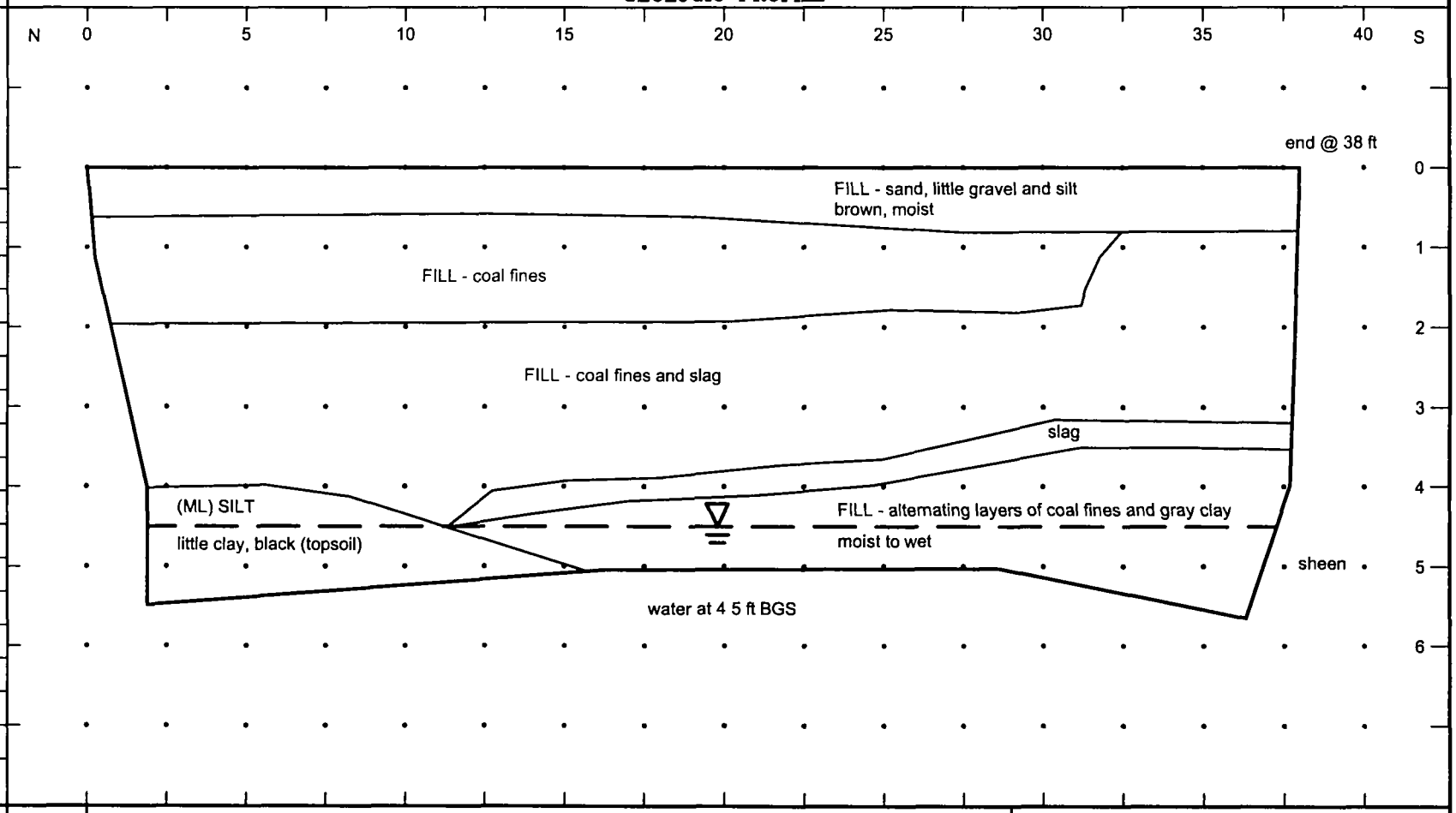
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-141
DATE/TIME STARTED 6/12/02
DATE/TIME COMPLETED 6/12/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061202-WP-0113A BVOCs and Arsenic
S-061202-WP-0113B BVOCs and Arsenic

Waste Characterization
S-061202-WP-0114

S-061202-WP-0112A PAH and Arsenic
S-061202-WP-0112B PAH and Arsenic

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

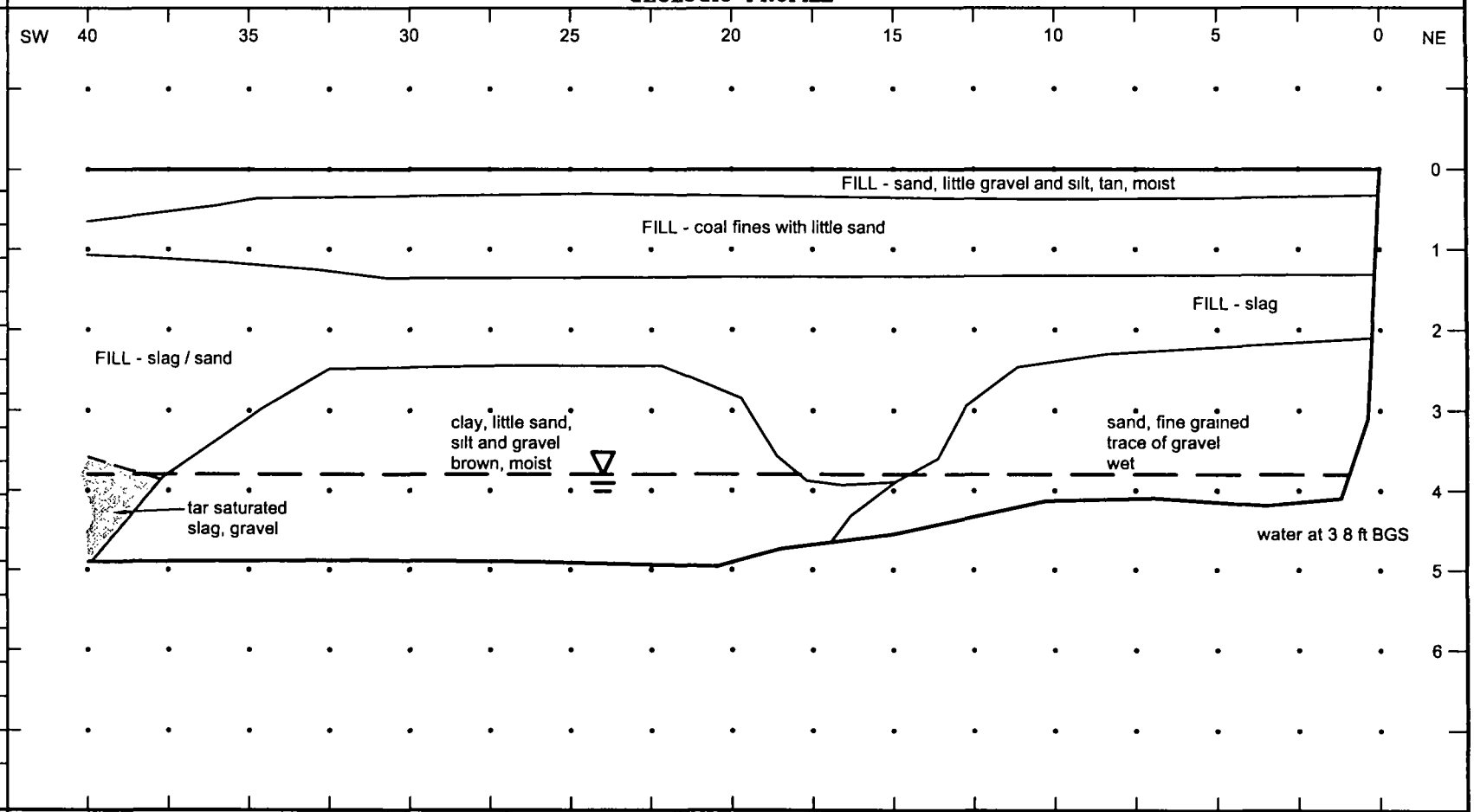
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-142
DATE/TIME STARTED 6/12/02
DATE/TIME COMPLETED 6/12/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061202-WP-0116A
S-061202-WP-0116B

S-061202-WP-0115A
S-061202-WP-0115B ms / msd

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

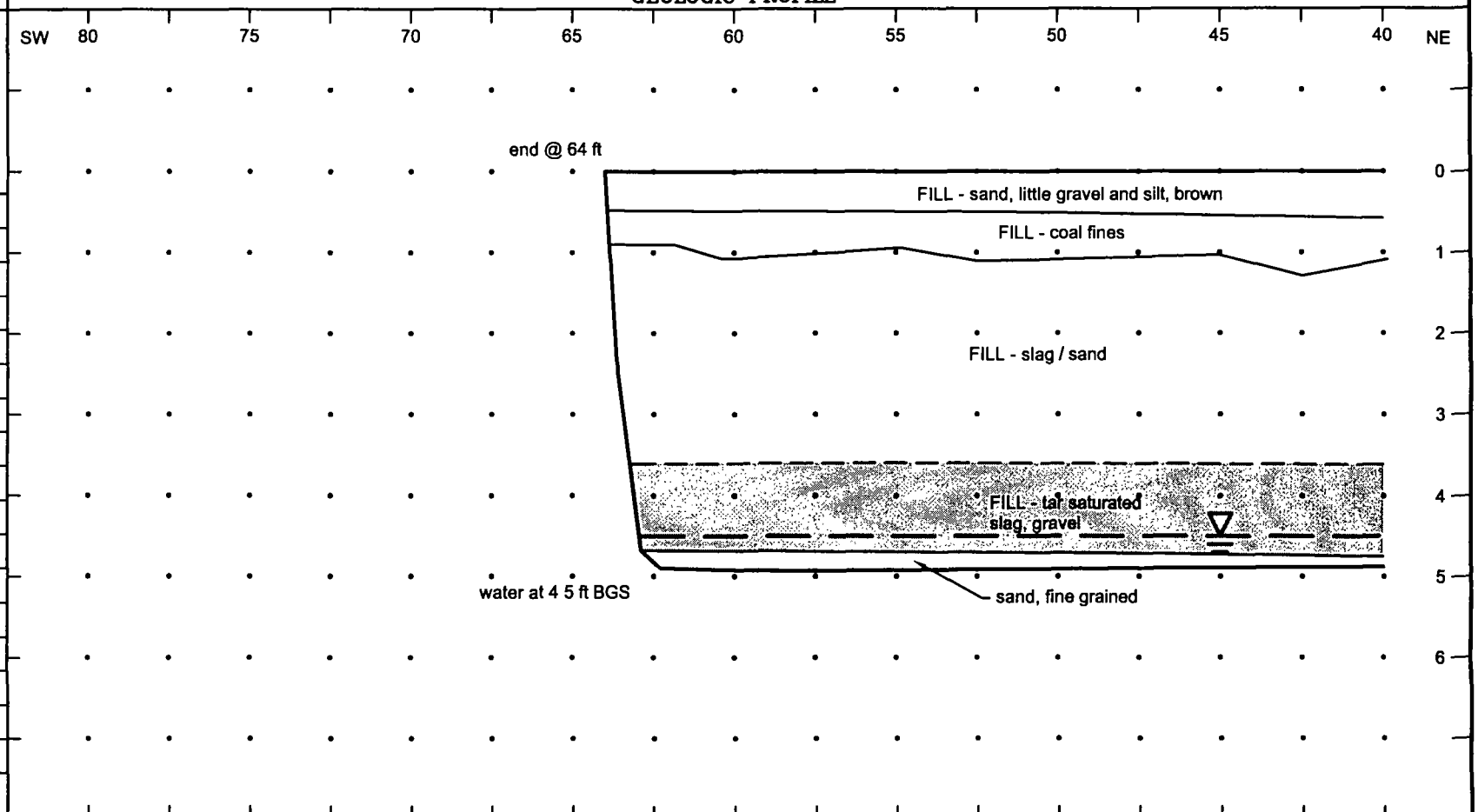
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-142
DATE/TIME STARTED 6/12/02
DATE/TIME COMPLETED 6/12/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061202-WP-0117A
S-061202-WP-0117B

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

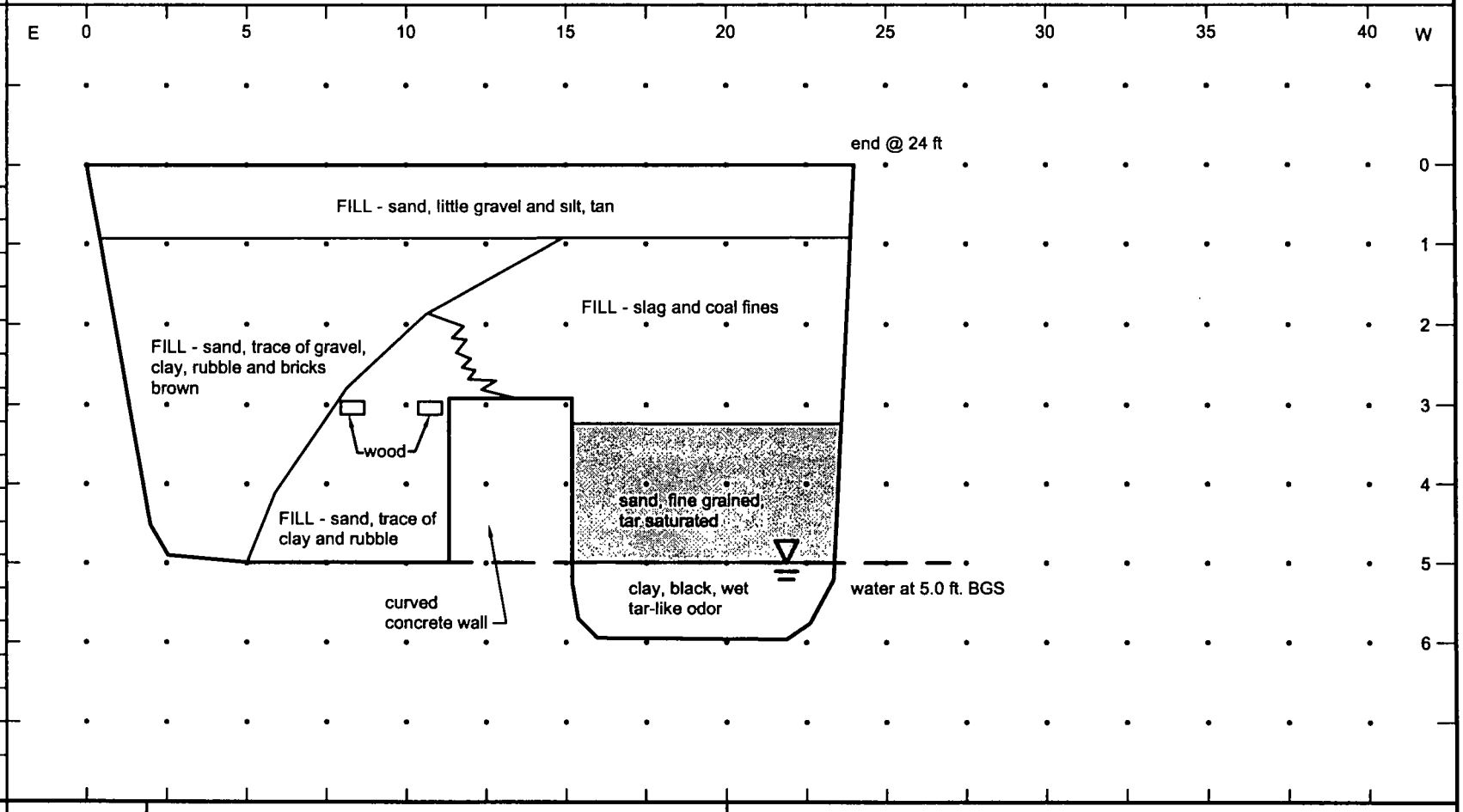
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-143
DATE/TIME STARTED 6/12/02
DATE/TIME COMPLETED 6/12/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061202-WP-0119A
S-061202-WP-0119B
S-061202-WP-0119C

S-061202-WP-0120A
S-061202-WP-0120B
S-061202-WP-0120C

TEST PIT STRATIGRAPHY LOG

PROJECT NAME: WAUKEGAN COKE SITE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, ILLINOIS

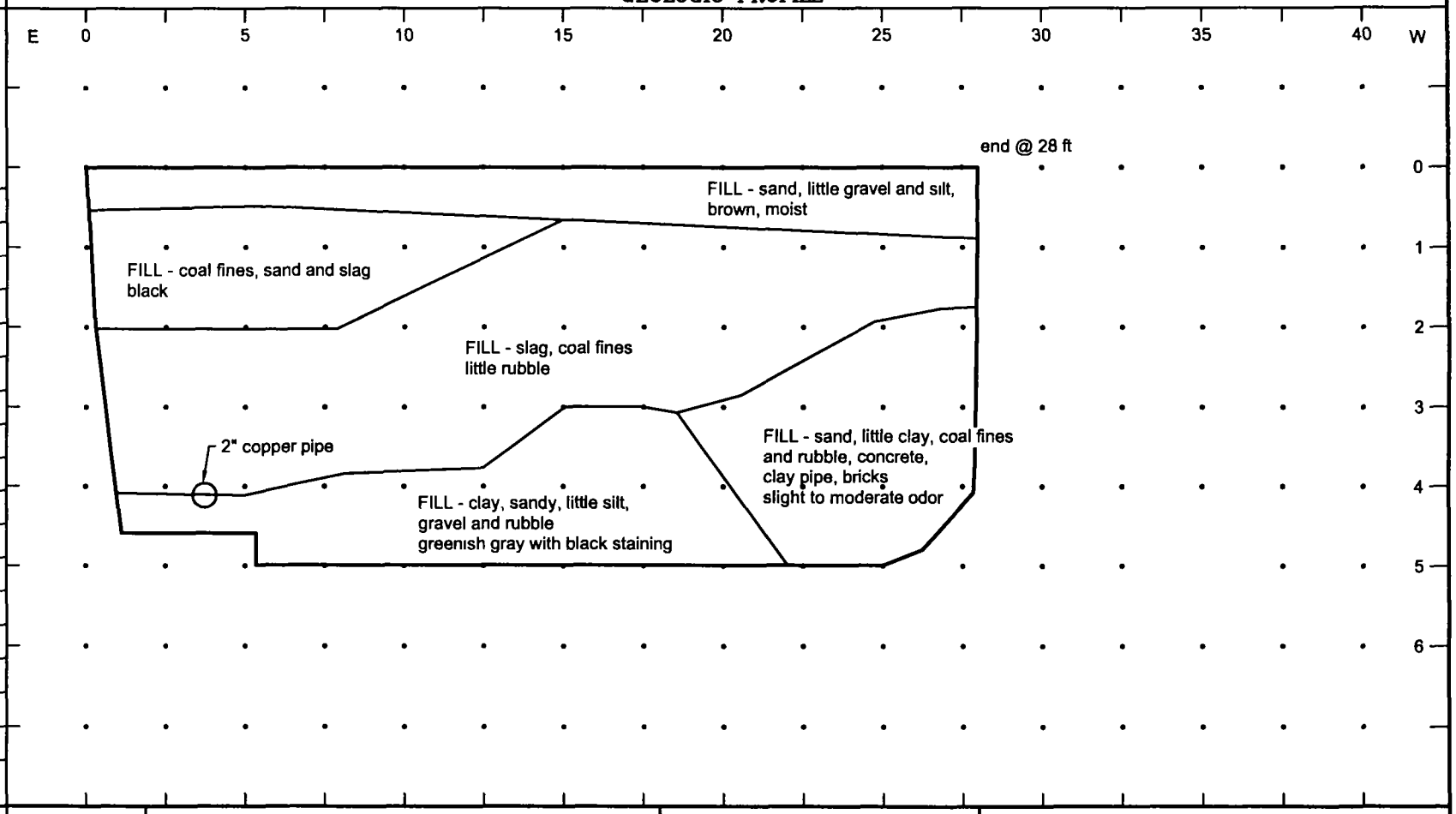
CONTRACTOR: ECI
NAME:
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-144
DATE/TIME STARTED: 6/13/02
DATE/TIME COMPLETED: 6/13/02
TEST PIT METHOD: TRACK HOE
CRA SUPERVISOR: W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061302-WP-022A SVOCs and Arsenic
S-061302-WP-022B SVOCs and Arsenic
S-061302-WP-023A DUP SVOCs and Arsenic
S-061302-WP-024A Arsenic only
S-061302-WP-024B Arsenic only
S-061302-WP-024C Arsenic only
S-061302-WP-025C SVOCs only

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

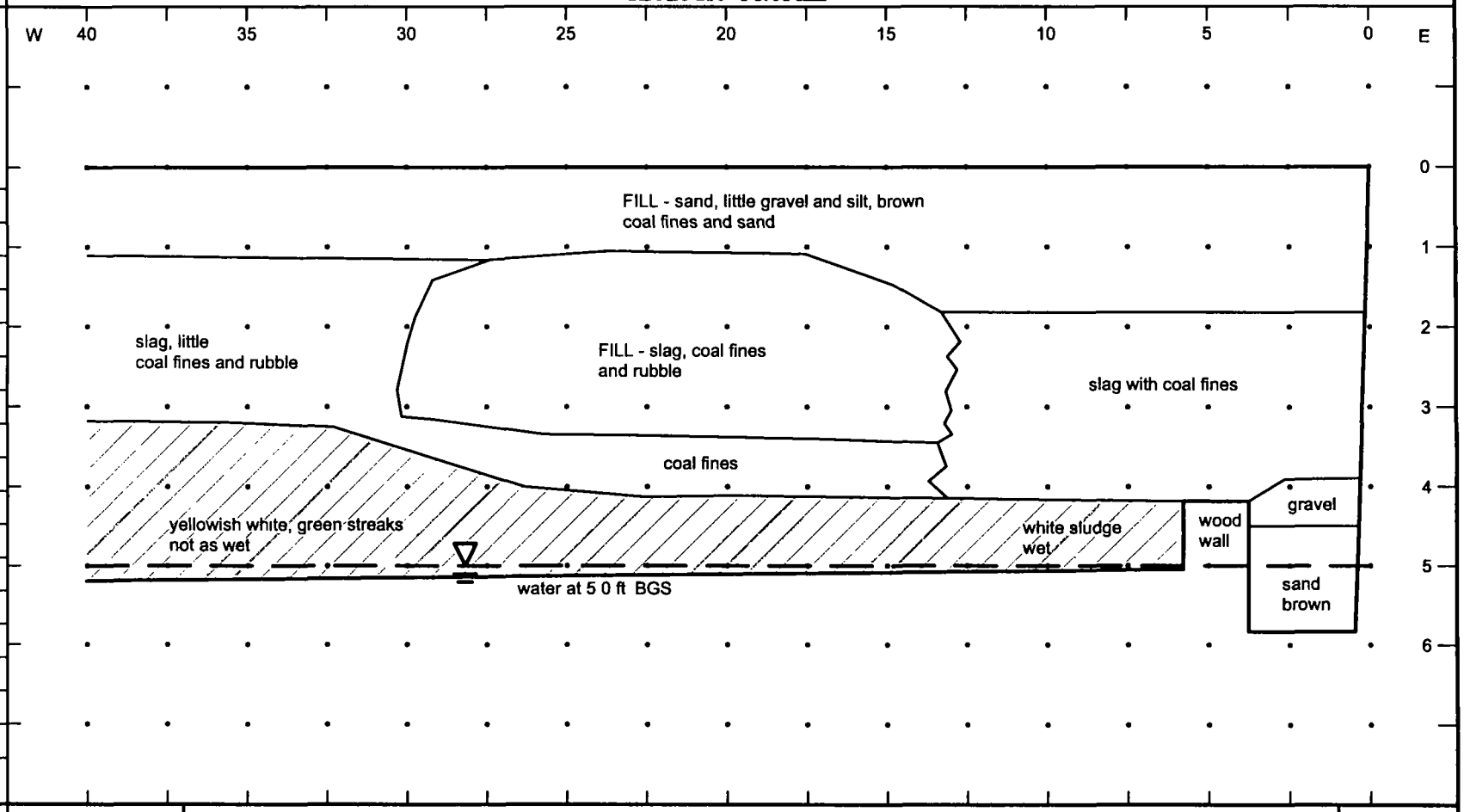
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-145
DATE/TIME STARTED 6/13/02
DATE/TIME COMPLETED 6/13/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061302-WP-0128A SVOCs and Arsenic
S-061302-WP-0128B SVOCs and Arsenic
S-061302-WP-0128C SVOCs and Arsenic

S-061302-WP-0127A Arsenic only
S-061302-WP-0127B Arsenic only
S-061302-WP-0127C Arsenic only

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

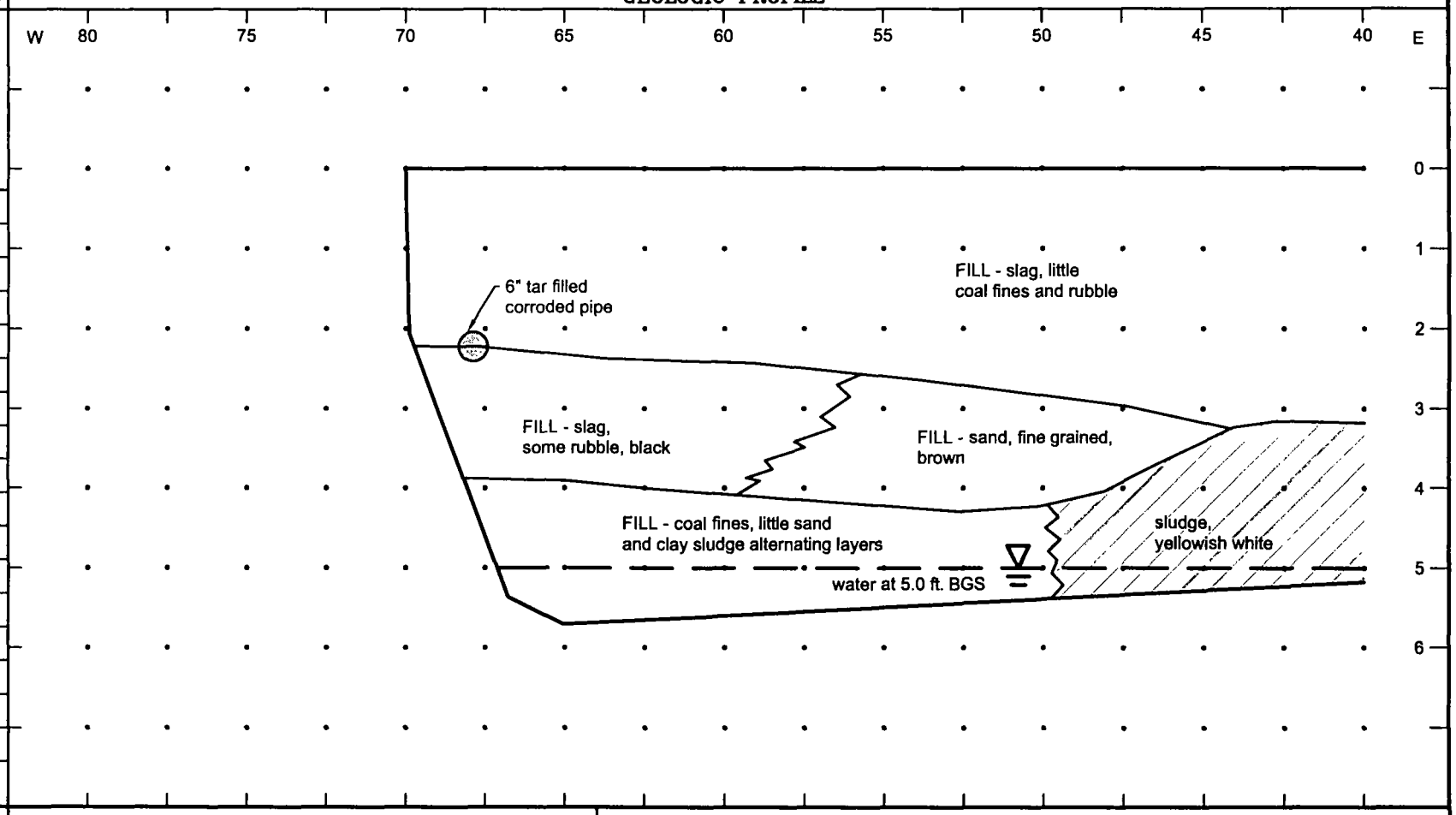
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-145
DATE/TIME STARTED 6/13/02
DATE/TIME COMPLETED 6/13/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061302-WP-0129A Arsenic and PAHs
S-061302-WP-0129B Arsenic and PAHs
S-061302-WP-0129C Arsenic and PAHs

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

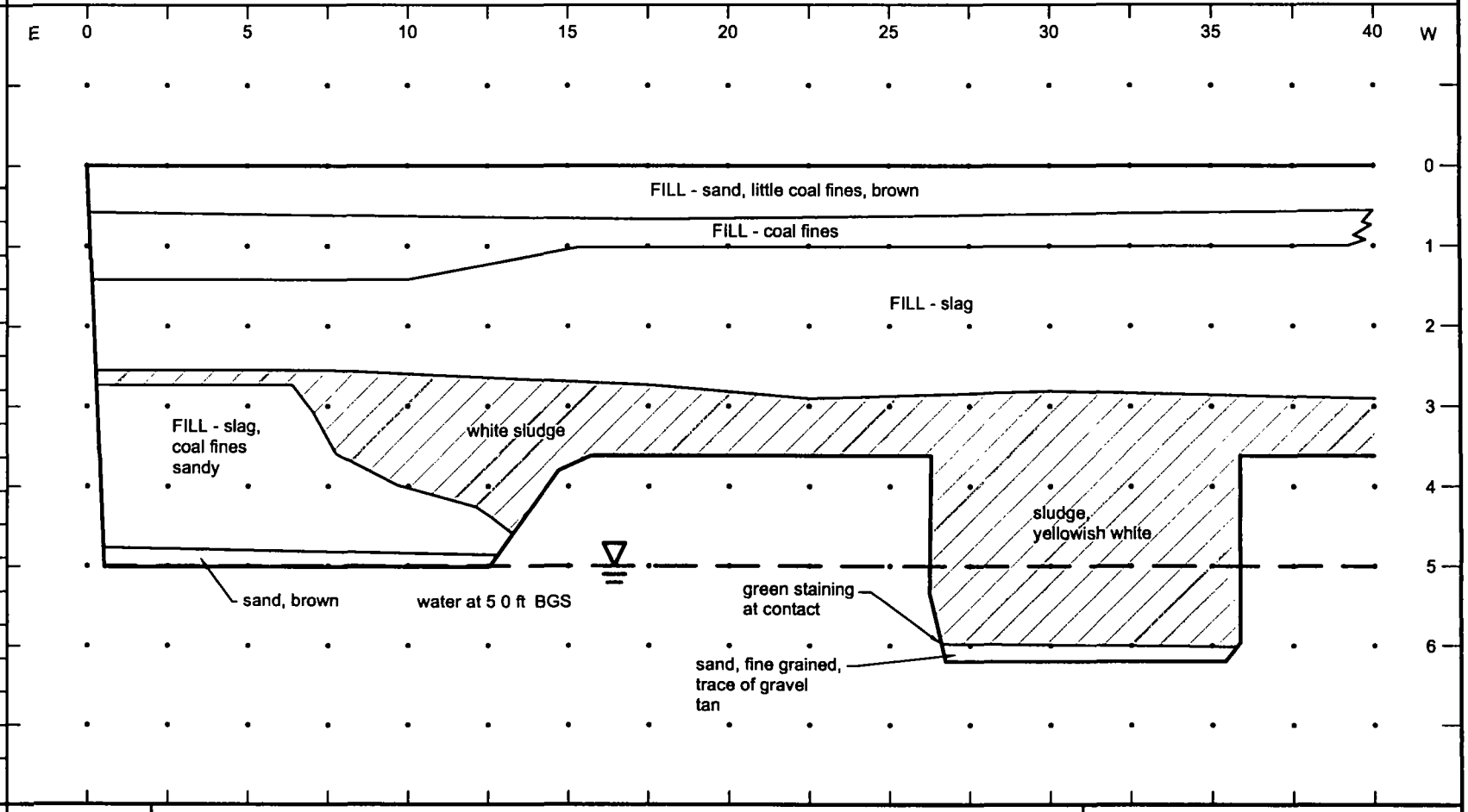
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-146
DATE/TIME STARTED 6/13/02
DATE/TIME COMPLETED 6/13/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061302-WP-0131A Arsenic only
S-061302-WP-0131B Arsenic only
S-061302-WP-0131C Arsenic only

Waste Characterization
S-061302-WP-0133

S-061302-WP-0131B Arsenic

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN, ILLINOIS

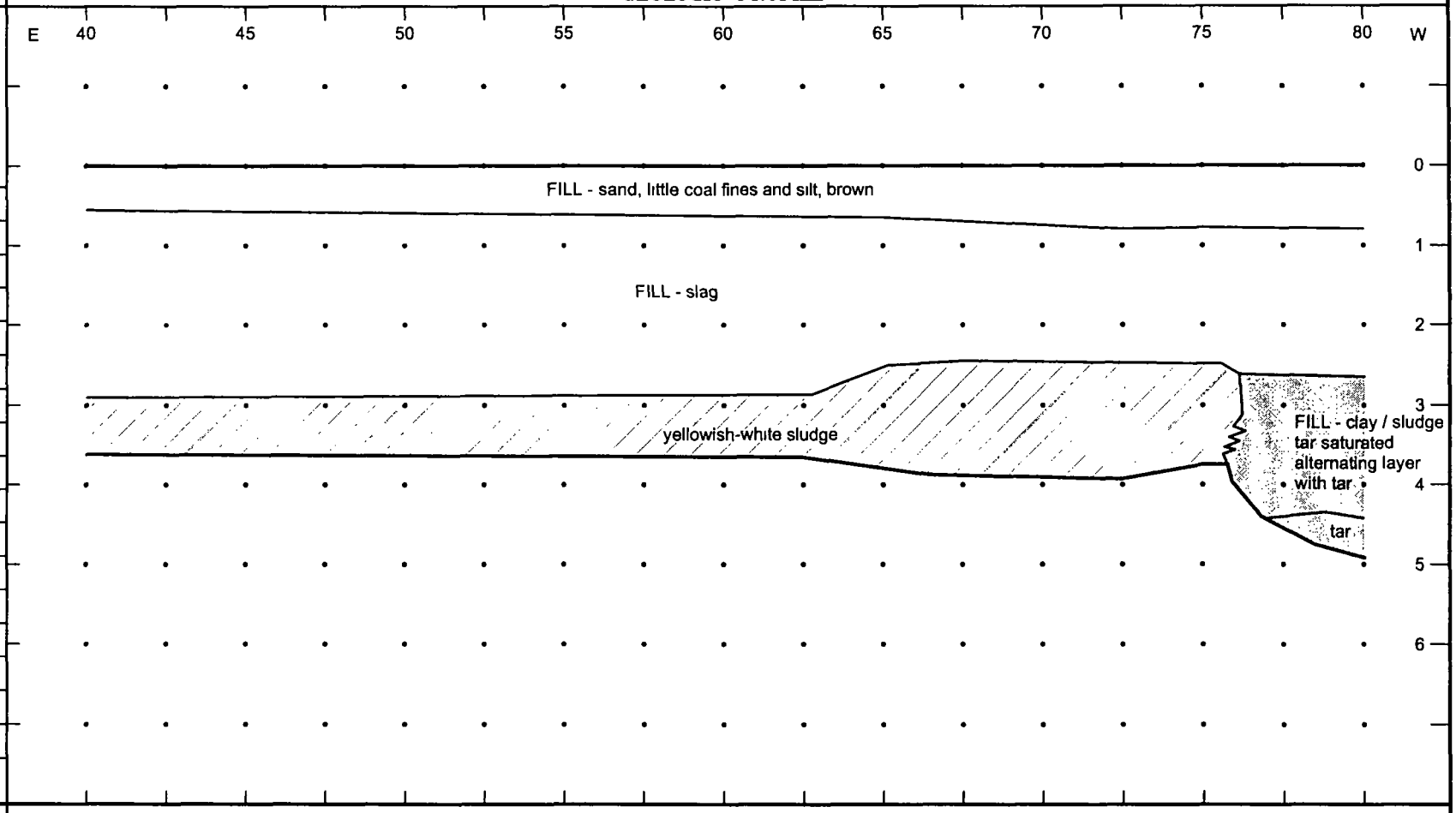
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-146
DATE/TIME STARTED 6/13/02
DATE/TIME COMPLETED 6/13/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN, ILLINOIS

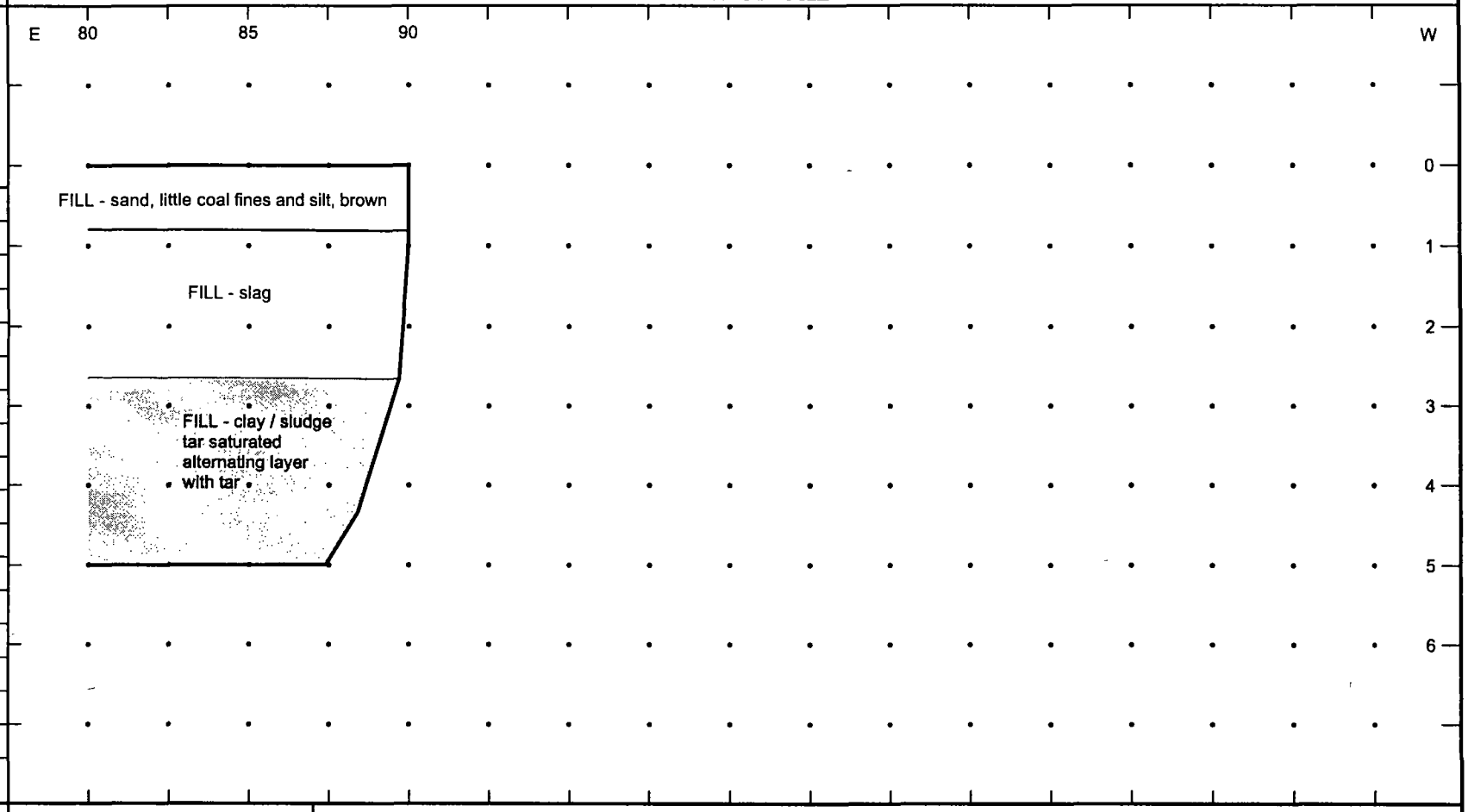
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-146
DATE/TIME STARTED 6/13/02
DATE/TIME COMPLETED 6/13/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061302-WP-0132A Arsenic and SVOCs
S-061302-WP-0132B Arsenic and SVOCs
S-061302-WP-0132C Arsenic and SVOCs

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN, ILLINOIS

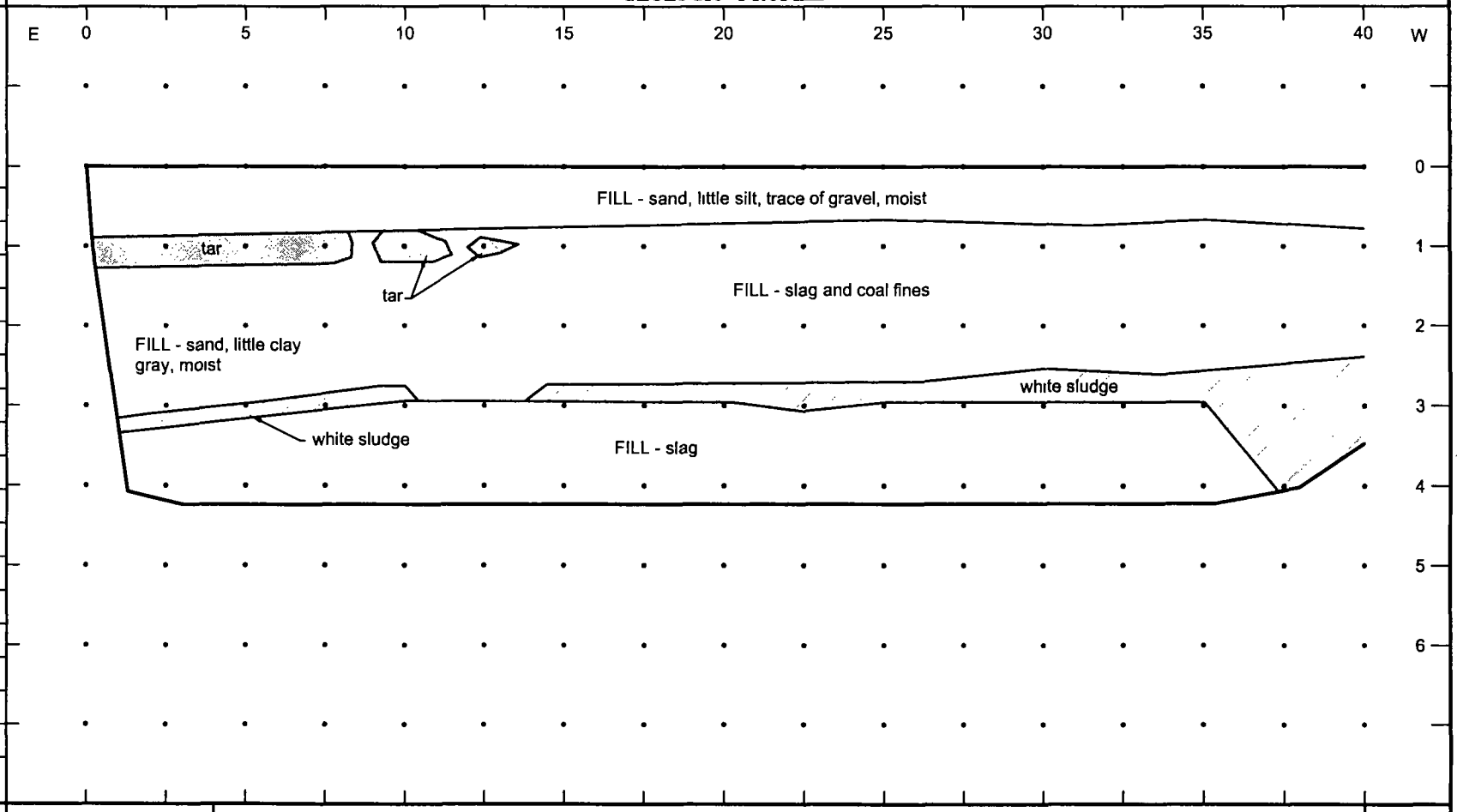
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-147
DATE/TIME STARTED 6/13/02
DATE/TIME COMPLETED 6/13/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061302-WP-0136B Arsenic and SVOCs

S-061302-WP-0137A
S-061302-WP-0137B
S-061302-WP-0138A DUP

TEST PIT STRATIGRAPHY LOG

PROJECT NAME: WAUKEGAN COKE SITE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, ILLINOIS

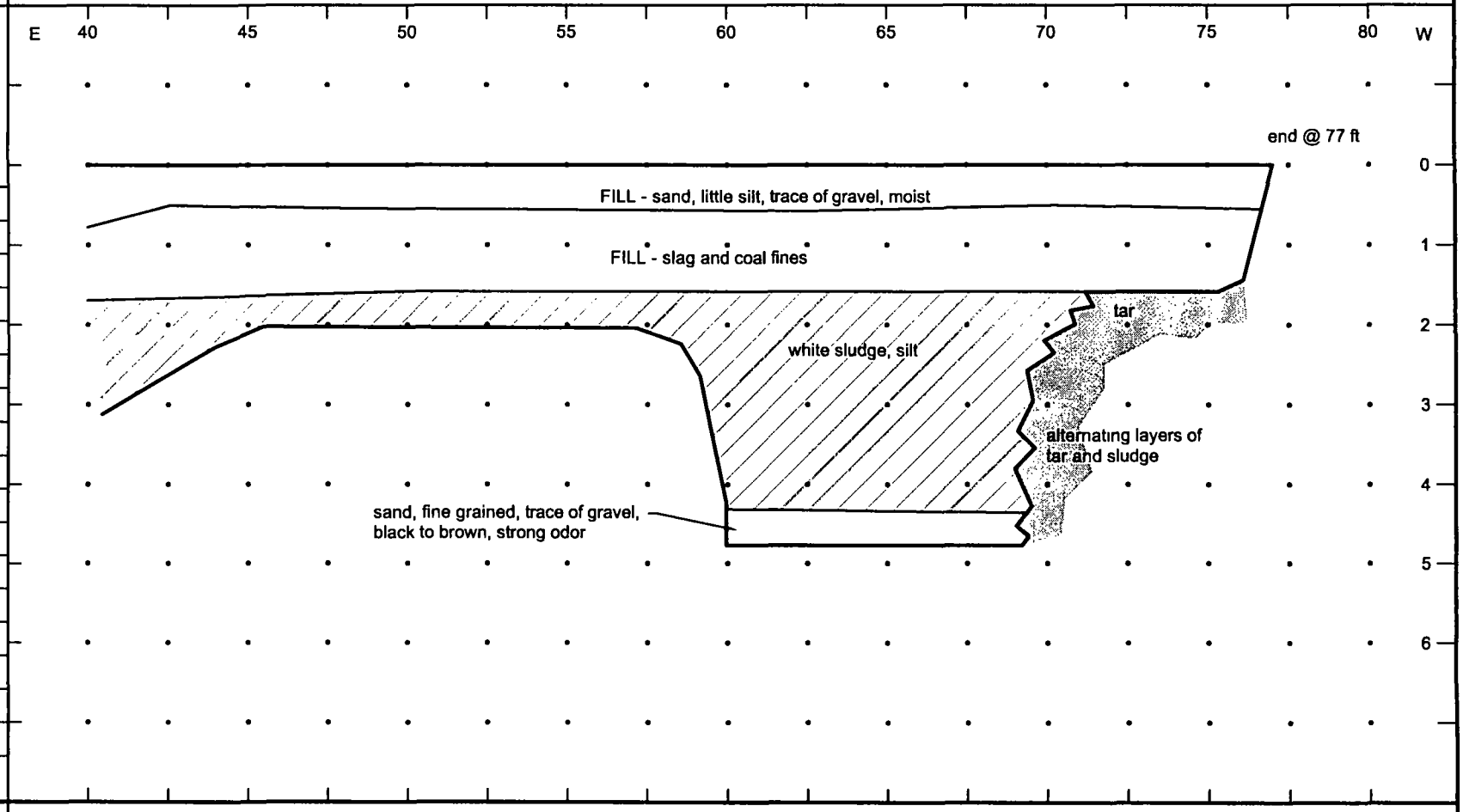
CONTRACTOR: ECI
NAME:
SURFACE ELEVATION:
WEATHER (A.M.):
(P.M.):

TEST PIT DESIGNATION: TP-147
DATE/TIME STARTED: 6/13/02
DATE/TIME COMPLETED: 6/13/02
TEST PIT METHOD: TRACK HOE
CRA SUPERVISOR: W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

Waste Characterization
S-061302-WP-0139

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

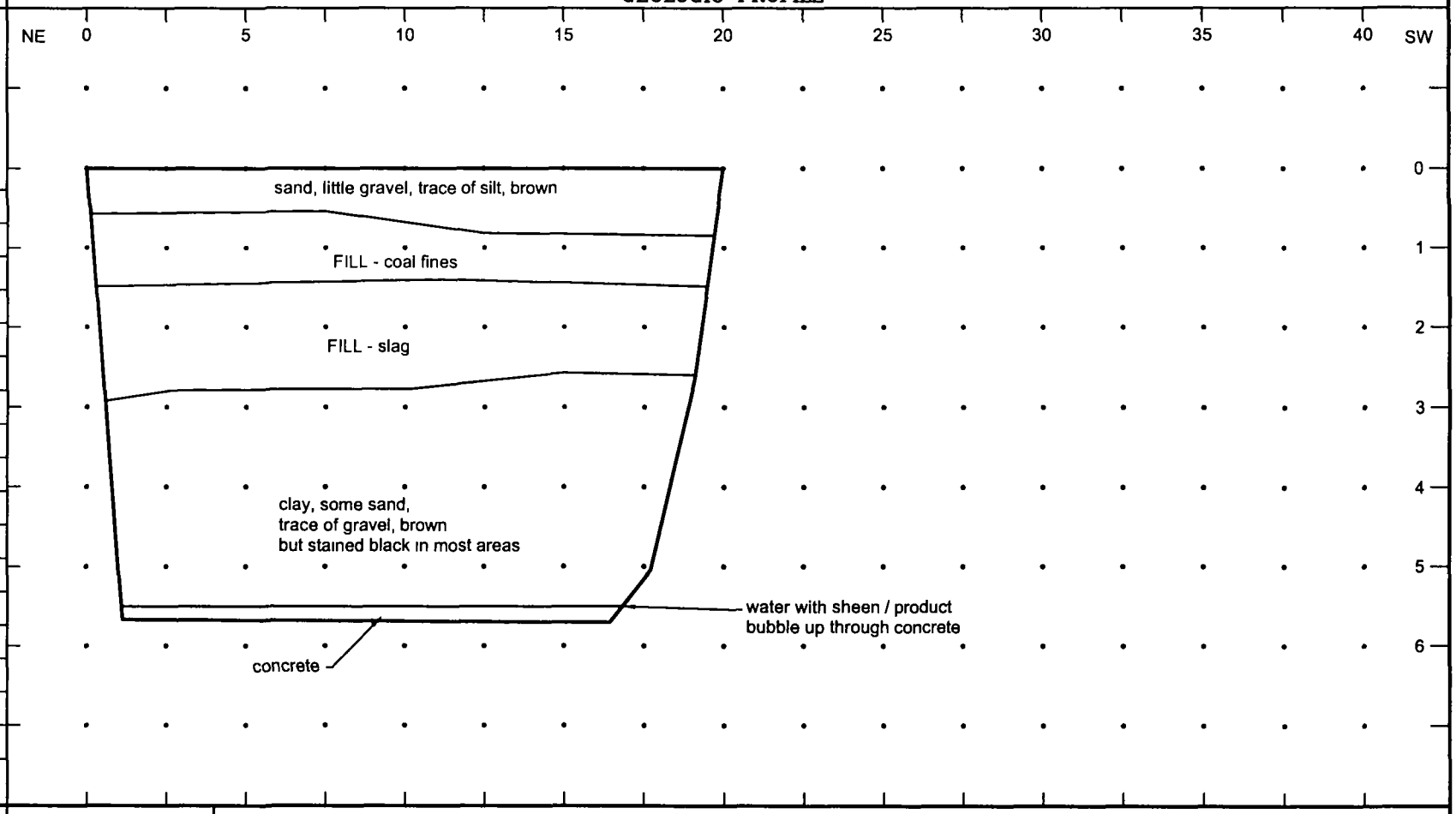
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-148
DATE/TIME STARTED 6/13/02
DATE/TIME COMPLETED 6/13/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061302-WP-0142A Arsenic and SVOCs
S-061302-WP-0142B Arsenic and SVOCs
S-061302-WP-0142C Arsenic and SVOCs

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

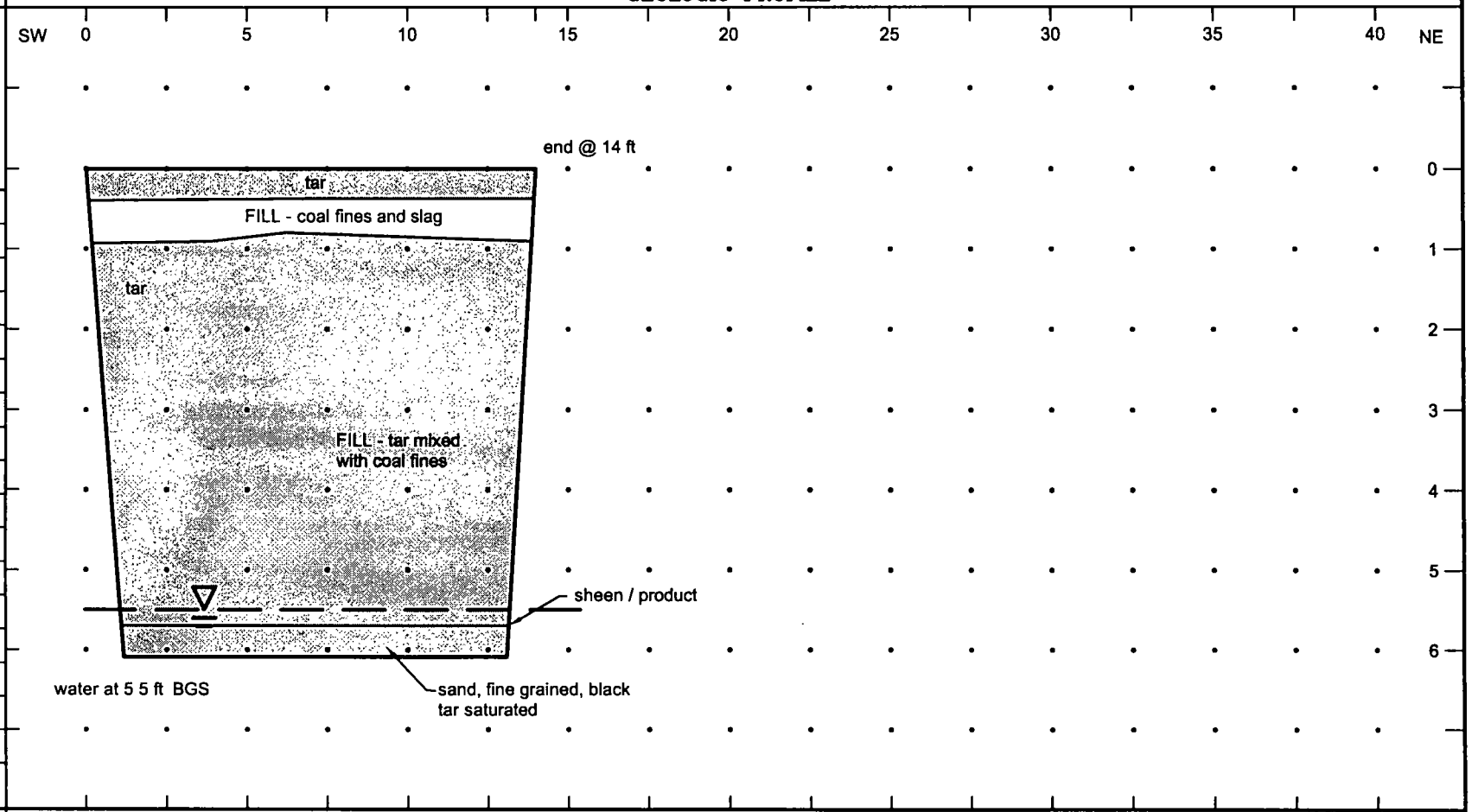
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-149
DATE/TIME STARTED 6/13/02
DATE/TIME COMPLETED 6/13/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

NO SAMPLES

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

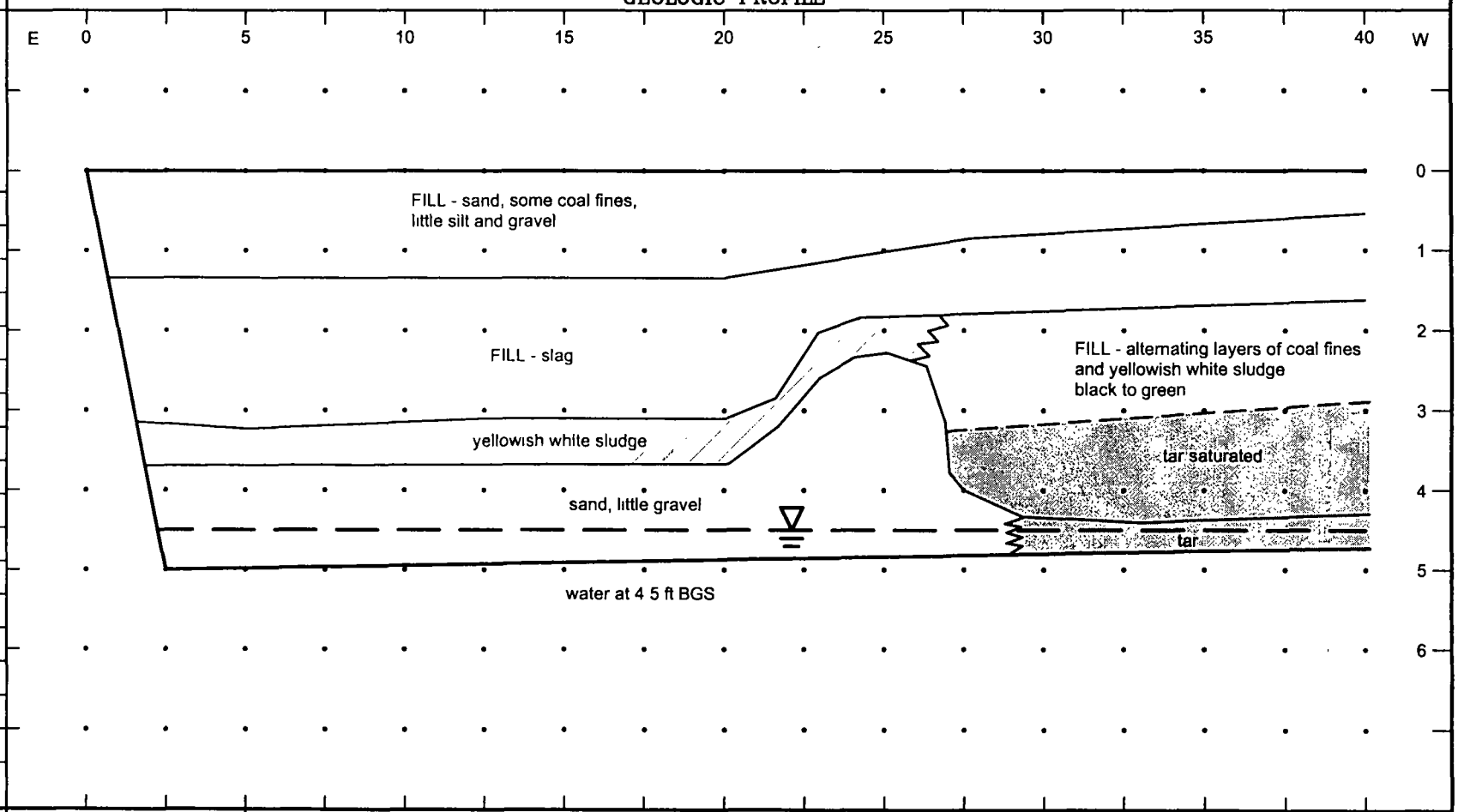
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-150
DATE/TIME STARTED 6/14/02
DATE/TIME COMPLETED 6/14/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061402-WP-0144A
S-061402-WP-0144B

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

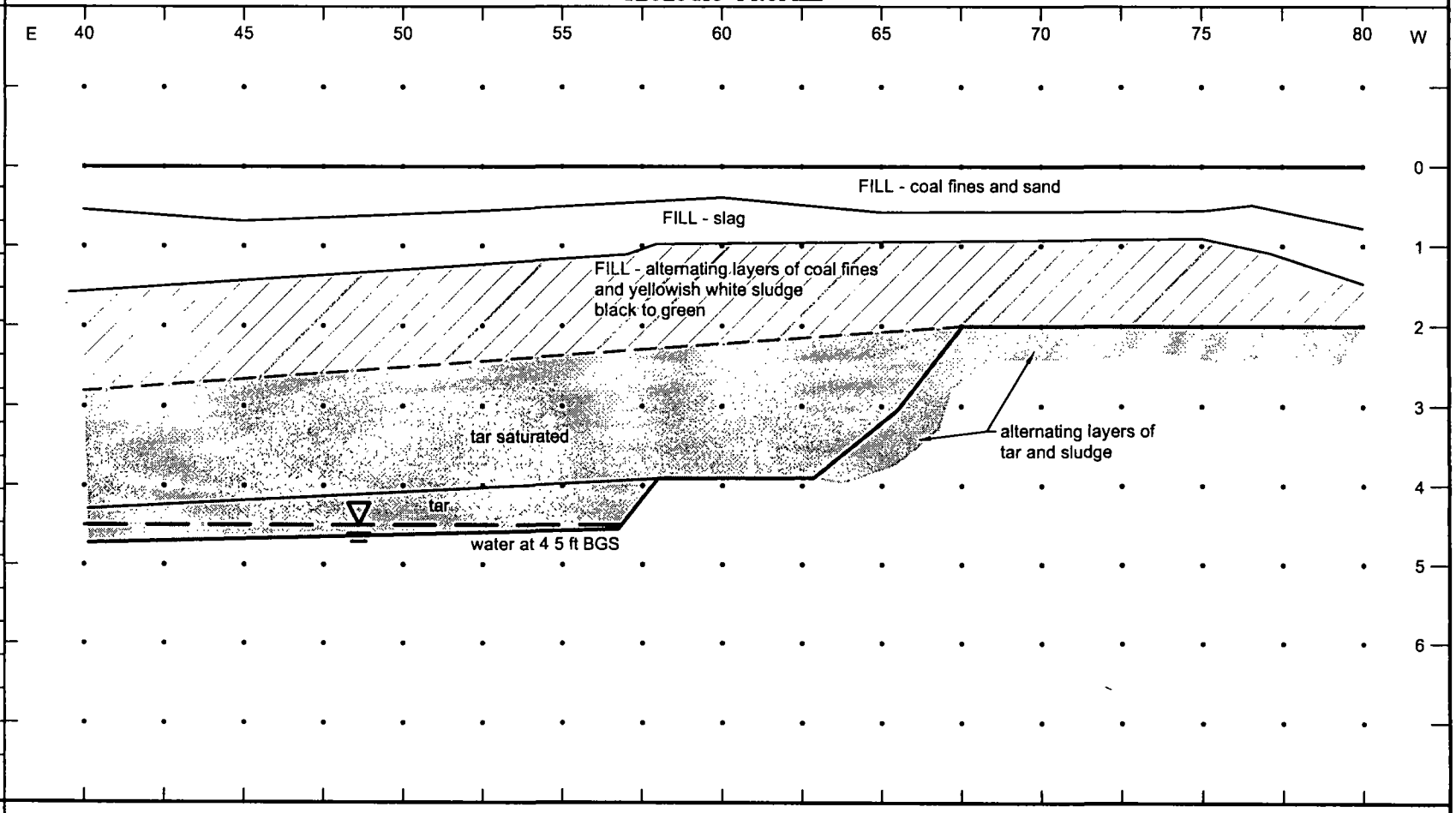
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-150
DATE/TIME STARTED 6/14/02
DATE/TIME COMPLETED 6/14/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN, ILLINOIS

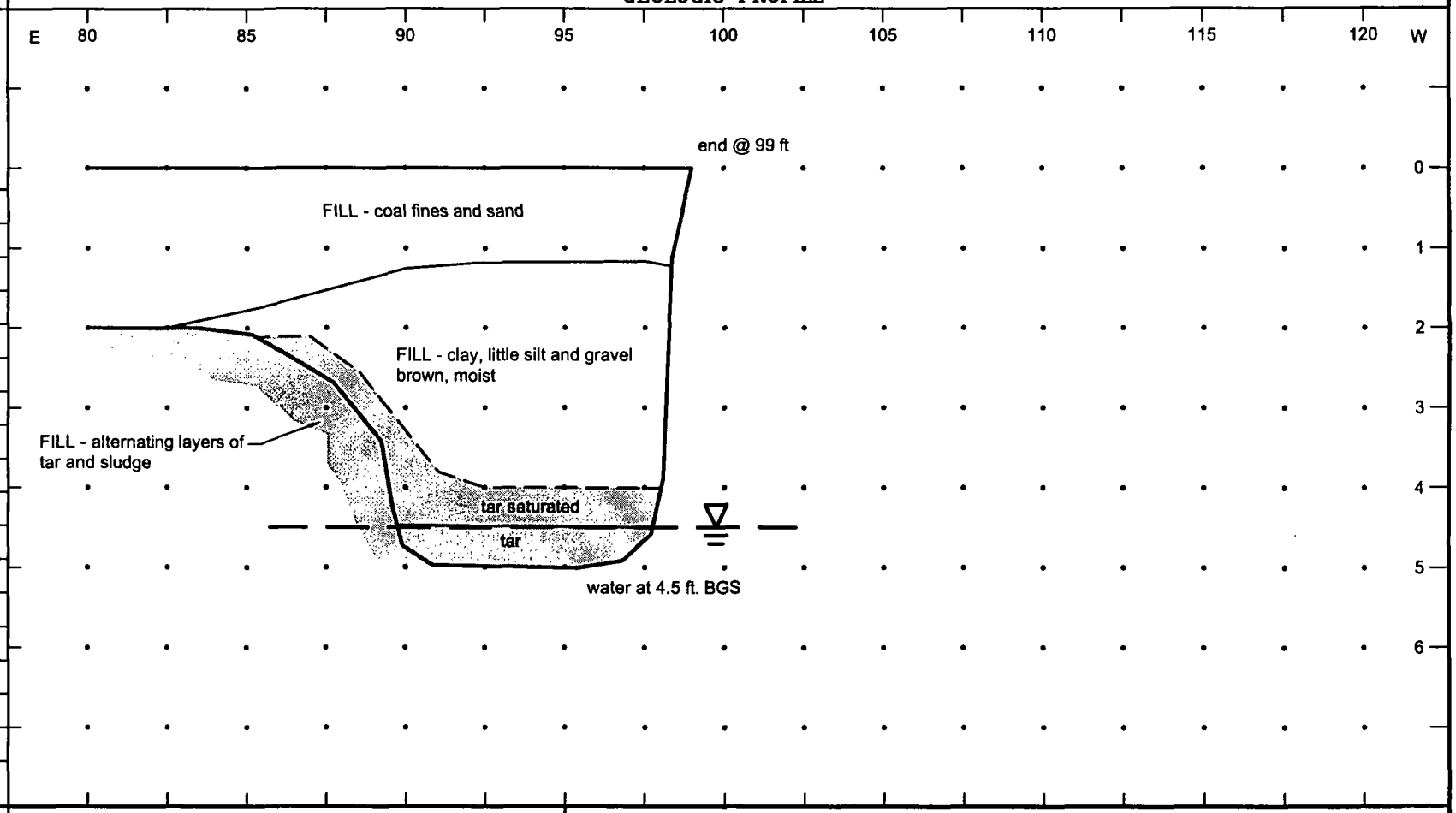
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-150
DATE/TIME STARTED 6/14/02
DATE/TIME COMPLETED 6/14/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE INTERVA	PID/FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061402-WP-0145A 0 - 2
S-061402-WP-0145B 2 - 4

TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

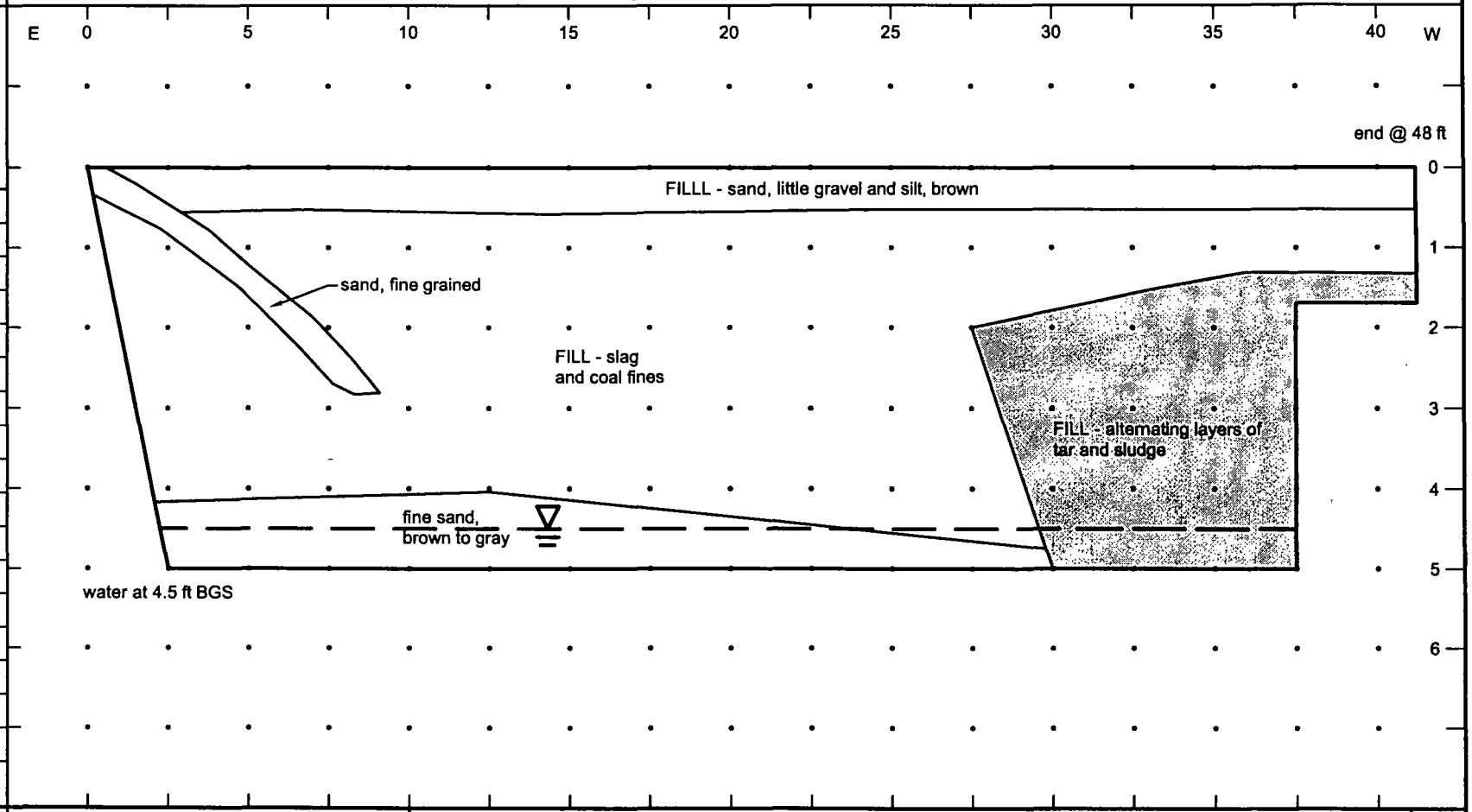
CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-151
DATE/TIME STARTED 6/14/02
DATE/TIME COMPLETED 6/14/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS

SAMPLE #	SAMPLE	INTERVA	PID / FI

GEOLOGIC PROFILE



NOTES AND COMMENTS

S-061402-WP-0146A
S-061402-WP-0146B
S-061402-WP-0147A

S-061402-WP-0148A
(located at 41 ft)

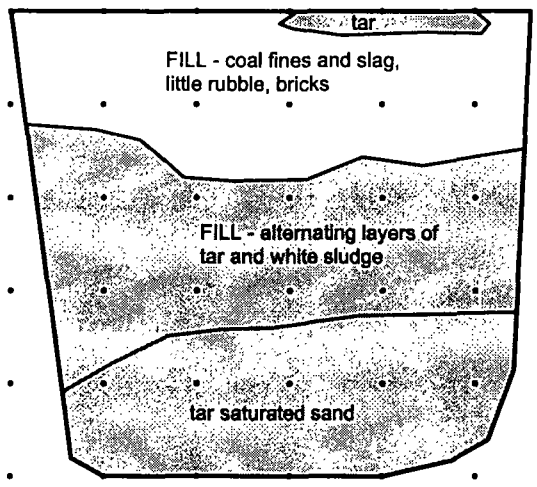
TEST PIT STRATIGRAPHY LOG

PROJECT NAME WAUKEGAN COKE SITE
PROJECT NUMBER 19023
CLIENT WCP GROUP
LOCATION WAUKEGAN , ILLINOIS

CONTRACTOR ECI
NAME
SURFACE ELEVATION
WEATHER (A.M.)
(P.M.)

TEST PIT DESIGNATION TP-152
DATE/TIME STARTED 6/14/02
DATE/TIME COMPLETED 6/14/02
TEST PIT METHOD TRACK HOE
CRA SUPERVISOR W. POCHRON/T. LEO

SAMPLE DETAILS				GEOLOGIC PROFILE
SAMPLE #	SAMPLE	INTERVA	PID/FI	



NOTES AND COMMENTS

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-200
DATE COMPLETED: June 11, 2002
DRILLING METHOD: 3 1/4" HSA
FIELD PERSONNEL. M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT, gravel fill		ASPHALT				
	SM-SAND, fine grained, dense, poorly graded, dark brown, moist, slight hydrocarbon odor	0.75	6" Ø BOREHOLE	1			
2							
	CI-CLAY, trace silt, soft, medium plasticity, light gray, very moist	2.50	BENTONITE CHIPS	2			
4	- wet at 4.0ft BGS						
				3			
6	- 4 0ft to 6.0ft - no recovery END OF BOREHOLE @ 6.0ft BGS	6 00					
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-201
DATE COMPLETED: June 11, 2002
DRILLING METHOD: 3 1/4" HSA
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0 30	ASPHALT				
	GRAVEL and sand fill						
	SP-SAND (FILL), trace gravel, poorly graded, dark brown to black, moist, slight hydrocarbon odor	1 00	6" Ø BOREHOLE	1			
	- blue specks visable, trace of coal at 1.7ft BGS						
2	- blue specks no longer visable at 2.3ft BGS		BENTONITE CHIPS				
				2			
	- trace of clay at 3.8ft BGS						
4	- black stained, strong hydrocarbon odor at 3.9ft BGS	4.00					
	END OF BOREHOLE @ 4.0ft BGS						
6							
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-202
DATE COMPLETED: June 11, 2002
DRILLING METHOD: 3 1/4" HSA
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0 30	ASPHALT				
	GRAVEL, sand fill	1 00	6" Ø BOREHOLE	1			
	SP-SAND (FILL) with gravel, compact, brown and black, well graded, traces of slag						
2	- coarse sand with gravel, no trace of slag at 2 0ft BGS		BENTONITE CHIPS	2			
	- wet at 3.5ft BGS						
4	END OF BOREHOLE @ 4.0ft BGS	4 00					
6							
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-203
DATE COMPLETED: June 11, 2002
DRILLING METHOD: 3 1/4" HSA
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0.50	ASPHALT				
	GRAVEL, sand fill	1 00	6" Ø BOREHOLE				
	CL-CLAY (FILL), some silt, hard, low plasticity, light tan, moist			1			
2	- trace of coal at 2.0ft BGS		BENTONITE CHIPS				
	SP-SAND, fine grained, loose, poorly graded, light brown, moist	3 00		2			
	- wet at 3.5ft BGS						
4	END OF BOREHOLE @ 4.0ft BGS	4 00					
6							
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-204
DATE COMPLETED: June 11, 2002
DRILLING METHOD: 3 1/4" HSA
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0.50	ASPHALT				
	GRAVEL and sand base fill	1.00	6" Ø BOREHOLE				
	SP-SAND (FILL), trace gravel, medium grained, compact, well graded, dark brown to black, moist, trace slag			1			
2	- coarse sand at 2.5ft BGS		BENTONITE CHIPS				
	- saturated at 3.0ft BGS			2			
	CI-CLAY, trace silt and gravel, soft, light brown and gray	3.50					
4	END OF BOREHOLE @ 4.0ft BGS	4 00					
6							
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-205
DATE COMPLETED: June 11, 2002
DRILLING METHOD: 3 1/4" HSA
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0 50	ASPHALT				
	GRAVEL and sand base fill	1 00	6" Ø BOREHOLE	1			
	SW-SAND (FILL), fine grained, poorly graded, loose, light brown, moist, trace slag - no trace of slag at 1.5ft BGS		BENTONITE	2			
2							
	- saturated at 3.5ft BGS						
4	END OF BOREHOLE @ 4.0ft BGS	4.00					
6							
8							
10							
12							
14							

NOTES MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-206
DATE COMPLETED. June 12, 2002
DRILLING METHOD. GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0.30	ASPHALT				
	SAND and gravel base fill - coal particles at 1.0ft BGS		2" Ø BOREHOLE				
	SP-SAND, fine grained, compact, poorly graded, light brown, moist	1 50					
2	CI-CLAY, trace sand, medium plasticity, soft, brown, moist	2.00	BENTONITE CHIPS	1			
4	- saturated at 4.0ft BGS END OF BOREHOLE @ 4.0ft BGS	4 00					
6							
8							
10							
12							
14							

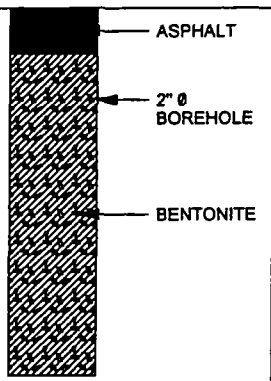
NOTES MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-207
DATE COMPLETED: June 12, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0 30	ASPHALT				
	SAND and gravel base fill	1.00	2" Ø BOREHOLE				
	SP-SAND (FILL), trace gravel, dense, brown, moist	2.00	BENTONITE	1			
2	CI-CLAY (FILL), trace silt, soft, medium plasticity, brown, moist - turns black at 2.5ft BGS - coal layer at 3 0ft BGS - saturated at 3.5ft BGS						
4	END OF BOREHOLE @ 4.0ft BGS	4 00					
6							
8							
10							
12							
14							



NOTES MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-208
DATE COMPLETED. June 12, 2002
DRILLING METHOD· GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0.30	ASPHALT				
	SAND and gravel fill	1.00	2" Ø BOREHOLE				
2	SP-SAND (FILL), trace gravel, coarse grained, loose, dark brown, moist, trace of slag		BENTONITE CHIPS	1			
	- saturated at 3.5ft BGS						
4	END OF BOREHOLE @ 4.0ft BGS	4.00					
6							
8							
10							
12							
14							

NOTES. MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-209
DATE COMPLETED: June 12, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0.30	ASPHALT				
	Poor recovery - tar present		2" Ø BOREHOLE				
2			BENTONITE CHIPS	1			
4	END OF BOREHOLE @ 4.0ft BGS	4 00					
6							
8							
10							
12							
14							

NOTES MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME. WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-210
DATE COMPLETED: June 12, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0.30	ASPHALT				
	SAND and gravel fill - tar layer 1.0ft to 1.4ft BGS - sand, coarse grained, dark brown, moist at 1.5ft BGS		2" Ø BOREHOLE	1			
2							
			BENTONITE CHIPS				
4	- tar layer 4.0ft to 4.2ft BGS - sand at 4.2ft BGS - tar layer 4.7ft to 5.3ft BGS			2			
	SP-SAND, fine grained, loose, poorly graded, black, moist	5 30					
6	END OF BOREHOLE @ 6.0ft BGS	6 00					
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-211
DATE COMPLETED: June 12, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0 30	ASPHALT				
	SAND and gravel fill	1.00	2" Ø BOREHOLE				
2	SAND (FILL), coarse grained, trace gravel and slag, loose, well graded, dark brown, moist			1			
	- tar layer 3.0ft to 3.2ft BGS	3 20	BENTONITE CHIPS				
4	SP-SAND, fine grained, compact, poorly graded, light brown, wet, trace black staining, slight odor - becomes saturated at 3.5ft BGS, no black staining			2			
6	END OF BOREHOLE @ 6.0ft BGS	6 00					
8							
10							
12							
14							

NOTES MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION. WAUKEGAN, IL

HOLE DESIGNATION: SB-212
DATE COMPLETED. June 12, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0 30	ASPHALT				
	SAND and gravel fill						
	SAND (FILL), coarse grained, trace gravel and slag, loose, dark brown, moist	1 00	2" Ø BOREHOLE				
2				1			
	- tar layer 3.0ft to 3.4ft BGS		BENTONITE CHIPS				
	SP-SAND, fine grained, compact, poorly graded, light brown, wet, trace black staining, slight hydrocarbon odor	3 40					
4	- becoming saturated at 4.0ft BGS, no trace black staining						
				2			
6	END OF BOREHOLE @ 6.0ft BGS	6.00					
8							
10							
12							
14							

NOTES. MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-213
DATE COMPLETED: June 12, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0 30	ASPHALT				
	SAND and gravel fill						
	SAND (FILL), coarse, with trace gravel, loose, dark brown, moist	1 00	2" Ø BOREHOLE				
2				1			
	- tar layer 3.5ft to 3.8ft BGS		BENTONITE CHIPS				
4							
	- tar layer 4.7ft to 5.0ft BGS			2			
6	END OF BOREHOLE @ 6.0ft BGS	6 00					
8							
10							
12							
14							

NOTES. MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-214
DATE COMPLETED: June 12, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0 30	ASPHALT				
	SAND and gravel fill	1.00	2" Ø BOREHOLE				
	SAND (FILL), coarse, trace slag and gravel, loose, dark brown, moist						
2				1			
	- tar layer 3.0ft to 3.1ft BGS		BENTONITE CHIPS				
4							
	SP-SAND, compact, fine grained, poorly graded, dark brown, wet, black staining	4 50					
	- saturated at 5.0ft BGS, no black staining			2			
6	END OF BOREHOLE @ 6.0ft BGS	6 00					
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-215
DATE COMPLETED: June 12, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0.30	ASPHALT				
	SAND and gravel fill						
	SAND (FILL), coarse, trace slag and gravel, loose, poorly graded, dark brown, moist	1.00	2" Ø BOREHOLE				
2				1			
	- tar layer 3.5ft to 3.8ft BGS		BENTONITE CHIPS				
	SP-SAND, fine grained, compact, poorly graded, black	3 75					
4	- turns grey, saturated at 4.5ft BGS			2			
6	END OF BOREHOLE @ 6.0ft BGS	6.00					
8							
10							
12							
14							

NOTES MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-216
DATE COMPLETED: June 12, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0.30	ASPHALT				
	SAND and gravel fill		2" Ø BOREHOLE				
2	- tar layer 2.0ft to 4.5ft BGS			1			
			BENTONITE CHIPS				
4	SP-SAND, fine grained, compact, poorly graded, black to gray in color, wet, black staining	4.00					
	- brown, saturated at 5.5ft BGS			2			
6	END OF BOREHOLE @ 6.0ft BGS	6.00					
8							
10							
12							
14							

NOTES. MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-217
DATE COMPLETED: June 12, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0.30	ASPHALT				
	SAND and gravel fill						
	SAND (FILL), coarse, trace gravel and slag, loose, dark brown, moist	1.00	2" Ø BOREHOLE				
2	SAND (FILL), fine, compact, poorly graded, black to dark brown, moist, strong hydrocarbon odor	2.00		1			
	- tar layer 3.5ft to 5.0ft BGS		BENTONITE CHIPS				
4				2			
6	END OF BOREHOLE @ 6.0ft BGS	6.00					
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

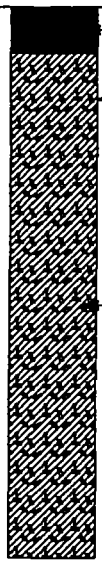
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-218
DATE COMPLETED: June 12, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
	ASPHALT	0 30
	SAND and gravel fill	
2	SAND (FILL), coarse, trace gravel and slag	2.00
	- tar layer 2.5ft to 4.5ft BGS	
4	- saturated at 4.0ft BGS	
	SP-SAND, fine grained, poorly graded, compact, brown with black staining, saturated	4.50
6	END OF BOREHOLE @ 6.0ft BGS	6.00
8		
10		
12		
14		

MONITOR INSTALLATION



SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE
1			
2			

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-219
DATE COMPLETED: June 12, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0.30	ASPHALT				
	SAND and gravel fill						
	coal fines (FILL) at 1.0ft BGS	1.00	2" Ø BOREHOLE				
2				1			
			BENTONITE CHIPS				
4							
	- saturated at 5.0ft BGS			2			
6	END OF BOREHOLE @ 6.0ft BGS	6.00					
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-220
DATE COMPLETED: June 12, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0.30	ASPHALT				
	SAND and gravel fill						
	Coal fines (FILL), black	1 00	2" Ø BOREHOLE				
2				1			
	SP-SAND, fine grained, poorly graded, compact, light brown, moist	3 00	BENTONITE CHIPS				
4							
	- saturated at 5.0ft BGS			2			
6	END OF BOREHOLE @ 6.0ft BGS	6 00					
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-221
DATE COMPLETED: June 12, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0.30	ASPHALT				
	SAND and gravel fill						
	Coal fines (FILL)	1 00	2" Ø BOREHOLE				
	SP-SAND, fine grained, poorly graded, compact, light brown, moist	1 50		1			
2							
			BENTONITE CHIPS				
4							
	- saturated at 5 0ft BGS			2			
6	END OF BOREHOLE @ 6.0ft BGS	6 00					
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-222
DATE COMPLETED: June 12, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0.30	ASPHALT				
	SAND and gravel fill	1 00	2" Ø BOREHOLE				
	SAND (FILL), coarse, trace gravel and slag, loose, poorly graded, dark brown to black, wet						
2				1			
			BENTONITE CHIPS				
4	- saturated at 4.0ft BGS						
	- turns gray, fine grained sand at 5.0ft BGS			2			
6	END OF BOREHOLE @ 6.0ft BGS	6 00					
8							
10							
12							
14							

NOTES: *MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE*

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-223
DATE COMPLETED: June 12, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0 30	ASPHALT				
	SAND and gravel fill	1.00	2" Ø BOREHOLE				
2	SAND, coarse, trace gravel, poorly graded, loose, dark brown, moist - silt layer, trace sand, soft, dark gray to black, wet, strong hydrocarbon odor at 2.5ft BGS		BENTONITE CHIPS	1			
4	SP-SAND, fine grained, compact, dark gray, saturated, black staining, strong odor - no black staining at 4 5ft BGS	4 00		2			
6	END OF BOREHOLE @ 6.0ft BGS	6 00					
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-224
DATE COMPLETED: June 12, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0.30	ASPHALT				
	SAND and gravel fill		2" Ø BOREHOLE				
	SAND (FILL), coarse, trace gravel, loose, poorly graded, dark brown to black, moist	1 50		1			
2			BENTONITE CHIPS				
4	- silty layer, soft, low plasticity, light gray with trace black staining, moist, slight petroleum odor at 4.0ft BGS	4.50					
	SP-SAND, fine grained, compact, poorly graded, dark gray to black, saturated			2			
6	END OF BOREHOLE @ 6 0ft BGS	6 00					
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-225
DATE COMPLETED: June 12, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0 30	ASPHALT				
	SAND and gravel fill	1 00	2" Ø BOREHOLE				
	SAND (FILL), coarse, trace gravel, compact, dark brown to black, well graded, moist						
2				1			
	- silt layer, soft, gray, low plasticity, wet at 3.0ft BGS		BENTONITE CHIPS				
4	- coal, saturated at 4.0ft BGS						
	- tar, saturated sand at 5.0ft BGS			2			
	SP-SAND, poorly graded, fine grained, dark gray to black, saturated	5 50					
6	END OF BOREHOLE @ 6.0ft BGS	6 00					
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-226
DATE COMPLETED June 14, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0.30	ASPHALT				
	SAND and gravel fill		2" Ø BOREHOLE				
2	SAND (FILL), fine grained, trace gravel and slag, loose, dark brown to black, moist	1 75		1			
	CL-CLAY, some silt, soft, low plasticity, dark gray, wet, slight petroleum odor	3 00	BENTONITE CHIPS				
4	SP-SAND, fine grained, compact, poorly graded, light brown, wet - becomes saturated at 4.0ft BGS	3 50		2			
6	END OF BOREHOLE @ 6.0ft BGS	6 00					
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-227
DATE COMPLETED: June 14, 2002
DRILLING METHOD. GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0 30	ASPHALT				
	SAND and gravel fill						
	SP-SAND, fine grained, compact, poorly graded, light brown, moist	1 00	2" Ø BOREHOLE				
2				1			
			BENTONITE CHIPS				
4	- becomes saturated at 4.0ft BGS			2			
6	END OF BOREHOLE @ 6.0ft BGS	6.00					
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-228
DATE COMPLETED: June 14, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0 30	ASPHALT				
	SAND and gravel fill		2" Ø BOREHOLE				
	SAND (FILL), medium grained, trace gravel, loose, well graded, dark brown to black, moist	1 50		1			
2	CL-CLAY with some silt, soft, low plasticity, dark gray, moist	2.50	BENTONITE CHIPS				
4	SP-SAND, coarse, trace gravel, loose, well graded, dark gray to black, wet	4.00					
	SP-SAND, fine grained, compact, poorly graded, light brown, saturated	5.00		2			
6	END OF BOREHOLE @ 6 0ft BGS	6 00					
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-229
DATE COMPLETED: June 14, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0 30	ASPHALT				
	SAND and gravel fill						
	SAND (FILL), medium grained, trace gravel, loose, well graded, dark brown to black, moist	1 00	2" Ø BOREHOLE				
2	SP-SAND, fine grained, compact, poorly graded, light brown, moist	2 00		1			
			BENTONITE CHIPS				
4	- becomes saturated at 4.0ft BGS			2			
6	END OF BOREHOLE @ 6 0ft BGS	6 00					
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION. SB-230
DATE COMPLETED. June 14, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL· M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0 30	ASPHALT				
	SAND and gravel fill	1 00	2" Ø BOREHOLE				
2	SAND (FILL), coarse, trace gravel and slag, loose, well graded, dark brown to black, moist		BENTONITE CHIPS	1			
4	SP-SAND, fine grained, compact, poorly graded, dark brown, moist, slight hydrocarbon, odor - light brown, no odor, saturated at 4.5ft BGS	4 00		2			
6	END OF BOREHOLE @ 6 0ft BGS	6 00					
8							
10							
12							
14							

NOTES· MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-231
DATE COMPLETED: June 14, 2002
DRILLING METHOD. GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	ASPHALT	0 30	ASPHALT				
	SAND and gravel fill						
	SAND (FILL), medium grained, trace gravel and slag, loose, well graded, dark brown to black, moist	1 00	2" Ø BOREHOLE				
2				1			
	- tar layer 3.5ft to 3.8ft BGS - coarse grained, trace gravel and slag, loose, well graded, dark brown to black, moist, strong hydrocarbon odor		BENTONITE CHIPS				
4							
	SP-SAND, fine grained, compact, poorly graded, light brown, wet - becomes saturated at 5.0ft BGS	4 50		2			
6	END OF BOREHOLE @ 6.0ft BGS	6 00					
8							
10							
12							
14							

NOTES MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-232
DATE COMPLETED: June 14, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS
	ASPHALT	0 30
	SAND and gravel fill	1 00
	SAND (FILL), coarse, trace gravel and slag, loose, well graded, dark brown to black, moist	
2		
	- coal at 3 0ft BGS	3 50
	SP-SAND, fine grained, compact, poorly graded, dark brown, wet, slight hydrocarbon odor	
4	- turns light brown, saturated at 4.0ft BGS	
6	END OF BOREHOLE @ 6.0ft BGS	6 00
8		
10		
12		
14		

MONITOR INSTALLATION

SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE
1			
2			

NOTES MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME. WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-233
DATE COMPLETED: June 14, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	SAND (FILL), fine grained, loose, poorly graded, light brown, dry		2" Ø BOREHOLE				
	- dark brown, compact, moist at 1.5ft BGS		NATIVE BACKFILL	1			
2							
4	END OF BOREHOLE @ 4.0ft BGS	4.00					
6							
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-234
DATE COMPLETED: June 17, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	SAND (FILL), fine grained, loose, poorly graded, light brown, dry - dark brown, compact, moist at 0.5ft BGS		2" Ø BOREHOLE NATIVE BACKFILL	1			
2							
4							
	END OF BOREHOLE @ 4.5ft BGS	4.50					
6							
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-235
DATE COMPLETED: June 17, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	SAND (FILL), fine grained, loose, poorly graded, light brown, dry		2" Ø BOREHOLE				
	- dark brown, compact, moist at 1.5ft BGS		NATIVE BACKFILL	1			
2							
4							
	END OF BOREHOLE @ 4.5ft BGS	4 50					
6							
8							
10							
12							
14							

NOTES MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-236
DATE COMPLETED: June 14, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE
	SAND (FILL), fine grained, loose, poorly graded, light brown, dry - dark brown, compact, moist at 0.5ft BGS		2" Ø BOREHOLE NATIVE BACKFILL	1			
2							
4	END OF BOREHOLE @ 4.0ft BGS	4 00					
6							
8							
10							
12							
14							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-237
DATE COMPLETED: July 30, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND (FILL), fine-grained, poorly graded, loose, brown, dry		2" Ø BOREHOLE					
	- becomes moist, compact							
2				1		3		0
4								
	- turning light brown		NATIVE BACKFILL					
6				2		4		0
8								
				3		2		0
10	END OF BOREHOLE @ 10.0ft BGS	10 00						
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-238
DATE COMPLETED: July 29, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND (FILL), fine-grained, poorly graded, loose, light brown, dry		2" Ø BOREHOLE					
2				1		3		0
	- becomes moist							
4								
6	- becomes wet, compact		NATIVE BACKFILL	2		35		0
8								
10	- turning dark brown			3		4		0
12	END OF BOREHOLE @ 12.0ft BGS	12 00						
14								

NOTES MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-239
DATE COMPLETED: July 29, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND (FILL), fine-grained, poorly graded, loose, light brown, dry		2" Ø BOREHOLE					
2	- becomes moist			1		3.5		0
	- turns brown							
4								
	- becomes dry, turns light brown							
6			NATIVE BACKFILL	2		4		0
	- becomes moist, turns brown							
	- becomes wet, compact							
8								
10				3		3.5		0
12								
	END OF BOREHOLE @ 12.5ft BGS	12.50						
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-240
DATE COMPLETED: July 29, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND (FILL), fine-grained, poorly graded, loose, light brown, dry		2" Ø BOREHOLE					
2	- black staining, moist			1		3		240
4								
	- black staining disappears		NATIVE BACKFILL					
6				2		4		25
8								
				3		2 5		0
10								
	END OF BOREHOLE @ 10.5ft BGS	10 50						
12								
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME. WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-241
DATE COMPLETED: July 30, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND (FILL), fine-grained, poorly graded, loose, light brown, dry		2" Ø BOREHOLE					
	- becomes moist, black staining present							
2				1		3		2
4								
	- trace of black staining							
6				2		25		1
			NATIVE BACKFILL					
	- no trace of black staining							
8								
10				3		3		0
12								
				4		15		0
	END OF BOREHOLE @ 13.5ft BGS	13 50						
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION. WAUKEGAN, IL

HOLE DESIGNATION: SB-242
DATE COMPLETED: July 30, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND (FILL), fine-grained, poorly graded, loose, light brown, dry		2" Ø BOREHOLE					
2	- becomes moist, compact			1		4		0
4	- becomes dry - becomes moist, turns brown							
6				2		4		0
8			NATIVE BACKFILL					
	- black staining present, trace of gravel							
10				3		4		0
12								
14				4		3		0
	END OF BOREHOLE @ 15 0ft BGS	15.00						
16								
18								

NOTES. MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME. WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-243
DATE COMPLETED: July 30, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND (FILL), fine-grained, poorly graded, loose, brown, dry		2" Ø BOREHOLE					
2	- becomes moist			1		4		0
4	- turns light brown							
6	- turns brown			2		35		0
8			NATIVE BACKFILL					
10	- black staining present			3		3		5
12	- no trace of black staining							
14				4		35		0
16	END OF BOREHOLE @ 16.0ft BGS	16 00						
18								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-244
DATE COMPLETED: July 30, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND (FILL), fine-grained, poorly graded, loose, light brown, dry		2" Ø BOREHOLE					
2				1		3.5		0
	- becomes moist, compact							
4	- trace of black staining							
6				2		2.5		0
8			NATIVE BACKFILL					
10				3		3		2
12	- no trace of black staining							
14				4		3.5		0
16	END OF BOREHOLE @ 16.0ft BGS	16.00						
18								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-245
DATE COMPLETED: July 30, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND (FILL), fine-grained, poorly graded, loose, light brown, dry		2" Ø BOREHOLE					
2				1		2		0
	- turns brown, moist, compact							
4								
6	- black staining present		NATIVE BACKFILL	2		3 5		4
8								
10				3		4		0
12								
	END OF BOREHOLE @ 12.5ft BGS	12 50						
14								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: WAUKEGAN COKE
PROJECT NUMBER: 19023
CLIENT: WCP GROUP
LOCATION: WAUKEGAN, IL

HOLE DESIGNATION: SB-246
DATE COMPLETED: July 29, 2002
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: M. GROVES

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	SP-SAND (FILL), fine-grained, poorly graded, loose, light brown, dry		2" Ø BOREHOLE					
	- becomes moist							
2				1		3		0
	- turns brown							
4								
	- becomes dry, turns light brown							
6				2		3		0
			NATIVE BACKFILL					
8								
	- black staining present							
10				3		4		1
12								
14				4		2		<1
	END OF BOREHOLE @ 14.0ft BGS	14 00						

NOTES. MEASURING POINT ELEVATIONS MAY CHANGE, REFER TO CURRENT ELEVATION TABLE

Appendix E

Soil Excavation Area Plan

SDMS US EPA Region V

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Appendix F

Implementation of Phytoremediation at the Waukegan Manufactured Gas and Coke Plant Site Waukegan, Illinois, by John Fletcher, May 14, 1998

IMPLEMENTATION OF PHYTOREMEDIATION AT THE WAUKEGAN MANUFACTURED GAS AND COKE PLANT SITE, WAUKEGAN, ILLINOIS

Report Prepared by:

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May 14, 1998

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INTRODUCTION

Bioremediation efforts during the last 20 years have relied almost exclusively on the use of microorganisms (1,2) with little thought or effort given to capitalizing on the favorable properties afforded by terrestrial plants for the economical reclamation and restoration of contaminated soil. The standard practice in the past has been to remediate a contaminated site through various means, and then introduce plants at the end during site closure. Plants have been used to arrest the erosion of surface soil placed over clay caps designed to reduce water infiltration and leaching of residual contaminants. This is a very limited use of plants in view of the fact that in natural, healthy ecosystems plants play a major role in the recycling of both water and nutrients. A more appropriate use of plants is to introduce plant species early in the remediation process to prevent contaminant leaching by removing excess water and to foster the continuous degradation of soil organics, including industrial contaminants. This broadened use of plants is patterned after their performance in natural ecosystems. Expanded use of plants in remediation of contaminated soils has been termed phytoremediation (3,4). Since plants are the primary producers of organic food sources for microorganisms, animals, and all other life forms, it follows that successful introduction of phytoremediation technology has ecological overtones. Plants operating in unison with soil bacteria and fungi provide a natural means to convert contaminated sites (ie. the WCP-site) into restored ecosystems.

The remediation of the WCP-site in Waukegan, Illinois is ideally suited for implementation of phytoremediation technology. Plants and associated microorganisms introduced and maintained at this site can be used to accomplish 3 different objectives:

1) prevent soil erosion.

2) restrict contaminant leaching by removing soil water.

3) promote degradation of PAHs and other organic contaminants.

The success of phytoremediation at the WCP-site is strongly dependent on the proper selection of plants. The plants should be ecologically adapted to grow under the climate and chemical conditions at the site, and they should also be structurally and physiologically suited to remediate and restore the distressed soil ecosystem present at the WCP-site.

BACKGROUND PRINCIPLES OF PHYTOREMEDIATION TECHNOLOGY

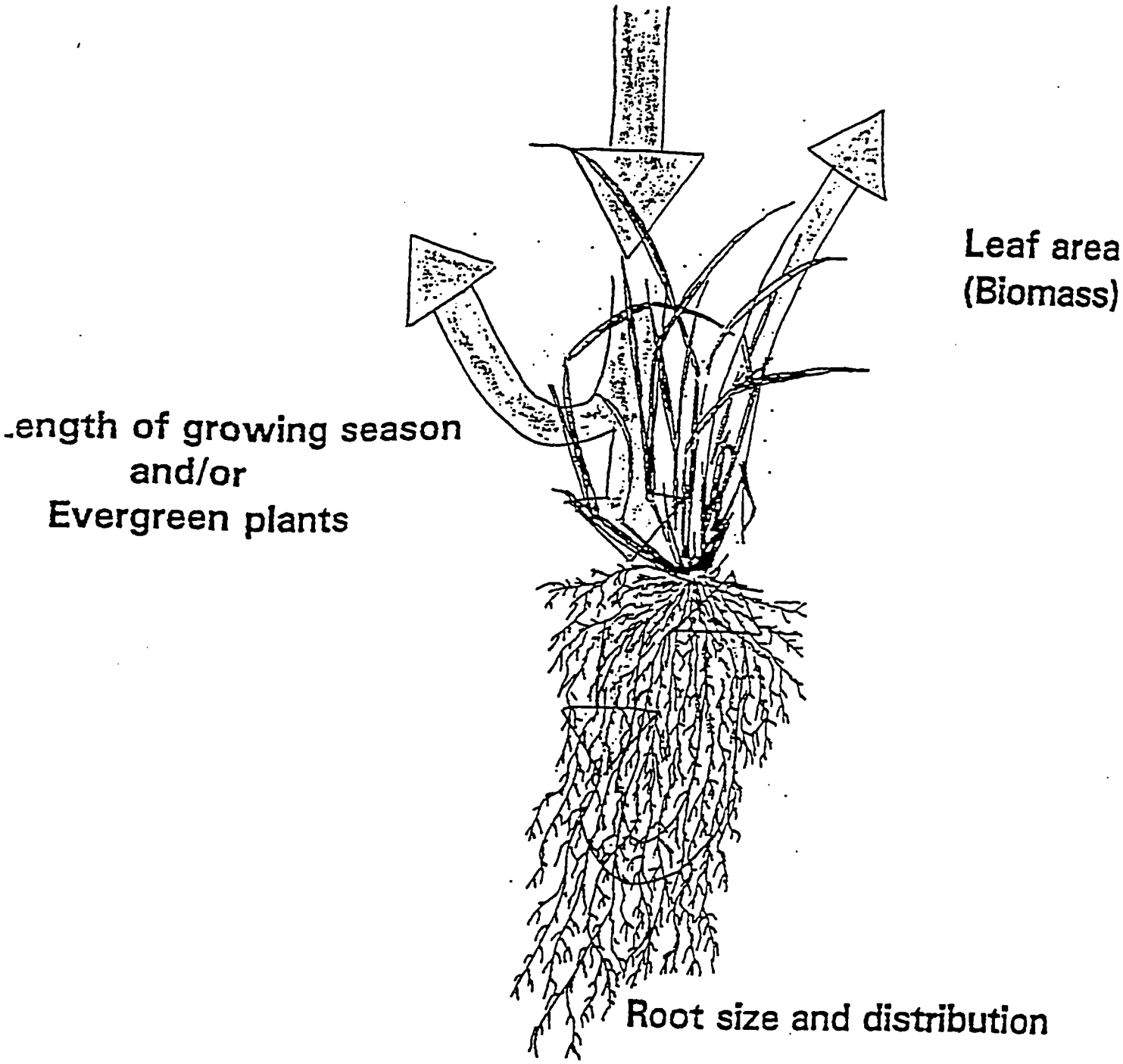
Prevention Of Soil Erosion/Plant Cover

Vegetative cover, both living and dead, is instrumental in preventing soil erosion. Initially this is brought about by reducing the physical force of raindrops that loosen soil particles when they strike bare soil, allowing suspended soil particles to be carried off in runoff water. Another important feature of plants is that beneath the dead plant litter, characteristic of dense plant communities, the surface and upper strata of soil are porous and thereby prevent rain water from collecting on the surface and running off as an erosive force. The interwoven network of roots in the upper layers of soil are also important in holding soil in place in the event that erosion does start. The plant features that prevent soil erosion are common to all plants and therefore almost any plant species is satisfactory for this purpose providing it grows fast and forms a dense cover, thereby eliminating bare soil that is subject to soil erosion during rainstorms.

Restriction Of Contaminant Leaching Through Plant Evapotranspiration

Plants have a profound influence on the recycling of rainwater from the soil to the atmosphere through the plant-mediated process of evapotranspiration. Efficient return of rain water to the atmosphere prevents its downward migration in the soil and thereby eliminates the prospect of it causing soluble contaminants to be leached to lower soil depths and/or groundwater.

Figure 1. Mechanism of plant evapotranspiration showing controlling environmental factors.

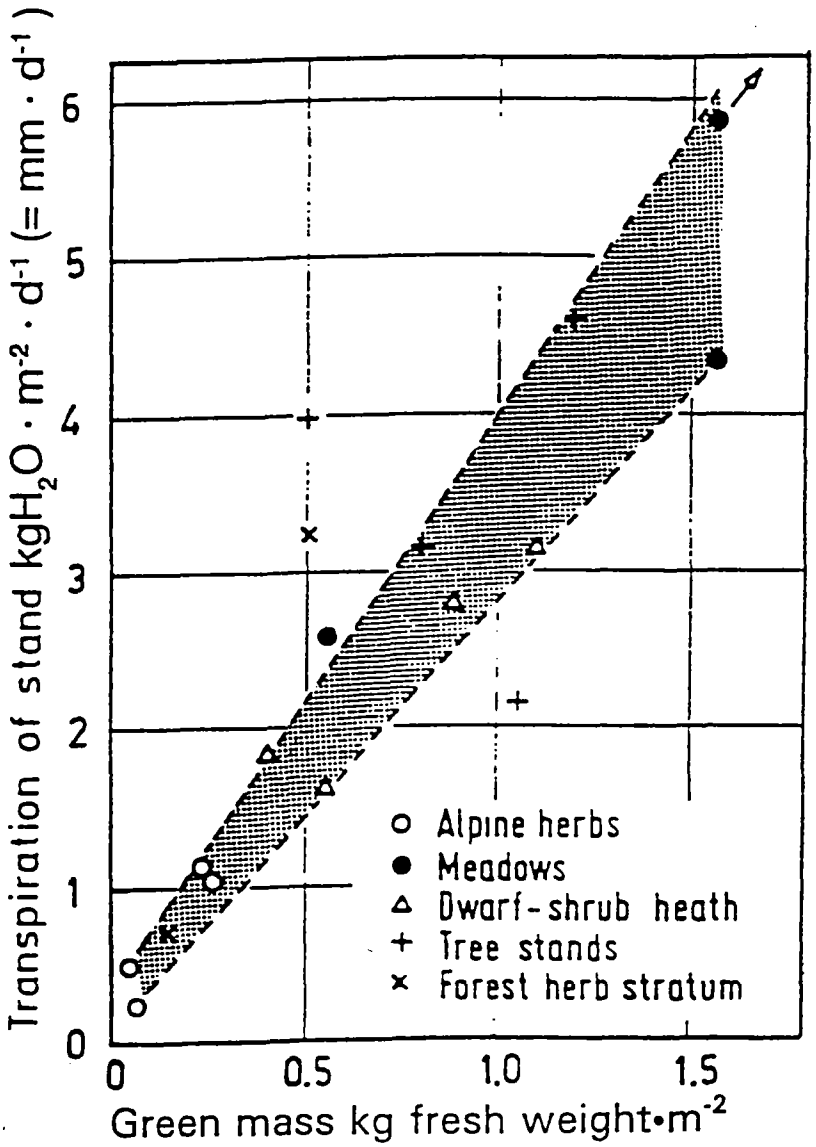


The evapotranspiration process is a result of two events, both of which are dependent on the magnitude of leaf surface area (Figure 1). First, plant leaves intercept falling rain, and a portion of it remains suspended on the leaf surfaces until it evaporates back into the atmosphere. As a result, light rains falling on dense leaf canopies never reach the soil surface. During periods of heavy rain when leaf surfaces become saturated, the excess water drips to the ground and soaks into the porous surface soil where it is subject to uptake by plant roots and subsequent return to the atmosphere through plant transpiration. During plant transpiration large amounts of water absorbed by roots are transported up the stem to leaves where the water evaporates back into the atmosphere. The amount of water lost from an individual plant or stand of vegetation is directly dependent on the magnitude of leaf surface area, conveniently measured and expressed as biomass of green tissues (Figure 2). Two other factors that influence transpiration are the length of the growing season (or retention of leaves during winter), and the distribution of the root system (Figure 1).

Deep-rooted, tall grasses such as those species native to the tallgrass prairie (ie. switchgrass and bluestem) are ideally suited for enhanced evapotranspiration, because of their deep, extensive root systems (Figure 3) coupled with large aboveground leaf biomasses. These species possess 80% of their total biomass as roots, which are genetically capable of reaching depths of 10 feet (Figure 4).

Thus, the ideal plant species to enhance the removal of water from the soil is a plant with: 1) a large leaf surface, 2) ability to retain leaves over a large portion of the year, and 3) a large, deep, spreading root system. All plant species are not equally endowed with these characteristics, but there are numerous plant species, including both grasses and trees (Figure 2), that are well suited for accomplishing this phytoremediation objective.

Figure 2. Relationship between plant leaf-biomass and water lost through evapotranspiration.



Taken from reference 5.

Figure 3. The shoot height and root depth of eight different grass species including two tallgrass prairie species big bluestem and switchgrass.

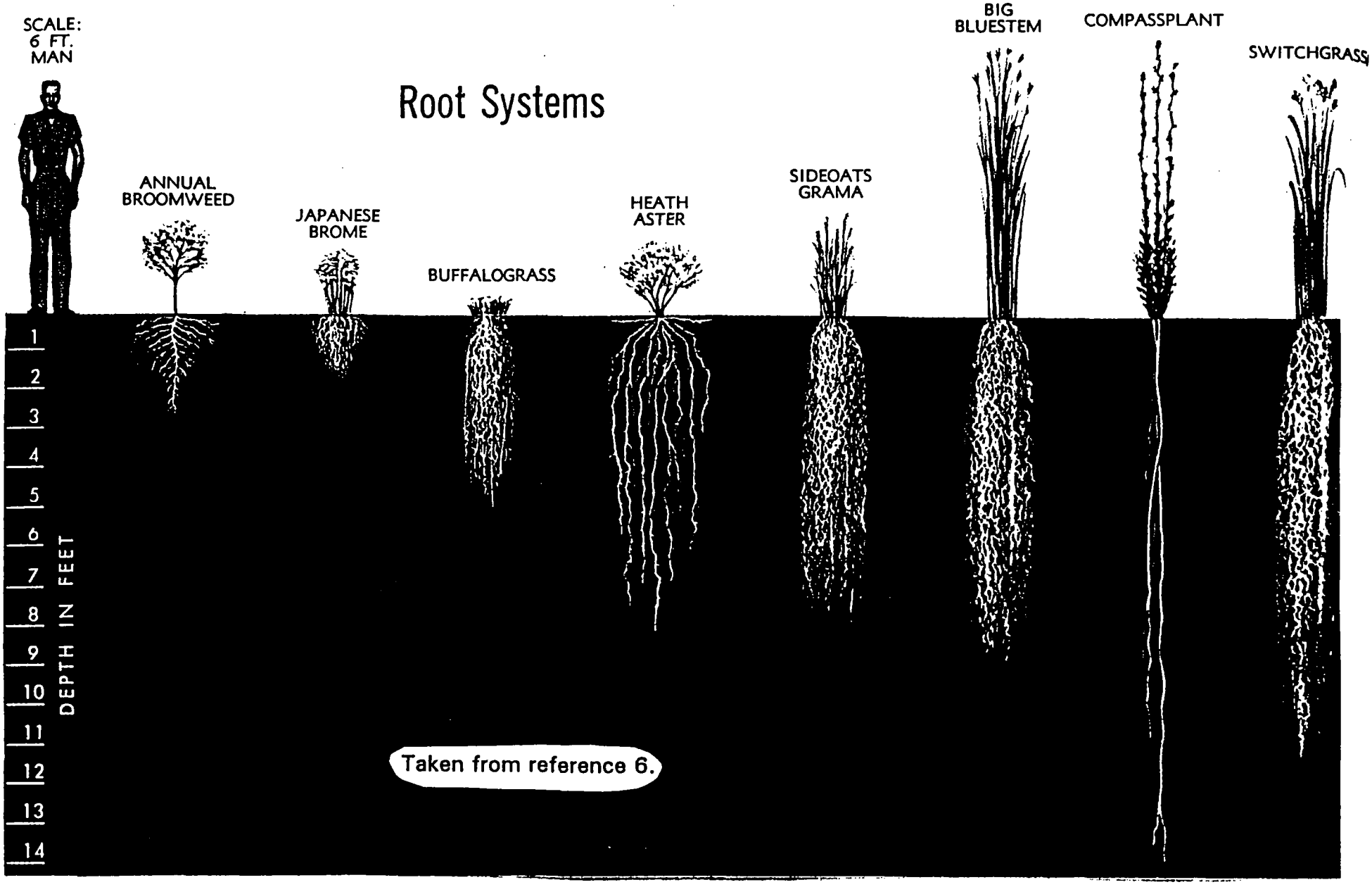


Figure 4. Photograph showing the extensive root system of bluestem and switchgrass.

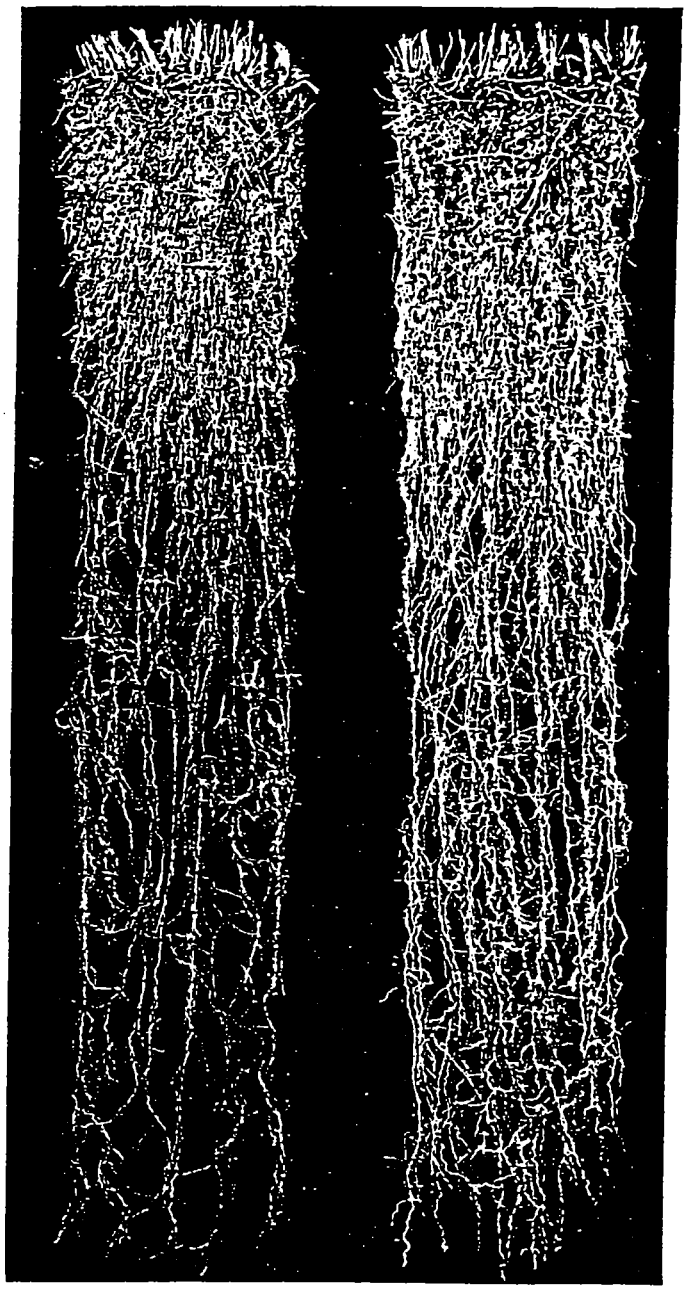


FIG. 5.—Roots of big bluestem (*Andropogon gerardi* [left]) and switchgrass (*Panicum virgatum*) from monoliths of soil 12 inches wide, 3 inches thick (into the trench wall), and 5 feet deep. The bluestem was 7 feet and the switchgrass more than 8 feet deep. From Weaver and Darland, *Ecological Monographs*, 1949*a*.

Taken from reference 7.

Promotion Of PAH Degradation

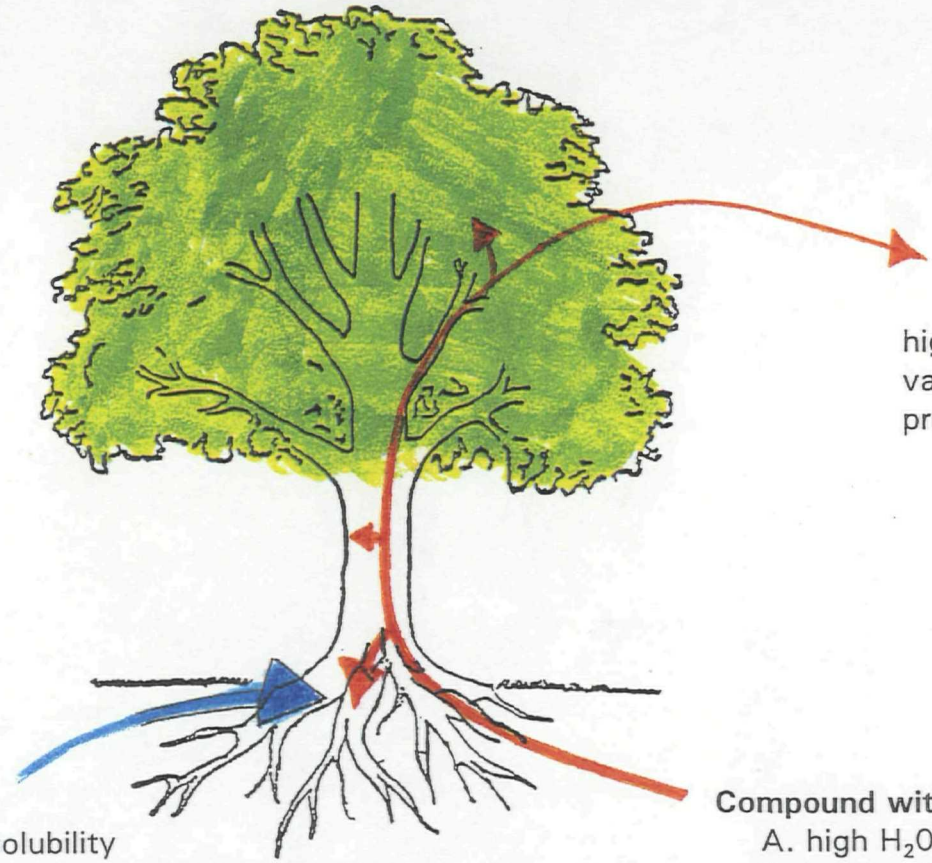
The influence of terrestrial plants on the fate of organic soil pollutants is primarily dependent on two factors, the physical/chemical properties of the pollutant and the physiology of individual plant species (Figure 5). Contaminants that have a high water solubility and low log K_{ow} (ie. BTEX compounds) will be prone to be taken up by plants, transported in the translocation stream, and metabolized in various tissues through which the contaminant passes during movement from root to leaf (8). If the contaminant is both water soluble and volatile, it will be wicked through the plant and into the atmosphere, but only if its concentration in the soil is high (9).

Contaminants with low water solubility and high log K_{ows} (ie. PAHs) tend to be immobile in the soil, not toxic to plant growth (10), and also not readily reacted upon by the plant's catabolic enzymes (11). Therefore, the biological degradation in the soil of compounds such as the PAHs appears to be primarily a feature of microbial metabolism. However, plants are important in this process, because the roots of some plant species selectively stimulate microorganisms in the soil that are capable of degrading PAHs (12).

A major contributing factor to the persistence of recalcitrant contaminants is that only a few microorganisms appear capable of degrading these compounds. Thus the challenge in bioremediation of such compounds is to promote the growth and activity of the small, minority component of the indigenous microbial community that can degrade the contaminant and at the same time suppress the growth of the general microflora, thereby changing the composition of the microbial community in favor of the organisms that can degrade the recalcitrant compounds. Laboratory studies (13,14) and some field work (15) have shown that a successful strategy to accomplish this goal is to provide cometabolites that selectively

Figure 5. Fate of organic chemicals subjected to phytoremediation.

TRANSPORT



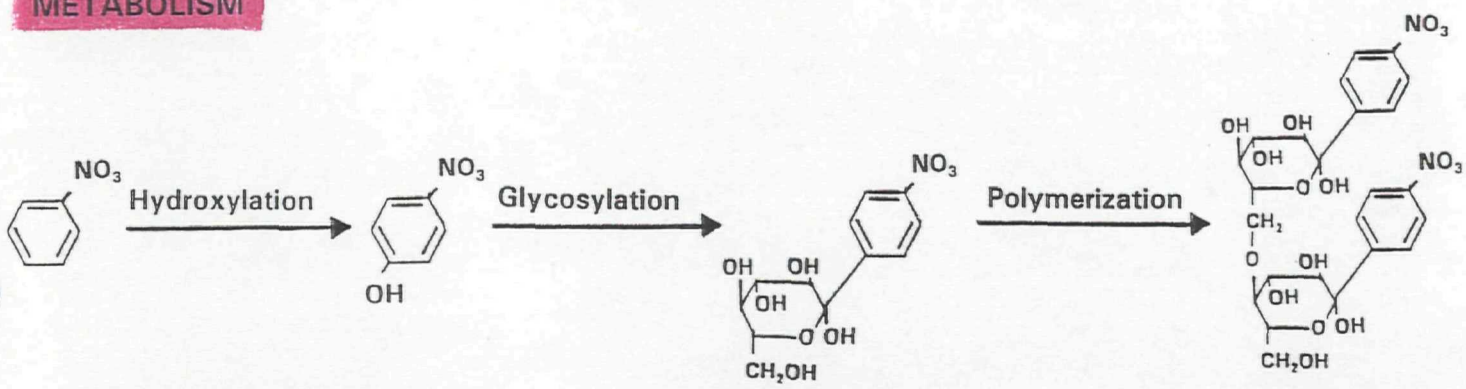
Compound with:
A. low H_2O solubility
B. high log Kow

Examples
PCBs
PAHs
Dioxin

Compound with:
A. high H_2O solubility
B. low log Kow

Examples
Nitrobenzene
Phenol
Bromicil
Trichloroethylene

METABOLISM



foster the growth and activity of desired organisms. Furthermore, it has been shown in our laboratory at the University of Oklahoma (16,17) that some plant compounds such as flavonoids and coumarins serve as natural substrates for the growth and enhanced activity of bacteria capable of degrading recalcitrant compounds. All plant species do not synthesize and release the same kinds and amounts of chemicals into the soil (19). Therefore, research has been necessary to identify plant species whose roots produce and release large amounts of compounds that structurally resemble industrial contaminants (Figure 6). Several plants such as: mulberry (18), osage orange (18), hackberry/sugarberry (20), and sweet clover (21) have been shown to produce such compounds, and other plants such as little bluestem, big bluestem, indiangrass, and switchgrass have been shown to foster PAH degradation (22,23,24). Therefore these plant species are excellent candidates for use in sustained phytoremediation of residual amounts of industrial polyaromatic contaminants, providing they will grow under climate conditions prevailing at a site.

Growing selected perennial plants (ie. those identified in the previous paragraph) in PAH-contaminated soil provides continuous sustained remediation of the soil. This is brought about by the stimulator influence that fine root turnover (continuous death and regrowth) has on the proliferation and activity of PAH-degrading bacteria. The dynamic turnover process of fine roots releases microbial substrates and opens passage ways for oxygen diffusion through root traces left by dead roots. Thus, the root of a perennial plant functions as an injector system for both microbial substrates and oxygen (Figure 7).

Figure 6. Plant potential.

FACTS

1. One gram of soil contains 10,000 different kinds (species) of bacteria.
2. A few kinds of bacteria are capable of degrading PAHs

CHALLENGE

Promote the growth and activity of PAH-degrading bacteria over that of the other competing 10,000 organisms.

Create a **PAH-degrader nitche**

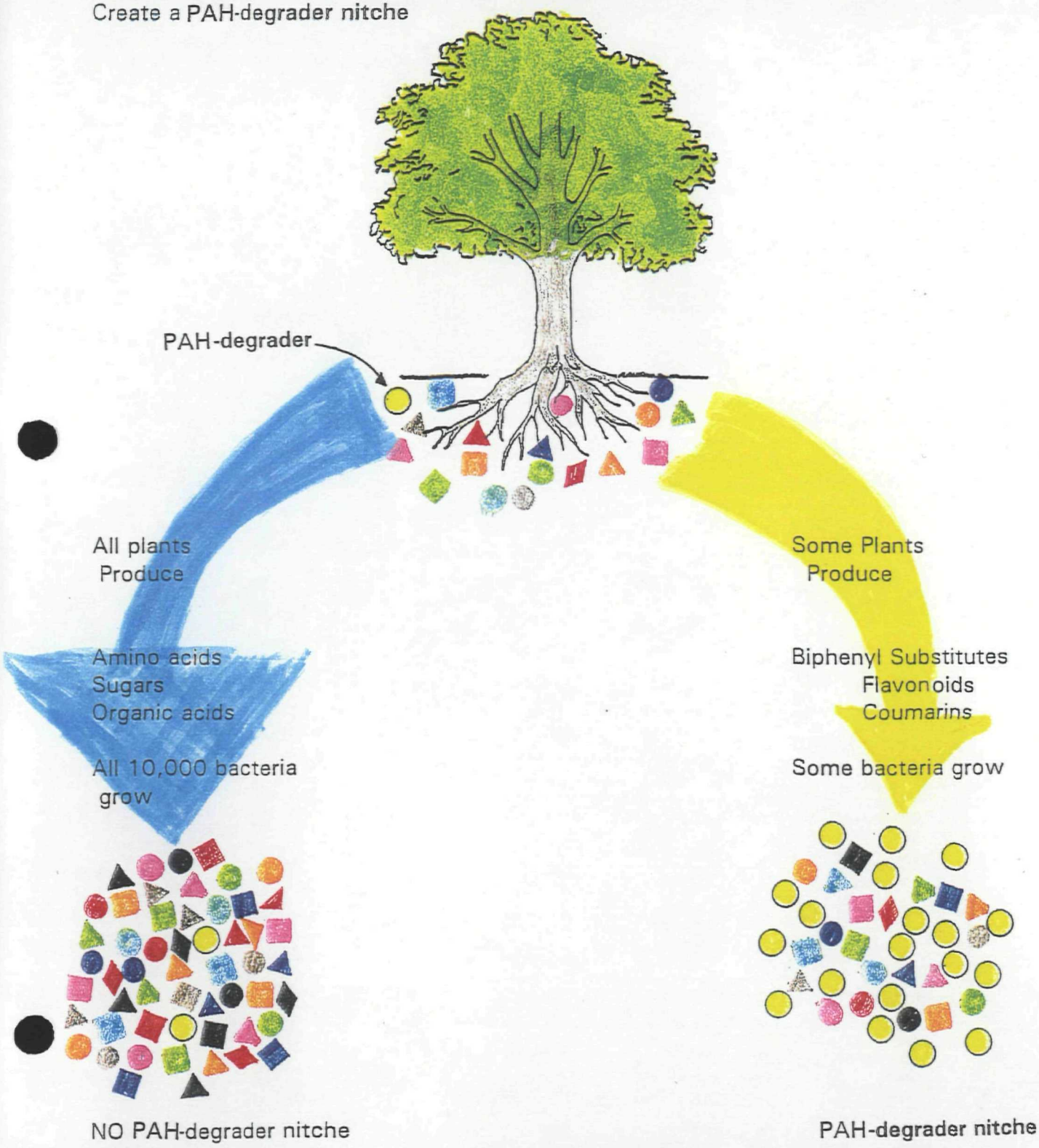
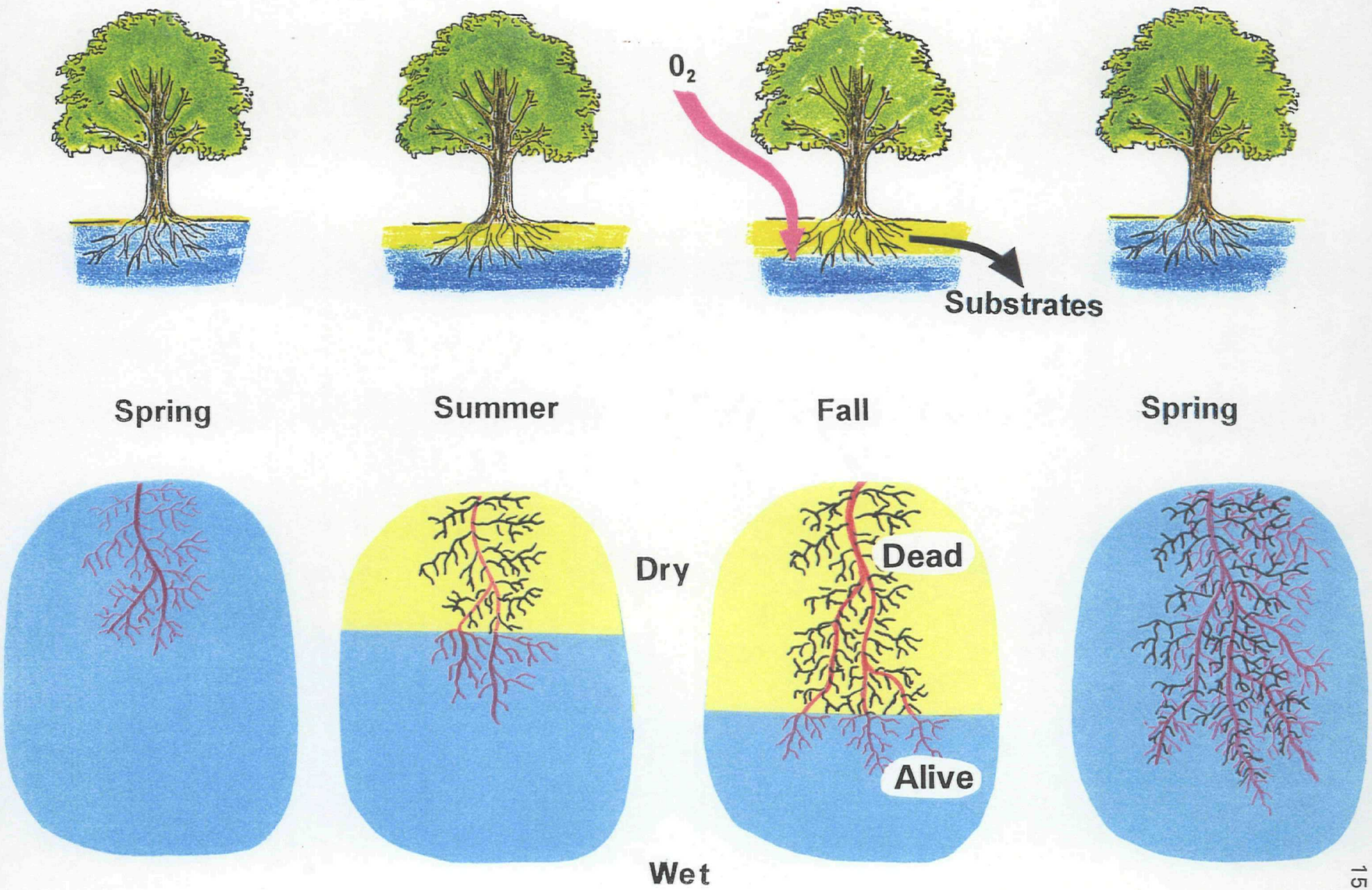


Figure 7. Annual influence of root turnover on microbial-substrate release and oxygen diffusion.



Evidence that certain plants can enhance PAH degradation under field conditions has been provided by analysis of soil/sludge samples collected from a naturally revegetated sludge basin in Texas City, Texas. Quantification of PAHs present in the root zone of a 12 year-old mulberry tree growing at this site (Figure 8) has shown a strong correlation between the presence of roots and the disappearance of PAHs (Table 1). The disappearance is attributed to the over 200 bacterial isolates recovered from the root zone of mulberry growing at the site. All of the isolates are capable of growing on naphthalene, phenanthrene, or pyrene as a sole carbon source.

Sustained, Longterm, Economical Phytoremediation/Ecological Considerations

To achieve sustained, longterm, economical phytoremediation it is imperative that a contaminated site be planted with perennial vegetation that is adapted to the environmental conditions prevailing at the site and that the specific plants selected be robust, aggressive plants that will not be immediately replaced by more competitive wild species prone to invade the site. To avoid the latter the best strategy is to capitalize, whenever possible, on plant species that are a part of the natural vegetation currently growing on and adjacent to the site or that are known from ecological publications to be natural components of plant communities and ecosystems characteristic of the region.

Figure 8. Root zone beneath a 12 year-old mulberry tree growing in a former chemical sludge basin.

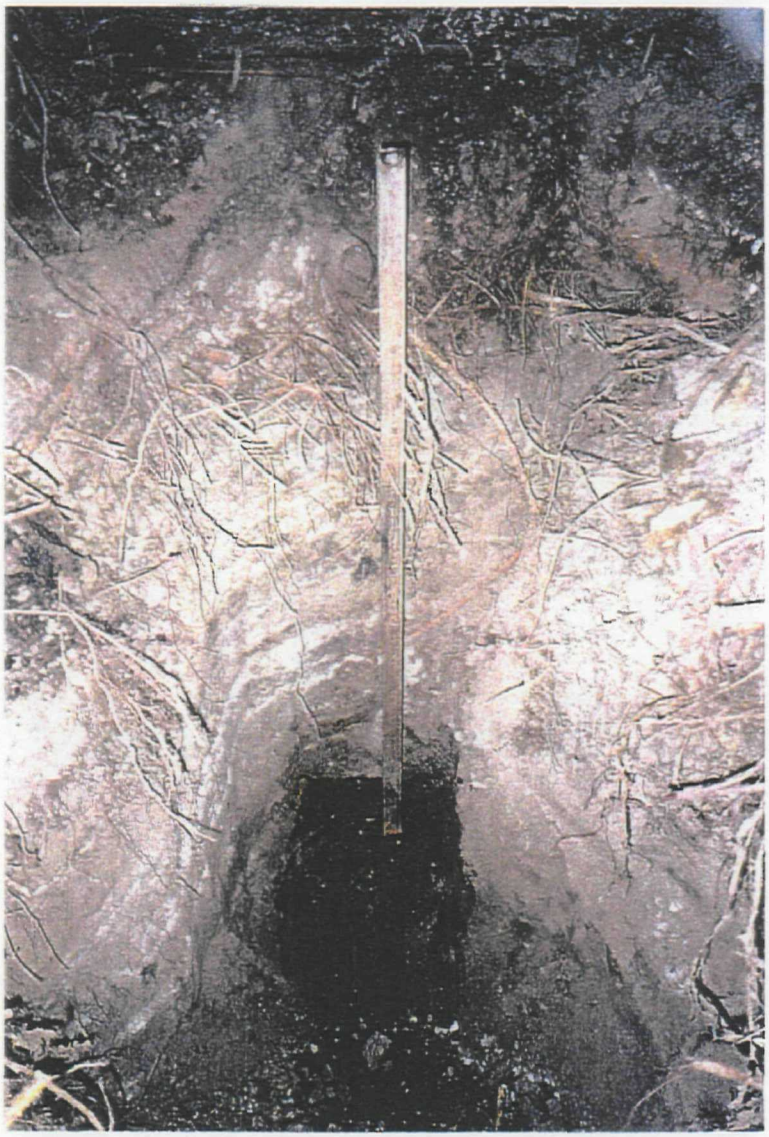


Table 1. Total PAH concentrations (ppm) from corings within the mulberry root zone (0-110 cm deep) and the non-rooted sludge.

Segment/Zone of Core	Coring distance (m) from base of mulberry trunk		
	0 m	1.5 m	3 m
First Segment (0-30cm)	2810.4	1266.3	632.4
Second segment (30-60)	1285.5	1639.1	1349.1
Transition Zone (100-110 cm)	9002.3	14197.9	10506.9
Sludge Zone (>110 cm)	28717.7	11672.5	33055.8

Taken from reference 25.

ASSESSMENT OF THE WCP-SITE FOR PHYTOREMEDIATION

Plant Growth Conditions

Successful implementation of phytoremediation technology depends on careful selection of plant species that are genetically capable of achieving the desired remediation goals, and that are also adapted for sustained growth under the climate and chemical conditions that prevail at the site. The climate, terrain and soil conditions at the Waukegan Manufactured Gas and Coke Plant site (WCP-site) all appear to be reasonable for plant growth and implementation of phytoremediation technology. In general, plants will have ample water for growth since the average annual rainfall is 33 inches and is scattered throughout the year. Warm temperatures in the summer and moderate temperatures during the winter will enhance plant growth and encourage microbial activity in the soil. The fertility of the soil is marginal, but is within the bounds of many natural soils that support native vegetation. The level of remaining organic pollutants and heavy metals are below concentrations known to kill plants. Thus the conditions present at the WCP-site are favorable for plant growth and use of phytoremediation technology.

Topography

The flat nature of the site and easy access from several different sides will make it easy to plant vegetation, monitor its growth, and exercise management practices as necessary. The flat nature of the site might be detrimental to plant growth if it caused water to stand and thereby kill plants by cutting off oxygen to their roots. However, there is no history of standing water at this site.

Available Water

Plants will have ample water for growth since the annual precipitation for the area is 33 inches and the water table across the site is approximately 4.5 to 5 feet deep. During the wet portions of the growing season plants will draw heavily from water in the upper portions

of the soil. As the surface moisture is removed during the course of the summer, plants will draw moisture from deeper zones and eventually reach the steady water supply available at the water table.

It is estimated that a well established and maintained tallgrass prairie at the WCP-site will return greater than 90% of the annual precipitation to the atmosphere via evapotranspiration. This estimate is based on lysimeter studies conducted at the U.S. Dept. of Agriculture Station in east-central Ohio near Coshocton (26) that showed that an established 6 year-old cover of mixed bromegrass and alfalfa evapotranspired between 96 and 100% of the annual precipitation during 3 consecutive years (Table 3). It is presumed that after 6 years this bromegrass-alfalfa pasture had reverted primarily to bromegrass since it is normal for a stand of alfalfa to be replaced over time by competing species. In this event the high evapotranspiration rates shown in Table 3 reflect that of bromegrass that characteristically grows to a maximum height of 3-4 feet, substantially less than that of the tallgrass prairie species to be planted at the WCP-site (ie. switchgrass, Figure 2).

Temperature

The length of the growing season in northern Illinois will be controlled primarily by temperature and to a lesser degree by day length for some species. For deciduous plants, growth will be restricted to the 5 to 6 month period extending from May to October when temperatures stay above freezing. This relatively short growing season is not ideal for those phytoremediation processes that depend on evapotranspiration. A favorable feature of tallgrass during the winter is that the abundant standing dead material (2-3 foot tall dead leaves) intercepts falling precipitation and serves as an evaporative surface (Figure 1), not a prominent feature of bare tree stems.

Table 2. Monthly summary of the accretion, depletion, and storage of soil water as determined by the weighing monolith lysimeter Y101D at the U.S. Department of Agriculture Experimental Station located near Coshocton, Ohio.

Year, month, and crop grown	Accretion			Depletion				Storage in 8-foot profile	
	Precipitation	Condensation	Total	Runoff	Evapotranspiration	Percolation	Total	Net increase	Net decrease
1953—Brome-alfalfa:	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*		
January	5.60	[1] 1.14	6.74	0	[1] 1.60	0	1.60	5.14	--------
February	1.45	[1] 1.41	2.86	0	[1] 2.11	0	2.11	.75	--------
March	3.54	[1] 1.26	4.80	0	[1] 2.54	.22	2.76	2.04	--------
April	2.71	1.00	3.71	0	3.30	.74	4.04	--------	0.33
May	4.22	.63	4.85	.01	6.23	.54	6.78	--------	1.93
June	2.36	.47	2.83	.02	6.08	.03	6.13	--------	3.30
July	4.20	.34	4.54	0	6.16	0	6.16	--------	1.62
August	1.01	.54	1.55	0	4.62	0	4.62	--------	3.07
September	1.12	.65	1.77	0	4.19	0	4.19	--------	2.42
October	.57	.65	1.22	0	2.08	0	2.08	--------	.86
November	1.33	[1] 1.36	2.69	0	[1] 1.88	0	1.88	.81	--------
December	2.56	[1] 1.36	3.92	0	[1] 1.92	0	1.92	2.00	--------
Total	30.67	10.81	41.48	.03	42.71	1.53	44.27	10.74	13.53
Percentage of total accretion or depletion	*Percent* 73.94	*Percent* 26.06	*Percent* 100.00	*Percent* .06	*Percent* 96.48	*Percent* 3.46	*Percent* 100.00	--------	--------
1954—Brome-alfalfa:	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*
January	2.82	[1] 1.42	4.24	0.01	[1] 1.89	0	1.90	2.34	--------
February	2.21	[1] 1.34	3.55	0	[1] 2.23	0	2.23	1.32	-----
March	4.77	[1] 2.04	6.81	0	[1] 4.08	0	4.08	2.73	-----
April	3.29	1.04	4.33	0	4.65	0	4.65	--------	0.[illegible]
May	2.44	.78	3.22	0	6.16	0	6.16	--------	2.94
June	2.21	.71	2.92	.01	5.19	0	5.20	--------	2.28
July	3.39	.67	4.06	0	5.85	0	5.85	--------	1.79
August	3.57	.76	4.33	0	4.80	0	4.80	--------	.47
September	1.42	1.02	2.44	0	3.79	0	3.79	--------	1.35
October	6.24	1.01	7.25	0	2.88	0	2.88	4.37	--------
November	1.55	[1] 1.28	2.83	0	[1] 2.12	0	2.12	.71	--------
December	2.77	[1] 1.50	4.27	0	[1] 1.92	0	1.92	2.35	--------
Total	36.68	13.57	50.25	.02	45.56	0	45.58	13.82	9.15
Percentage of total accretion or depletion	*Percent* 73.00	*Percent* 27.00	*Percent* 100.00	*Percent* .04	*Percent* 99.96	*Percent* 0	*Percent* 100.00	--------	--------
1955—Brome-alfalfa:	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*	*Inches*		
January	1.82	[1] 1.59	3.41	0	[1] 2.26	0	2.26	1.15	--------
February	3.57	[1] 1.24	4.81	.17	[1] 2.10	.12	2.39	2.42	--------
March	5.07	[1] 1.93	7.00	0	[1] 3.97	1.05	5.02	1.98	--------
April	3.89	.99	4.88	.01	5.24	.44	5.69	--------	0.81
May	1.70	.57	2.27	0	6.79	.09	6.88	--------	4.61
June	[2] 6.74	.76	[2] 7.50	0	5.56	0	5.56	1.94	--------
July	3.82	.60	4.42	0	6.86	0	6.86	--------	2.44
August	3.66	.76	4.42	0	5.36	0	5.36	--------	.94
September	2.45	.94	3.39	0	4.07	0	4.07	--------	.68
October	2.40	1.06	3.46	0	3.09	0	3.09	.37	--------
November	[1] 3.54	[1] 1.23	4.77	0	[1] 2.00	0	2.00	2.77	--------
December	.35	[1] 1.67	2.02	0	[1] 2.04	0	2.04	--------	.02
Total	39.01	13.34	52.35	.18	[1] 49.34	1.70	51.22	10.63	9.50
Percentage of total accretion or depletion	*Percent* 74.52	*Percent* 25.48	*Percent* 100.00	*Percent* .35	*Percent* 96.33	*Percent* 3.32	*Percent* 100.00	--------	--------

[1] Some snowfall during the month; some values may be too high because of drifting of snow.

[2] Includes irrigation of 3.61 inches.

Taken from reference 26.

Soil

Nutrients: Sandy soils as prevail at the WCP-site are generally deficient in inorganic nutrients (ie. nitrogen, phosphorous, and potassium) necessary for plant growth. Low soil nutrients are known to restrict the growth and yield of shallow rooted agricultural crop plants, but this is not necessarily true for native plants used in phytoremediation. Many deep rooted, native species are adapted to survive and grow on low nutrient soils through their ability to explore large volumes of soil by developing extensive, deep root systems. Thus, for many plant species the depth and breadth of the plant's root system is inversely proportional to the availability of nutrients. Thus, low amounts of nutrients at the WCP-site favor the growth of deep roots once certain species are established. Nutrient analyses of selected regions of the WCP-site should be conducted to gain further insight into how the site should be managed.

pH: Extreme pH values lying outside the broad range of 5.5 to 8.5 will dramatically restrict the growth of many plant species. This deterrent to plant growth can be alleviated through soil additives. Regions of the WCP-site where there is either sparse or no vegetation growing should be analyzed for pH values at different soil depths.

Salt: High salt content in soils inhibits plant growth by preventing normal water uptake. It is unlikely that this condition prevails at the WCP-site, but it would be advisable to confirm this contention by conducting a limited number of total salt analyses on samples taken from bare or sparsely vegetated regions of the site.

Compaction: Historical records indicate that portions of the WCP-site have been subjected to the heavy weight of earth moving equipment, stored overburden materials, and other procedures that create hard, impermeable soil. The entire site should be examined for such areas and appropriate steps taken to alleviate this condition so that plant roots can grow and penetrate lower soil zones.

Toxins: There are two known toxins, PAHs and arsenic, existing at the site whose phytotoxic properties need to be considered. Both laboratory studies and field analyses indicate that low levels of PAHs are not toxic to plants (10). Extremely high levels of PAHs may be toxic to some plant species, but there are plant species (ie. mulberry) that are known to grow in soil heavily contaminated with PAHs. Arsenic is of greater concern because reasonably low levels (200 ppm) are known to inhibit the growth but not necessarily kill many plant species (27). However, there are also numerous reports of plant species that tolerate levels of arsenic as high as 42,000 ppm (28,29). Thus the correct choice of plants to be grown at this site becomes a critical issue in achieving successful phytoremediation. In this regard, careful attention should be given to what is currently growing at the site.

Vegetation Currently Growing At The WCP-Site

Analysis of the site regarding the kind, distribution, and health of existing, volunteer vegetation is extremely informative in planning a successful phytoremediation strategy. Although the initial vegetation analysis at the site was conducted during January when plants were dormant and there was a partial snow cover, several important and conclusive observations were made. First, both tree and grass species are growing at the site indicating a natural tendency for a savannah type community of plants to revegetate the site. This observation is consistent with the known ecology of this region of Illinois (Figure 9). Secondly vegetation has successfully invaded and established itself by natural means across the entire site with the exception of a few zones where standing, dormant and/or dead material were not observed to protrude above the snow cover. These zones need to be examined more closely during the growing season. The third important observation is that two deep-rooted prairie grasses (little bluestem and switchgrass) that have been reported to stimulate the degradation of PAHs in laboratory experiments (22) are growing at the site. Certain cultivars

of little bluestem are also tolerant to high levels of orsenic exposure (28). These same two species are the most prominent grasses present in pristine prairies located 4 miles north of the site in Illinois Beach State Park.

PHYTOREMEDIATION OF THE VADOSE ZONE AT THE WCP-SITE

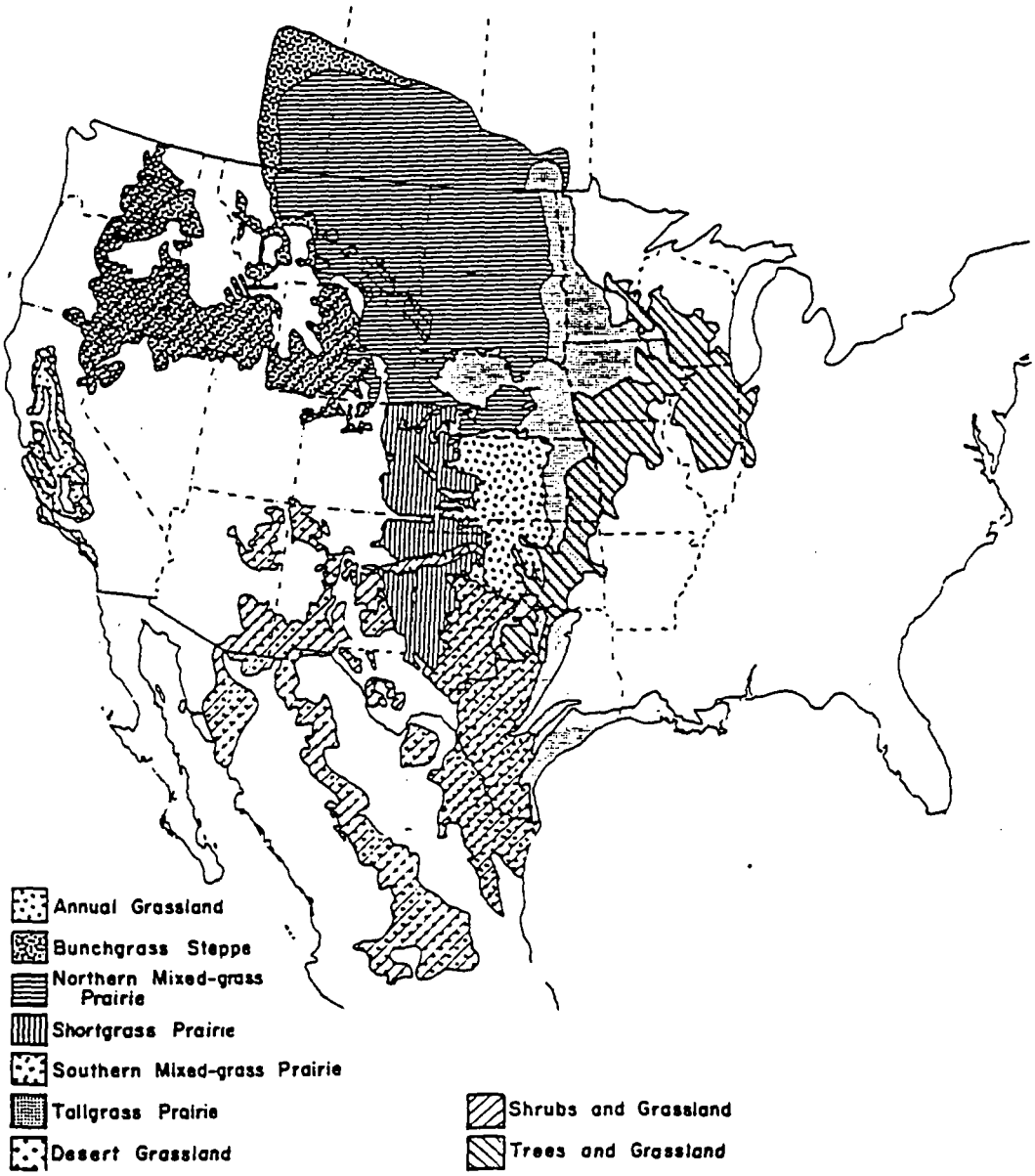
Method

Site preparation: Those portions of the site where the soil has been compacted or covered with a hard crust of parking gravel will be loosened by plowing. Stockpiled soil may be used in part to fill in excavated areas where heavily contaminated material has been removed. Ideally, during relocation of stockpiled soil it should be positioned approximately 6" to 18" beneath the soil surface where oxygen dependent plant-microbial degradation will be very active. During the removal of heavily contaminated material and relocation of stockpiled soil care should be taken when possible to preserve the existing patches of prairie grass growing at the site. The disturbed areas must be graded, tilled, and allowed to settle; thereby providing a smooth, firm planting surface. Fertilizer should also be provided during seedbed preparation if soil analysis results warrant its addition.

Planting: The entire area will be seeded with a mixture of four tallgrass species. The species will be: little bluestem (Schizachyrium scoparius), big bluestem (Andropogon gerardi), Indiangrass (Sorghastrum nutans), and switchgrass (Panicum virgatum). Areas with high concentrations and/or deep deposits of PAHs will also be planted with mulberry saplings on 15-foot centers.

Monitoring and maintenance: During the first year the germination, survival, growth rate, plant size, and leaf color will be monitored on a biweekly basis. Replanting and fertilization will be done as needed to achieve a solid cover.

Figure 9. Distribution of major grassland types in the United States.



Taken from reference 31.

Rational for using selected plants

Prairie Grasses

1. native to northern Illinois (Figure 9)
2. two of the grasses (switchgrass and little bluestem) are currently growing on the site
3. genetically capable of developing deep, large roots (roots can be 6 feet deep and account for 80% of the plant's total biomass) (30,31)
4. perennial grasses
5. will grow in sandy, nutrient poor soil
6. grow fast
7. high rate of evapotranspiration (30)
8. their root systems have been reported to foster the degradation of PAHs (22,23,24)

Mulberry

1. native to northern Illinois
2. genetically capable of developing finely dispersed, 10 foot deep roots (30)
3. perennial
4. will grow in sandy, nutrient poor soil
5. grows fast
6. high rate of evapotranspiration
7. know to grow at PAH contaminated sites
8. produces flavonoid compounds that serve as a natural substrate for bacteria capable of degrading polyaromatic compounds (18,19)
9. enhances aeration of the soil through rapid root turnover

Anticipated results

Erosion: After the first growing season the entire site will be covered by a dense stand of grass and no erosion will occur.

Leaching: The amount of soluble compounds that are leached from the vadose zone to the groundwater will be steadily reduced through the removal of soil water via plant evapotranspiration and the binding of materials to newly synthesized organic matter arising from root turnover (continuous growth and death of roots). The influence of these processes is proportional to the biomass of both shoot and root material. It is estimated that these processes will reach their maximum after 3 years when maximum rates of above and below ground

biomass production will be realized. The mulberry trees will grow more slowly and reach their maximum potential to arrest leaching after 10 to 15 years.

PAH degradation: As the root systems of both the grass species and mulberry develop they will explore the entire vadose zone. Associated with this growth and development is the continuous turnover of fine roots (roots l mm in diameter or less). This turnover stimulates microbial growth by enhancing soil aeration and providing microbial substrates. The continuous random growth of new fine roots ensures that over time all portions of the soil in the root zone are visited by roots. Thus, it is not necessary for the water insoluble PAHs to move to the roots; the roots and associated microbes move to the immobile PAHs. This is a slow process, but the gradual degradation of this class of recalcitrant pollutants will occur continuously; therefore, after 15 to 20 year period insignificant amounts of the PAHs will remain.

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Appendix G

Feasibility Study Appendix 4-A, "Preliminary Evaluation of Effectiveness of Proposed Vadose Zone Soil Remediation"

Appendix 4-A
Preliminary Evaluation of Effectiveness of Proposed Vadose Zone Soil Remediation

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Appendix 4-A

Preliminary Evaluation of Effectiveness of Proposed Vadose Zone Soil Remediation

1.0 Introduction

As discussed in Section 4.3.1, the soil remediation zones include visually-delineated PAH Remediation Zones and the pre-defined Arsenic Remediation Zone, as depicted in Figure 4-A-1. These delineations are intended to satisfy the soil Remedial Action Objectives (RAOs) at the WCP site.

This appendix has two objectives:

1. Present a confirmation process for the evaluation of soil removal plans in order to ensure the attainment of soil RAOs; and

2. Present a preliminary evaluation of the effectiveness of the delineated soil remedy.

A common element in the above discussion is the representative exposure concentration (REC), which is described in Section 2 of this appendix. Section 3 of this appendix presents the outline of the soil excavation confirmation process, while Section 4 of this appendix provides the preliminary results of the effectiveness of the delineated soil removal based on the analysis of the existing soil data.

2.0 Representative Exposure Concentration (REC)

As discussed in Section 3, soil Remedial Action Objectives (RAOs) at the WCP site are defined within the context of risk-based cleanup goals. Such risk-based remedial goals are intended to be compared to representative exposure concentrations (RECs) over specified exposure domains. These comparisons will ensure protectiveness of the remedy.

The REC is one of the key variables in estimating exposure in risk calculations. U.S. EPA *Risk Assessment Guidance for Superfunds, Volume 1. Human Health Evaluation Manual (Part A),* Interim Final, EPA/540/1-89/002, 1989 (RAGS Part A) defines the REC as the arithmetic average of the concentration that is contacted over the exposure period. U.S. EPA *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments,*

Interim Final, EPA 540-R-97-006, June 1997 (Ecological RAGS) defines the representative concentration as the level of contaminant occurring at exposure. The representative concentration is also referred to as "the concentration term" in the intake equation.

The appropriate computation of RECs must incorporate the observed large variability of measured chemical data. Such variations are typical in contaminated sites, which have prompted U.S. EPA to recommend the use of statistical methods for computing representative concentrations.

The REC is not a point value but rather is a value associated with an exposure domain, i.e., an area over which the exposed population is likely to come into contact with a contaminant over the targeted exposure duration. The REC is conservatively estimated as the upper confidence limit of the arithmetic mean concentration (UCL), as described in USEPA *Supplemental Guidance to RAGS: Calculating the Concentration Term,* Publication 9285.7-08, May 1992. U.S. EPA *Methods for Evaluating the Attainment of Cleanup Standards, Volume 1: Soils and Soil Media,* Chapter 6 (Box 6.7), EPA230/02-89-042, 1989 (Cleanup Attainment Guidance) describes procedures to compute UCL, as

$$UCL = m + t_{1-\alpha,n-1}\frac{s}{\sqrt{n}}$$

where,

UCL = Upper confidence limit of the mean;

m = Arithmetic mean;

$t_{1-\alpha,n-1}$ = Student's t value with an exceedance probability of α and $n-1$ degrees of freedom;

s = sample standard deviation; and

n = number of samples.

At the WCP site, the attainment of soil RAOs will be assessed by computing UCL of constituents of concern over appropriate exposure domains centered around various remediation zones, consistent with the above U.S. EPA guidance. The extent of the exposure domains at the WCP site are discussed in the following subsection.

2.1 WCP Exposure Domains

As noted in Section 3.2.5, the appropriate exposure domain must be consistent with risk exposure scenarios and frequencies used in development of the soil remedial goals. Consistent with the HHRA (U.S. EPA, 1995a), an industrial/commercial exposure domain, within which a worker may spent her or his entire professional life (i.e., 25 years), is conservatively determined to be 5 acres. Recent development of a Geographical Information System (GIS) database for Waukegan area transportation study further confirms the appropriateness of the 5-acre exposure domain as a representative domain size under an industrial/commercial scenario, although the complete parcel database for Lake County is still being developed.

Figure 4-A-2 depicts the extent of the 5-acre exposure domains over the various soil remediation zones. This figure also shows available subsurface soil samples used in the preliminary evaluation of the effectiveness of the delineated remedy in attaining soil RAOs. Concentrations of benzo(a)pyrene are shown relative to RHE soil risk values at levels of 10^{-4}, 10^{-5} and 10^{-6}. Benzo(a)pyrene exceeded RHE standards more than any other parameter and was therefore used as an indication of risk exceedance.

For the sake of conservatism, Section 4 of this appendix also evaluates the effectiveness of the delineated soil remedy using smaller 2.5-acre exposure domains, as delineated in Figure 4-A-3. Under both exposure domain arrangements, the western portion of the site that is almost un-impacted by the soil remediation zone is viewed as a single exposure domain, as depicted in Figures 4-A-2 and 4-A-3.

3.0 Excavation Confirmation Process

The attainment of the soil cleanup goals will be evaluated based on the process defined in U.S. EPA *Methods for Evaluating the Attainment of Cleanup Standards, Volume 1: Soils and Soil Media,* Chapter 6, EPA230/02-89-042, 1989 (Cleanup Attainment Guidance). For this purpose, post-excavation confirmatory sampling will be collected and analyzed as described below. This section provides a summary of basic components of the confirmatory sampling.

Objective: The objective of the confirmatory sampling is to ensure that within each exposure domain, the subsurface soil REC of constituents of concern is less than their corresponding 10^{-4} RHE soil risk values, as determined in Section 3.

Confirmatory Sampling Procedure: The sampling will be conducted according to a statistically-based random procedure, involving the following steps:

- Step 1. Number of Confirmatory Sampling Points: On average, there will be one sample every 50 feet along the excavated perimeter of each soil remediation zone. For this purpose, the perimeter of each excavated zone will be measured. The measured perimeter length in feet will be divided by 50 feet and rounded to the nearest largest whole number. This value will be the number of confirmatory samples along the perimeter of the targeted excavated area. For small subsurface soil excavated area, there will be at least three samples.

- Step 2. Lateral Sampling Locations: A starting point along the excavated perimeter will be selected. This point will be randomly situated from the most southern corner of the excavated area in a counter-clockwise direction. Other lateral sampling locations will be situated uniformly with respect to the starting point along the perimeter of the excavated area.

- Step 3. Vertical Sampling Locations: Upon determination of the lateral location of a confirmatory sample along the excavated perimeter, the depth of that sample will be selected randomly along the subsurface soil excavation depth. Each sample will be representative of a one-foot segment of the wall, centered randomly at a 1-, 2- or 3-foot depth along the excavated wall.

- Step 4. Chemical Analysis: Each confirmatory sample will be subjected to chemical analysis to determine concentrations of the constituents of concern.

- Step 5. Confirmation: The results of confirmatory soil data will be added to the existing subsurface data in each exposure domain. Using the expanded data set, subsurface RECs in each exposure domain will be computed as the 95% upper confidence limit of the mean concentration (95 UCL). 95 UCLs will be computed for each of the constituents of concern. In these computations existing data points within the excavated area will be assigned values equivalent to a one-half detection limit, or a representative concentration of the fill material if other than the clean fill. The computed subsurface soil RECs will be compared to the 10^{-4} RHE soil risk values, as determined in Section 3.

- Step 6. Excavation Expansion: In the event of a confirmatory failure, all or portions of the excavated perimeter will be expanded. These expanded portions will be treated as new

excavated areas, which will be subjected to confirmatory sampling procedures as described in Steps 1 through 5.

The above procedure provides a conservative process to confirm attainment of soil RAOs at the WCP Site.

4.0 Preliminary Evaluation of Delineated Soil Remedy

As a preliminary evaluation, the attainment of soil removal RAOs is simulated for each exposure domain. In these calculations, the existing data within each remediation zones are assigned values corresponding to the representative concentrations of the Designated Stockpile soil. Below-detection values are assigned values equal to one-half of the reported detection limits.

The corresponding values over the WCP exposure domains, as depicted in Figure 4-A-2, are listed in Table 4-A-1. The computed RECs indicate that the delineated removal actions not only will satisfy RHE risk values to 10^{-5}, but also meet the highly conservative RME risk values.

For the sake of conservatism, the RECs are also calculated for the smaller 2.5-acre exposure domains, as depicted in Figure 4-A-3. The corresponding RECs are listed in Table 4-A-2, which indicate that similar to the previous case, the delineated soil removals will surpass soil RAOs, even under the highly conservative RME scenario.

Due to the limited nature of the existing surface soil data, the effectiveness of the surface soil remedy is not numerically evaluated. However, Figure 4-A-4 clearly indicates that the existing surface soil, outside of the soil remediation zones, meets the soil RAOs, as discussed in Section 3. As a means for comparison, surface and subsurface arsenic samples are shown on Figure 4-A-5. As with benzo(a)pyrene, arsenic also meets soil RAOs.

5.0 Extent of Soil Remediation Zones Under More Stringent Risk Levels

The extent of the soil remediation zones is determined by the soil RAOs, as discussed in Section 3 of this FS. The above section provided preliminary evaluation of the delineated soil remediation zones based on the soil RAOs aimed at treating all soil that pose risks in excess of 10^{-4} risk levels under an industrial/commercial scenario. To further evaluate the reasonableness of the delineated soil remediation zones, their extent has been computed under more stringent 10^{-5} and 10^{-6} risk levels using the conservative REM assumptions.

To attain cleanup under the above more stringent RAOs larger areas of the WCP soil has to be targeted for excavation and/or treatment. To determine the extent of the remediation zones under the more stringent risk levels, an iterative procedure consistent with the risk-based RAOs are pursued. For this purpose, extent of soil remediation zones are expanded, where their post-remedial RECs are computed, as described in the previous section.

Figures 4-A-6 and 4-A-7 display the expanded soil remediation zones that meet the requirements of the 10^{-5} and 10^{-6} REM risk levels, respectively. Figure 4-A-1 shows the current soil remediation zones, which as demonstrated in the previous section, will satisfy 10^{-4} REM risk levels. Figure 4-A-8 summarizes the effect of the selected risk levels on the volume of soil remediation zones. These results further confirm the effectiveness and reasonableness of the delineated soil remediation zones in Figure 4-A-1.

Table 4-A-1

5-Acre Exposure Domain RECs

	RME	RHE	Exposure Domains			
Analyte	**10-4**	**10-4**	**1**	**2**	**3**	**4**
Arsenic	268	20500	73.38	69.79	22.82	5.76
Benzo(a)anthracene	594	15000	5.50	14.22	7.14	4.80
Benzo(a)pyrene	59.4	1500	3.22	10.70	4.18	4.81
Benzo(b)fluoranthene	594	15000	4.56	12.28	5.73	5.77
DiBenzo(a,h)anthracene	59.4	1500	0.65	6.90	0.83	3.78
Indeno(g,h,i)pyrene	594	15000	1.28	8.06	1.69	4.22

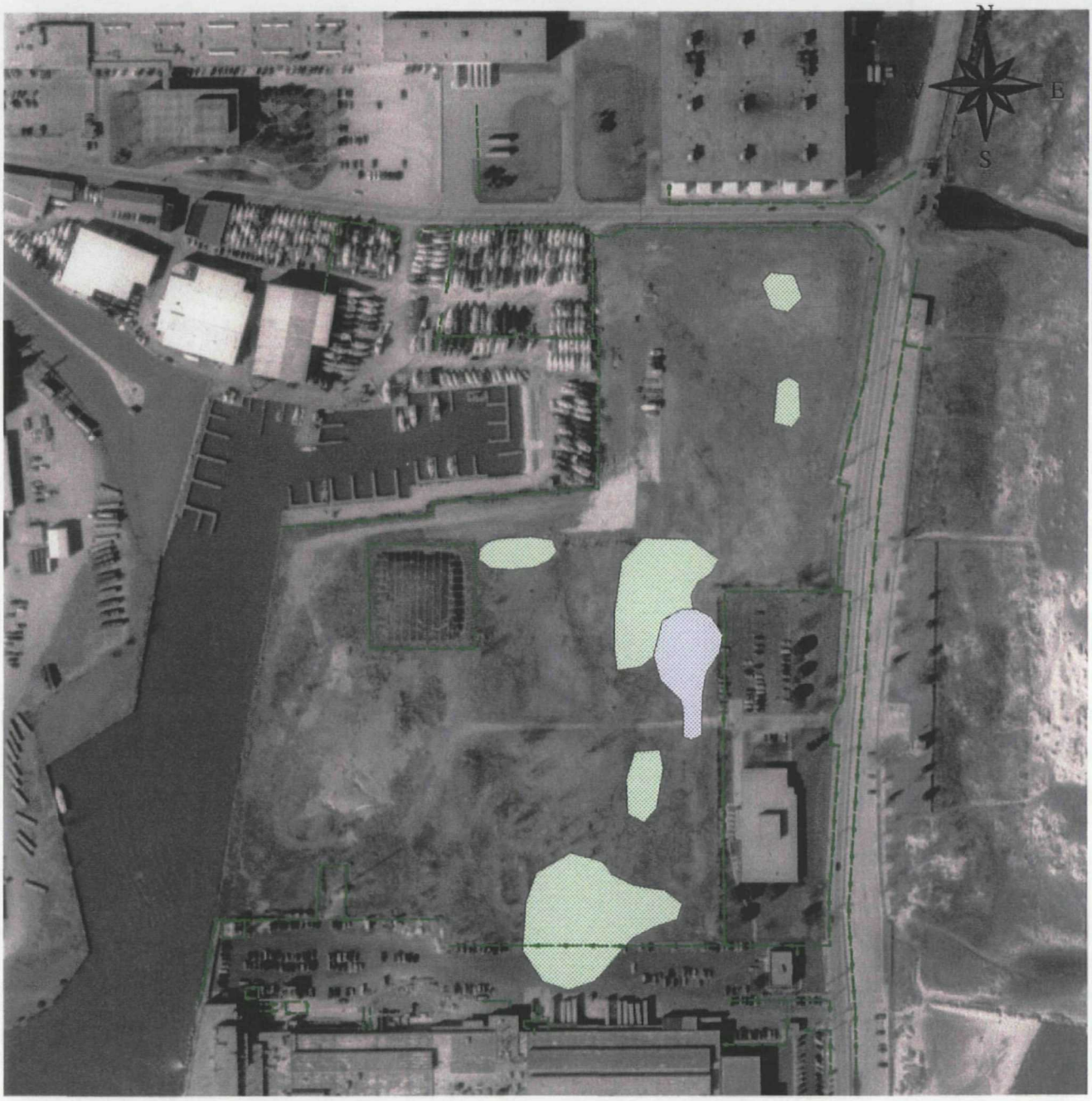
All values shown in parts per million (ppm)

Table 4-A-2

2.5-Acre Exposure Domain RECs

	RME	RHE	Exposure Domains						
Analyte	**10-4**	**10-4**	**1 North**	**1 South**	**2 North**	**2 South**	**3 North**	**3 South**	**4**
Arsenic	268	20500	67.30	92.58	129.39	36.34	43.42	12.10	5.76
Benzo(a)anthracene	594	15000	6.75	6.39	22.83	9.02	6.00	9.59	4.80
Benzo(a)pyrene	59.4	1500	3.52	3.94	18.04	5.09	3.57	5.55	4.81
Benzo(b)fluoranthene	594	15000	4.82	5.71	19.77	7.01	4.85	7.66	5.77
DiBenzo(a,h)anthracene	59.4	1500	0.71	0.77	13.37	0.91	0.87	0.96	3.78
Indeno(g,h,i)pyrene	594	15000	1.44	1.55	14.93	1.97	1.55	2.13	4.22

All values shown in parts per million (ppm)



200 0 200 400 600 Feet

LEGEND

Site Fenceline
Prop. Excavation Areas
Arsenic
PAH

Title	Proposed Arsenic & PAH Excavation Areas
Project	Waukegan Manufactured Gas and Coke Plant Waukegan, Illinois
Date 9/23/98	Rev. No. 0
APR WAUKGIS2	Figure No. 4-A-1

LEGEND

Subsurface BaP
- Below RHE
- >10-6
- >10-5
- >10-4

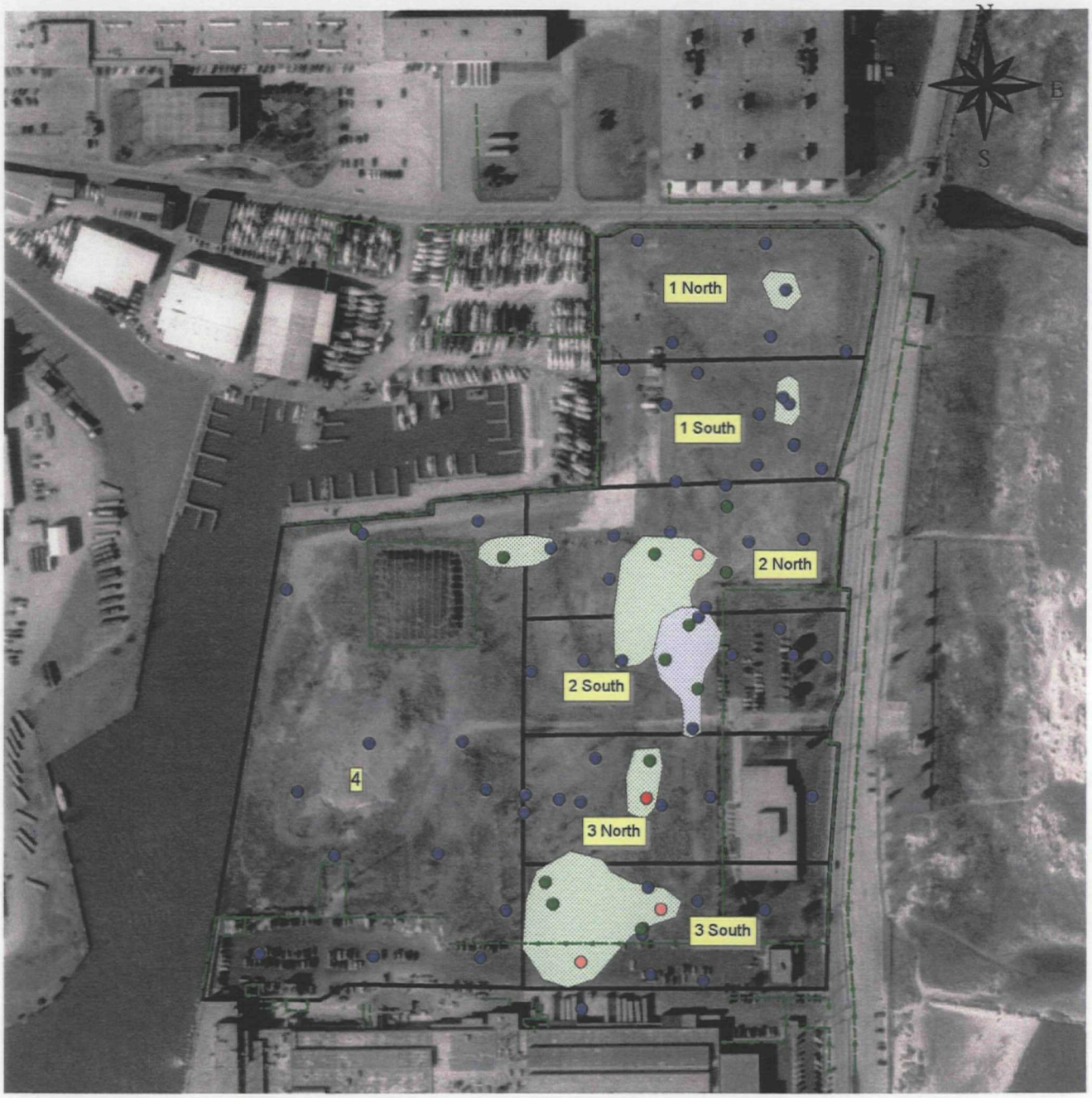
Site Fenceline

Prop. Excavation Areas
- Arsenic
- PAH

Site Risk Zones

200 0 200 400 600 Feet

Title	Subsurface BaP Results With Excavation Areas & 5 Acre Domains
Project	Waukegan Manufactured Gas and Coke Plant Waukegan, Illinois
Date 9/23/98	Rev. No. 0
APR WAUKGIS2	Figure No. 4-A-2



LEGEND

Subsurface BaP

- Below RHE
- >10-6
- >10-5
- >10-4

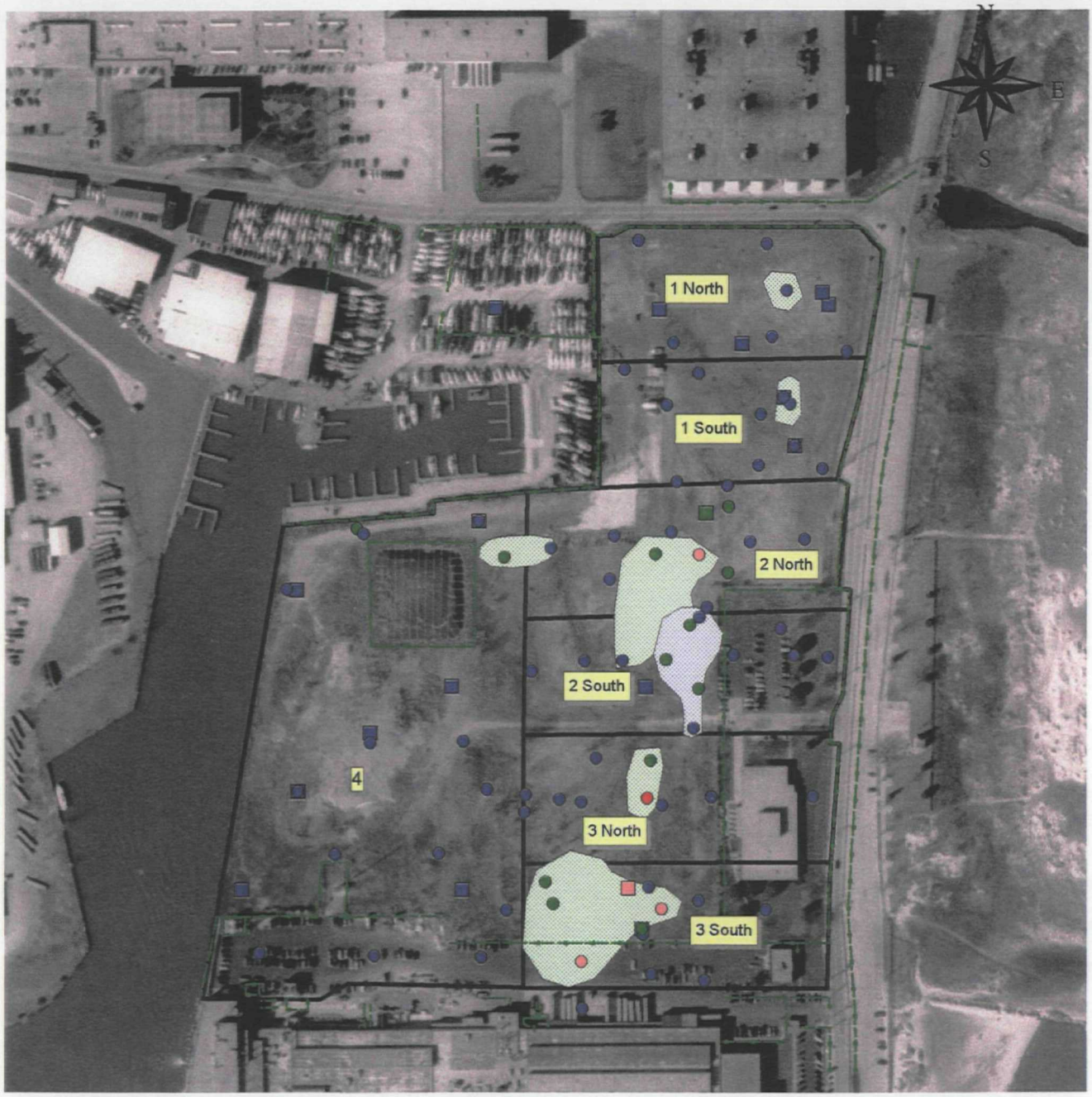
Site Fenceline

Prop. Excavation Areas

- Arsenic
- PAH
- 2.5 acreSIte Risk Zones

200 0 200 400 600 Feet

Title	Subsurface BaP Results With Excavation Areas & 2.5 Acre Domains		
Project	Waukegan Manufactured Gas and Coke Plant Waukegan, Illinois		
Date	9/23/98	Rev. No.	0
APR	WAUKGIS2	Figure No.	4-A-3



LEGEND

Subsurface BaP
- Below RHE
- >10-6
- >10-5
- >10-4

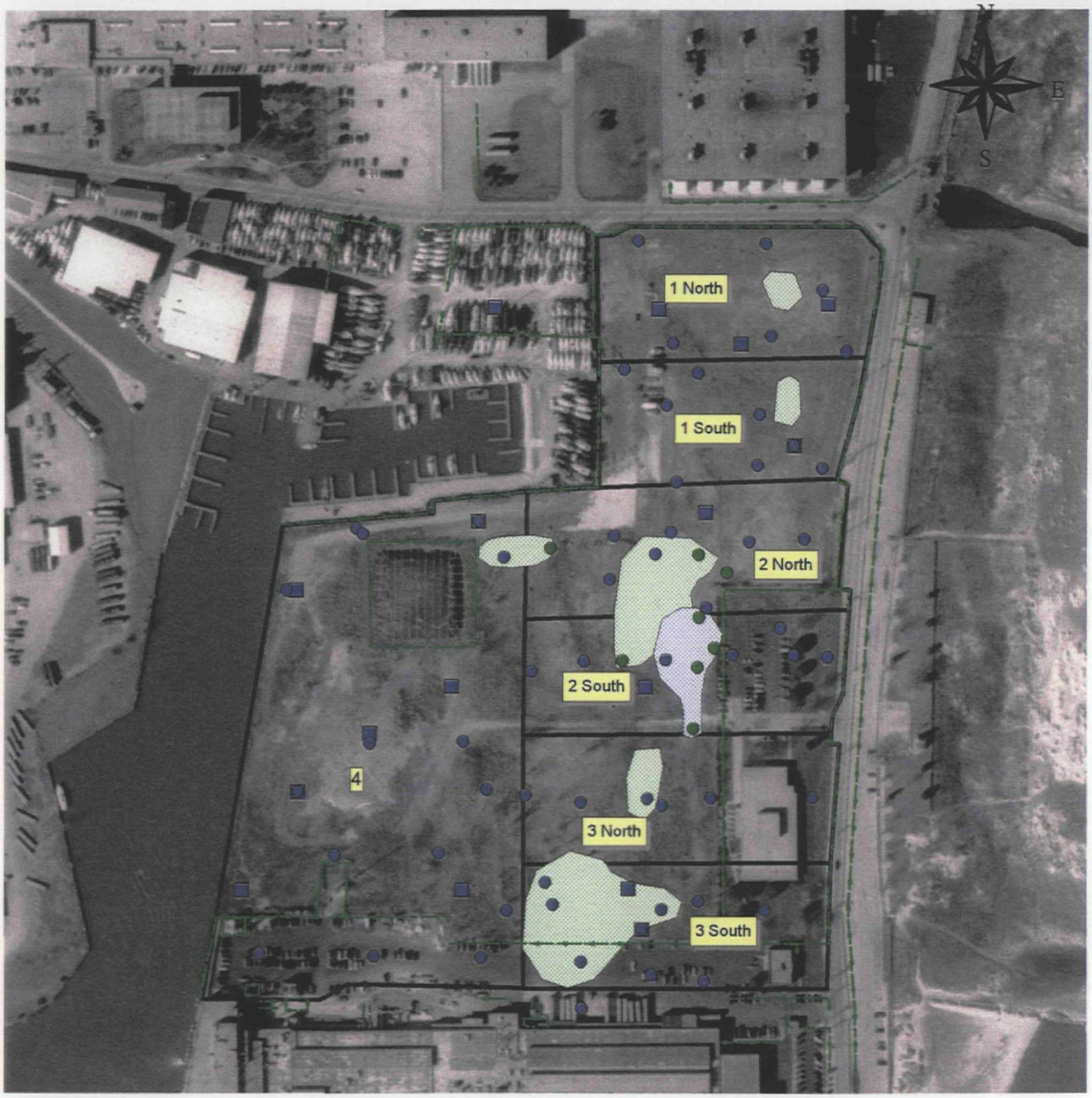
Surface BaP
- Below RHE
- >10-6
- >10-5

Site Fenceline

Prop. Excavation Areas
- Arsenic
- PAH
- 2.5 acreSIte Risk Zones

200 0 200 400 600 Feet

Title	Surface & Subsurface BaP Results With Excavation Areas & 2.5 Acre Domains		
Project	Waukegan Manufactured Gas and Coke Plant Waukegan, Illinois		
Date	9/23/98	Rev. No.	0
APR	WAUKGIS2	Figure No.	4-A-4



LEGEND

Subsurface Arsenic
- Below RHE
- >10-6
- >10-5

Surface Arsenic
- Below RHE
- >10-6
- >10-5

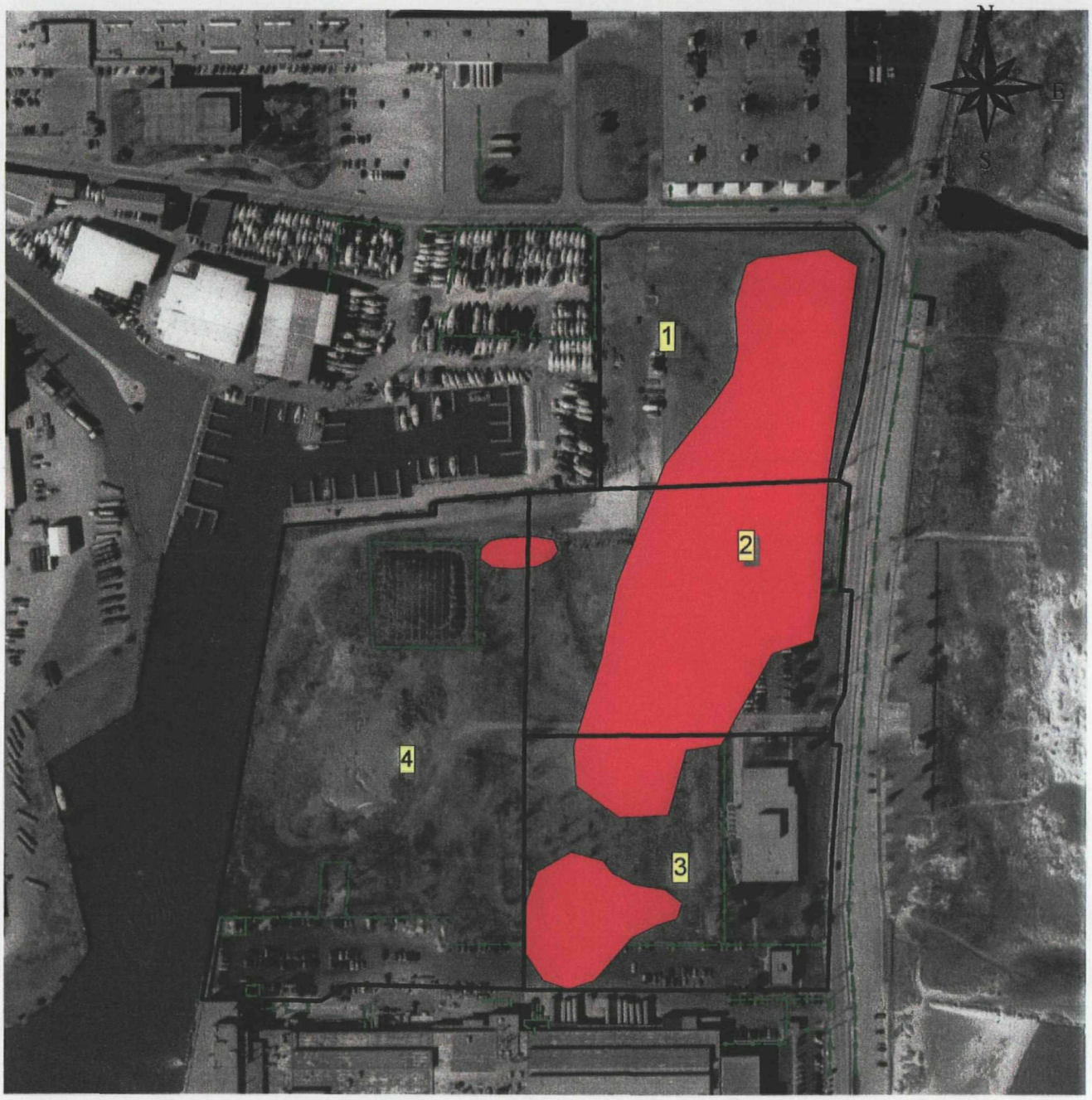
Site Fenceline

Prop. Excavation Areas
- Arsenic
- PAH

2.5 acreSIte Risk Zones

200 0 200 400 600 Feet

Title	Surface & Subsurface Arsenic Results With Excavation Areas & 2.5 Acre Domains		
Project	Waukegan Manufactured Gas and Coke Plant Waukegan, Illinois		
Date	9/23/98	Rev. No.	0
APR	WAUKGIS2	Figure No.	4-A-5



200 0 200 400 600 Feet

LEGEND

- Site Risk Zones
- 10-5 Excavation
- Site Fenceline

Title	Approximate Extent of Soil Remediation Zones Necessary to Attain 10-5 RME Risk Level		
Project	Waukegan Manufactured Gas and Coke Plant Waukegan, Illinois		
Date	9/23/98	Rev. No.	0
APR	WAUKGIS2	Figure No.	4-A-6

200 0 200 400 600 Feet

LEGEND

- Site Risk Zones
- 10-6 Excavation
- Site Fenceline

Title	Approximate Extent of Soil Remediation Zones Necessary to Attain 10-6 RME Risk Level		
Project	Waukegan Manufactured Gas and Coke Plant Waukegan, Illinois		
Date	9/23/98	Rev. No.	0
APR	WAUKGIS2	Figure No.	4-A-7

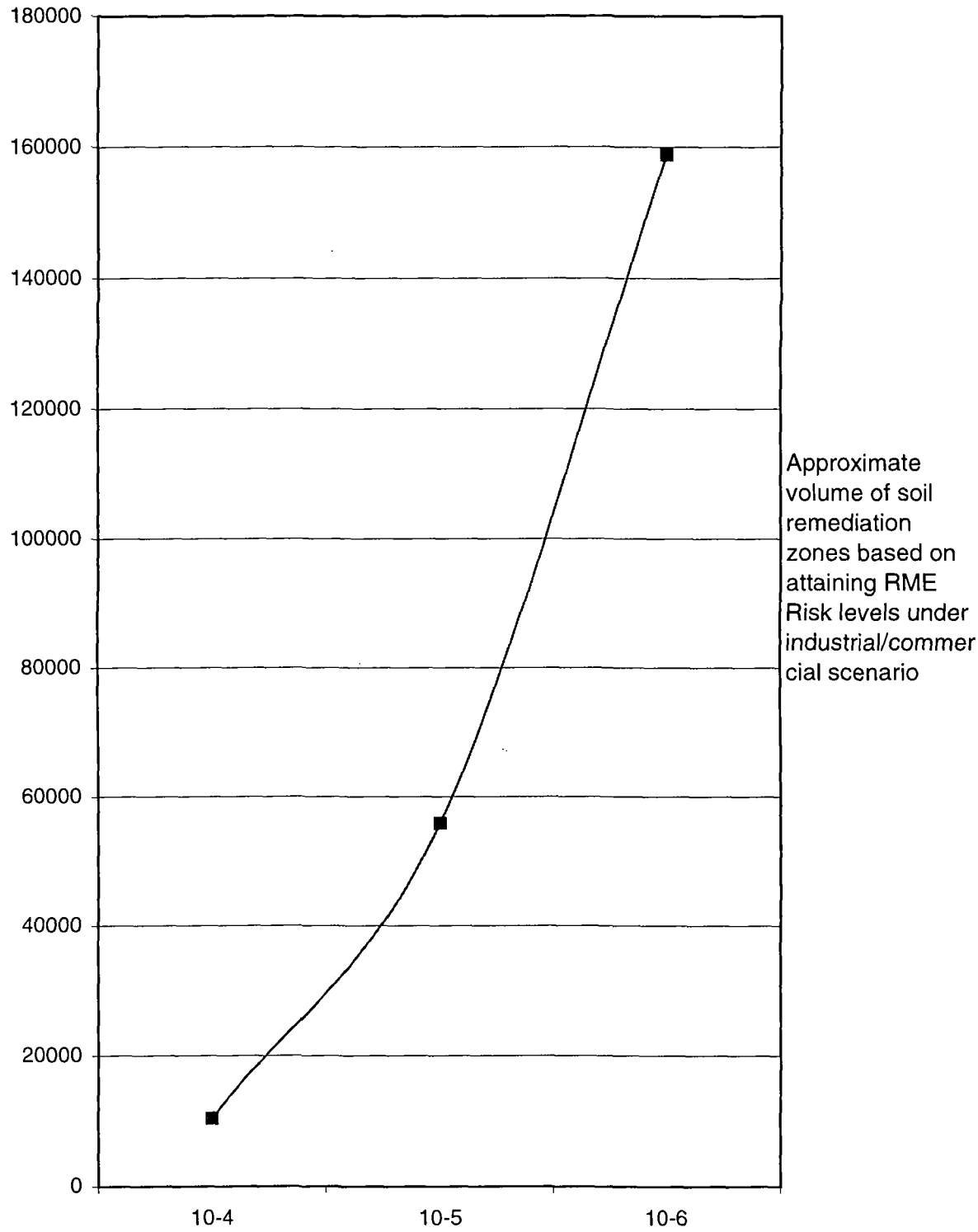


Figure 4-A-8

VOLUME OF SOIL ASSOCIATED WITH RME RISK LEVELS
Waukegan Manufactured Gas & Coke Plant Site

Appendix H

Soil Action-Specific ARARs from ROD, Determined to be Not Applicable of Relevant and Appropriate

Table H-1

Soil Action-Specific ARARs from ROD, Determined to be Not Applicable or Relevant and Appropriate
Waukegan Manufactured Gas and Coke Plant

Regulations	ARAR Status	Analysis for ROD Remedial Action
Federal Requirements		
Resource Conservation and Recovery Act (RCRA)		
RCRA - In General 42 U.S.C. 6901 Requirements for management of solid and hazardous waste.	Relevant and appropriate for on-site actions. May be applicable to off-site actions if hazardous waste is shipped off-site.	See specific items below.
RCRA Subtitle C		
Hazardous Waste Management System 40 CFR 260 Management of generation, treatment storage, disposal, and transport of hazardous waste. State of Illinois administers RCRA in Illinois. Refer to State ARARs. Refer to specific sections on transport, storage, treatment, or disposal.	Applicable to off-site transportation. RCRA applicability requires a RCRA hazardous waste (see 40 CFR 261) and action, which constitutes generation, transport, treatment, storage, or disposal. If waste was disposed after effective date of RCRA, disposal triggered RCRA, otherwise RCRA will be triggered by treatment of the waste. Management of treatment residuals subject to RCRA if residuals retain characteristic.	Not an ARAR. PRZ – MGP waste is not characterized as hazardous using TCLP. The U.S. EPA and the Illinois Environmental Protection Agency have amended their regulations to reflect the fact that the TCLP test is not allowed to determine whether MGP waste is hazardous (see 40 C.F.R. § 261.24 and 35 Ill. Adm. Code §721.124) ARZ – ARZ material is MGP waste, and the PRZ material regulations described above apply. In addition, TCLP analyses of ARZ samples were below thresholds for the toxicity characteristic. DSS – TCLP analyses of DSS samples were below thresholds for the toxicity characteristic. The EPA's Feasibility Study Addendum, June 1999, refers to the DSS soil as F034. This designation may be subject to correction after further EPA review.
Definition and identification of hazardous waste 40 CFR 261 Identifies RCRA hazardous wastes as: (1) characteristic; (2) listed; or (3) mixture of solid waste and listed hazardous waste.	No listed waste present on-site. Excavated material will be properly characterized to ensure proper management.	Not an ARAR. See 40 CFR 260 analysis. However, waste characterization will be conducted as required by disposal facilities to ensure proper management of waste.
Standards for Generators 40 CFR 262 Establishes regulation covering activities of generators of hazardous wastes. Requirements include ID number, record keeping, and use of uniform national manifest.	Applicable if wastes are RCRA hazardous and go off-site.	Not an ARAR. See 40 CFR 260 analysis.

Table H-1

Soil Action-Specific ARARs from ROD, Determined to be Not Applicable or Relevant and Appropriate
Waukegan Manufactured Gas and Coke Plant

Regulations	ARAR Status	Analysis for ROD Remedial Action
Standards for Transport 40 CFR 263 The transport of hazardous waste is subject to requirements including DOT regulations, manifesting, record keeping, and discharge cleanup.	Applicable if wastes are RCRA hazardous and go off-site.	Not an ARAR. See 40 CFR 260 analysis.
Subpart A—General 40 CFR 264.1–264.4 General requirements and application of section 264 standards.	Relevant and appropriate to treatment, containment and capping of RCRA hazardous waste.	
Subpart D—Contingency Plan and Emergency Procedures 40 CFR 264.50–264.56	Relevant and appropriate to remedy construction for RCRA hazardous waste.	Not an ARAR. See 40 CFR 260 analysis. Although, a contingency plan will be prepared and will include emergency procedures.
Subpart F—Releases from Solid Waste Management Units (SWMU) 40 CFR 264.90—264.101 Requirements for releases from SWMUs includes monitoring, protection of groundwater, corrective action, and detection monitoring.	Not applicable for excavation and treatment off site.	The ROD determined this is not an ARAR.
Subpart G—Closure and Postclosure 40 CFR 264.110–264.120 General closure and postclosure care requirements. Closure and postclosure plans (including operation and maintenance), site monitoring, record keeping, and site use restriction.	Relevant and appropriate if RCRA hazardous wastes are left on site.	Not an ARAR. See 40 CFR 260 analysis.
Subpart L—Waste Piles 40 CFR 264.251–264.259 Requirements for hazardous waste kept in piles. Requirements include liner, leachate collection unless under an appropriate structure.	Not an ARAR. Waste piles are not part of remedy.	Not an ARAR. A waste pile is not part of the selected remedy.
Subpart N—Landfills 40 CFR 264.301–264.317 Requirement for design, operation, and maintenance of a new hazardous waste landfill. Includes minimum technology requirements under HSWA (double liner, leachate collection).	Not an ARAR.	Not an ARAR. An onsite landfill is not part of the selected remedy.

Table H-1

Soil Action-Specific ARARs from ROD, Determined to be Not Applicable or Relevant and Appropriate
Waukegan Manufactured Gas and Coke Plant

Regulations	ARAR Status	Analysis for ROD Remedial Action
Subpart S—Corrective Action for Solid Waste Management Units 40 CFR 264.552–264.553 Requirements of corrective action management and units (CAMU) and temporary units (TUs). Designation of CAMU is made on site-specific basis by regional administrator consistent with criteria listed in regulation; requirements for CAMU are site-specific.	Relevant and appropriate if residuals to dispose of are hazardous.	Not an ARAR. Hazardous residuals will not remain at the site. Additionally, CAMU designation for onsite activities is not anticipated
Subpart X—Miscellaneous Treatment 40 CFR 264.600–264.603 Standards for performance of miscellaneous treatment units. General environmental performance standards which are protection of human health and the environment. Prevent releases to environment.	Relevant and appropriate if materials to be treated are RCRA hazardous.	Not an ARAR. On-site treatment will not be conducted as part of the remedial action. Also see 40 CFR 260 analysis.
Land Disposal Restrictions 40 CFR 268, Subpart C and Subpart D The land disposal restrictions and treatment requirements for materials subject to restrictions on land disposal. Must meet waste-specific treatment standards prior to disposal in a land disposal unit.	Relevant and appropriate if residuals are hazardous, but CAMU would not trigger LDRs.	Not an ARAR. See 40 CFR 260 analysis.
Toxic Substances Control Act (TSCA) PCBs Not applicable. PCBs less than 50 ppm on site.		
Occupational Safety and Health Act		
49 CFR 100-109 Transportation of hazardous materials. Specific DOT requirements for labeling, packaging, shipping papers, and transport by rail, aircraft, vessel, and highway.	Applicable. Off-site shipment of waste may occur.	Not an ARAR. See 40 CFR 260 analysis. For tracking and documentation purposes, all shipments of soil from the site will have proper documentation.
State Requirements		
Waste Disposal Illinois Adm. Code Title 35 Subtitle G Chapter 1		

Table H-1

Soil Action-Specific ARARs from ROD, Determined to be Not Applicable or Relevant and Appropriate
Waukegan Manufactured Gas and Coke Plant

Regulations	ARAR Status	Analysis for ROD Remedial Action
Subchapter c, Parts 720-729 Hazardous waste operating requirements. Standards for waste management, generators, transporters, owners, and operators of treatment, storage and disposal facilities.	Relevant and appropriate to management of hazardous waste.	Not an ARAR. See 40 CFR 260 analysis.
Subchapter c, Part 721 Identification and listing of hazardous waste.	Not an ARAR. Material is not a listed waste. Excavated material will be characterized to ensure proper management.	
Subchapter c, Part 722 Standards applicable for generators of hazardous waste.	Relevant and appropriate to management of hazardous waste on-site.	
Subchapter c, Part 724 Subpart G—Closure and Postclosure General closure and postclosure care requirements. Closure and postclosure plans (including operation and maintenance), site monitoring, record keeping, and site use restriction.	Relevant and appropriate if hazardous waste is left on site.	
Subchapter c, Part 724 Subpart N–Landfills Regulations for owners and operators of facilities that dispose of hazardous waste in landfills. Requirements for design, operation, and maintenance of hazardous waste landfills.	Not an ARAR. Landfill not a part of remedy.	
Subchapter c, Part 724 Subpart X–Miscellaneous Units Standards applicable for owners and operators that treat, store or dispose of hazardous waste in miscellaneous units.	Relevant and appropriate if materials to be treated are RCRA hazardous.	On-site soil treatment will not be conducted as part of the remedial action.
Subchapter c, Part 728 Identifies land disposal restrictions and treatment requirements for materials subject to restrictions on land disposal. Must meet waste-specific treatment standards prior to disposal in a land disposal unit.	Relevant and appropriate to disposal of hazardous waste.	Not an ARAR. See 40 CFR 260 analysis.

Table H-1

Soil Action-Specific ARARs from ROD, Determined to be Not Applicable or Relevant and Appropriate
Waukegan Manufactured Gas and Coke Plant

Regulations	ARAR Status	Analysis for ROD Remedial Action
Subchapter g Requires chief operator of certain waste disposal sites (solid and hazardous waste) to obtain prior conduct certification.	CERCLA site is exempt from permitting. Chief operator of waste disposal site would be required to comply with substantive requirements. Requirement may be relevant and appropriate to capping.	The ROD determined that this is not an ARAR.
Subchapter h Illinois "Superfund" program.	Not applicable. The Illinois Hazardous Substances Pollution Contingency Plan is applicable to State response taken at sites which are not the subject of a federal response taken pursuant to CERCLA.	The ROD determined that this is not an ARAR.
Air Pollution Illinois Adm. Code Title 35 Subtitle B		
Part 201, Permits and General Provisions. 201.142 Construction Permit Required	Not an ARAR. A CERCLA site is exempt from permitting.	The ROD determined that this is not an ARAR.
Part 218, Organic Material Emission Standards and Limitations for the Chicago Area (includes Lake County); Subpart K: Use of Organic Material; 218.301-.303	Not an ARAR. The discharge of greater than 8 lbs/hr of VOC from any aspect of the remedial action is not likely.	The ROD determined that this is not an ARAR.
Part 228 Asbestos May apply if asbestos-containing material is encountered.	Not an ARAR. Excavation of soil is not expected to uncover asbestos containing material.	The ROD determined that this is not an ARAR.

Appendix I

Soil Remedial Action Technical Specifications Outline

Appendix I

Soil Remedial Action Technical Specification Outline

Division 1 General Requirements

Section 01110 Summary of Work
Section 01140 Work Restrictions
Section 01310 Project Management and Coordination
Section 01330 Procedures for Technical Submittals
Section 01400 Quality Requirements
Section 01500 Construction Facilities and Site Control
Section 01501 On-Site Health and Safety Requirements
Section 01503 Contingency Plan
Section 01505 Mobilization/Demobilization
Section 01510 As Built Survey and Record Drawings
Section 01571 Soil Erosion and Sedimentation Control
Section 01710 Emission Controls and Air Monitoring
Section 01720 Equipment Decontamination

Division 2 Site Construction

Section 02110 Excavation, Removal, and Handling of Hazardous Materials
Section 02120 Off-Site Transportation and Disposal
Section 02125 Drum Handling
Section 02195 Remediation Soil Stabilization
Section 02197 Debris Decontamination and Management
Section 02231 Clearing and Grubbing
Section 02300 Earthwork
Section 02310 Grading
Section 02315 Excavation and Fill
Section 02528 Well Abandonment
Section 02630 Storm Drainage
Section 02820 Fencing
Section 02920 Vegetation Establishment