Report

RCRA Facility Investigation Release Assessment

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HORIZON ENVIRONMENTAL

ERRATA

For

Attachment I

RCRA Facility Release Assessment Report

Detroit Coke Corporation

Detroit Michigan

Section 4.3 In situ Hydraulic Conductivity

Due to the construction characteristics of piezometer P-1S-95, the estimate for hydraulic conductivity based on slug test data from this piezometer should be disregarded.

The estimate of hydraulic conductivity near piezometer P-4S-95 should read 2 feet/day, based on the unconfined solution.

Section 5.0 Discussion

The flow of ground water in the shallow and deeper saturated units beneath the site is toward the rivers as water level data indicate. Since saturation in the shallow zone is of sufficient thickness to be continuous over the top of the clay unit (the water table occurs at consistently higher elevations across the site than the top of the clay) the slope of the clay will have little affect on the direction of ground water flow. Rather, ground water will flow from areas having greater potential (hydraulic head) to those having lower potential. Staff gauge data indicate that the rivers are the areas having the lowest potential and thus serve primarily as discharge points for ground water, except in times of flood.

Comment 13;

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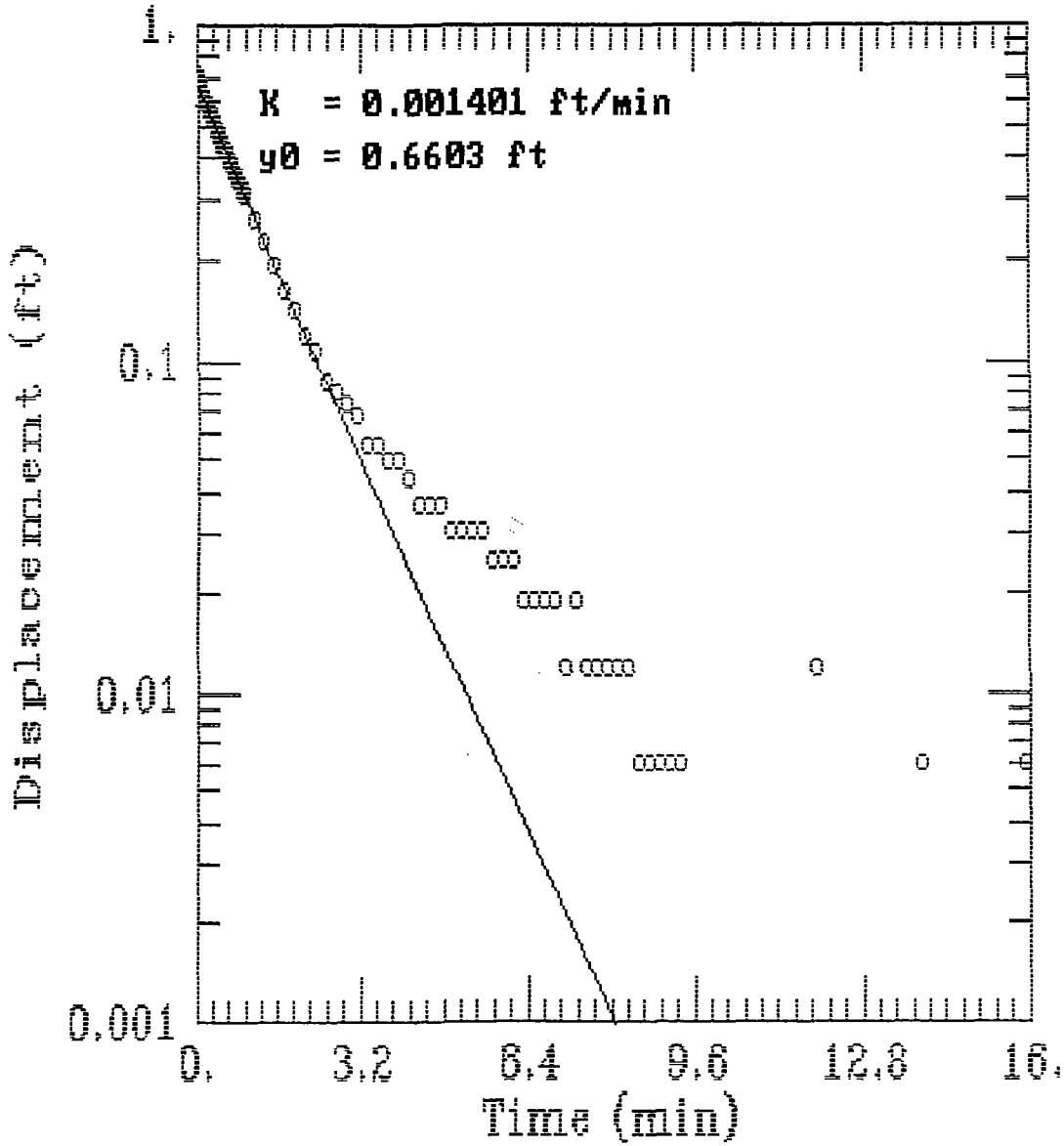
This response is summarized in an errata sheet for Attachment I of the RA Report (attached).

Comment 16;

Slug test data for piezometers P-1S-95 and P-4S-95 were analyzed using the confined solution because the well boring log information indicated that water levels in each well were above a potential confining layer (local occurrence of clay in P-1S-95 and coal fines in P-4S-95, with water levels slightly above the bottoms of these layers) and because the response curves most closely matched those conditions. A review of the construction details for piezometer P-1S-95, shows that most of the well screen is located in the underlying clay and thus that results from this piezometer are not likely representative of the shallow saturated zone. Therefore, these results will be disregarded. The data from P-4S-95 can be evaluated using the unconfined solution to yield a hydraulic conductivity of 2 feet/day (compared to 5.47 feet/day using the confined solution). Because the unconfined solution provides a good fit to the response data and the confining ability of the coal fines is questionable, the estimate of hydraulic conductivity based on the unconfined solution (2 feet/day) should be accepted.

This response is summarized in an errata sheet for Attachment I of the RA Report (attached).

P-4S-95 (rev.1)



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Modeling Group

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ATTACHMENT

I. Expanded Hydrogeological Investigation Report

TABLE OF DATA VALIDATION ACRONYMS

BDL	Below Detection Limit
CCV	Continuing Calibration Verification
DFTPP	Decafluorotriphenyl phosphine
J	Data Point Estimated
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
R	Data Point Unusable
RPD	Relative Percent Difference
RRF	Relative Response Factor
RSD	Relative Standard Deviation
UJ	Detection Limit Estimated
UR	Detection Limit Unusable

1.0 EXECUTIVE SUMMARY

BACKGROUND

The Detroit Coke Corporation facility, located at 7819 Jefferson Avenue in Detroit, Michigan, is a large industrial site that is currently used to store and load bulk coal, coke, and limestone. From the 1900's until 1991 the site was used as a coking facility, producing coal tar and coke oven gas as by-products. Coking operations ceased and the plant was closed in 1991.

A Toxic Release Inventory was reported for the facility by U.S. EPA in 1990. The U.S. EPA also prepared a RCRA Facility Assessment (RFA) for the site in December, 1992 and determined that there were 13 Solid Waste Management Units (SWMUs) requiring additional investigation and possible corrective action. Detroit Coke Corporation has elected to conduct a Release Assessment (RA) at SWMUs 1, 2, 18 and 20 to document the presence or absence of hazardous wastes or constituents and to determine whether further investigation is warranted during the RCRA Facility Investigation (RFI). This report documents the results of the RA investigation.

RESULTS

A total of 31 soil samples and 5 ground water samples were collected at the 4 SWMUs involved in the RA and at selected background locations at the Detroit Coke facility. Laboratory analyses for purgeable aromatic hydrocarbons, polynuclear aromatics compounds, and/or base/neutral/acid semi-volatile organic fractions, including pyridine, were performed on 22 of the 31 soil samples and all of the ground water samples.

Soil samples analyzed from SWMUs 1, 18, and 20 showed detectable concentrations of a variety of compounds, but nothing above the Generic or Industrial Direct Contact[1] values. SWMU 2 contained concentrations of the polynuclear aromatic (PNA) compounds benzo(a)pyrene, benzo(a)anthracene, and benzo(b&k)fluoranthene in boring B2-5 in excess of both the Generic Residential Direct Contact Values and established background criteria, in one instance the Generic Industrial Direct Contact Criterion specified for benzo(a)pyrene was exceeded.

The ground water analyses from SWMUs 1, 2, and 20 revealed detectable concentrations in excess of the Generic Residential Drinking Water standards, for benzene. A variety of other constituents were detected, but only 2 PNA compounds were detected at a concentration exceeding the GSI criteria.

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[1] Direct Contact, Drinking Water and GSI Values established under the former Michigan Environmental Response Act (Act 307), now amended and promulgated under Part 201 of the Natural Resources and Environmental Protection Act (Act 451).

Soils from a total of 8 background sample locations were collected as part of the RA. Analytical results from this sample set were subjected to a Coefficient Variance Test to determine the representativeness of the sample population prior to employing a Mean Plus Three Standard Deviation (MPTSD) approach to determine acceptable background concentrations for PNA compounds at the site. The resultant coefficient of the variance invalidated 5 of the 8 samples as statistical outliers. Consequently, this precluded employing the MPTSD approach. Instead, the mean of the data set for each constituent of concern, was established as a default background value. These mean values were then used in the initial screening process of foreground soil samples to assist in determining if a release has occurred at a particular SWMU[2].

Neither of the two background ground water samples collected contained detectable concentrations of the compounds for which they were analyzed.

DISCUSSION

Minimal soil impact, above screening criteria utilized for the RA soil data set, was evidenced.

Ground water impact was observed and directly attributable to a release at SWMU 1; however, this impact was only slightly above the generic residential drinking water criteria.

Ground water impact at SWMU 2, again, is slight and may possibly be attributable to an upgradient source.

Ground water impact at SWMU 20 evidenced the greatest exceedances of the screening criteria detected during the RA. However, the concentrations of PNA compounds and benzene, do not significantly exceed the respective screening criteria and may be attributable to, or exacerbated by, a possible upgradient off-site contributing source.

SWMU 18 should be dropped for the RCRA Corrective Action Program since no release was evidenced by sampling and analysis conducted at this SWMU.

Attachment I to this document is a report discussing the hydrogeological conditions beneath the site and should be referenced for details in that regard.

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[2] Alternative statistical approaches are currently being evaluated in cooperation with the Michigan Department of Natural Resources.

RECOMMENDATIONS

A RFI work plan focusing on the characterization of ground water in proximity to the Detroit and Rouge Rivers should be prepared. Minimal ground water sampling in the interior of the facility should by incorporated in the plan, rather, a perimeter approach instead of a SWMU-specific approach should be taken.

Additional soil evaluation at the facility is not recommended during the RFI. Instead, the soil media should be moved directly to the Corrective Measures Study phase and exposure control mechanisms evaluated for the site as a whole for this media.

Background ground water quality should be further evaluated prior to the preparation of the RFI work plan due the "creosote-like" product observed in P-6D-95, installed as part of the hydrogeological investigation. The occurrence of an off-site contributing source of ground water impact may alter the scope of work undertaken during the RFI.

2.0 INTRODUCTION

2.1 BACKGROUND

The Detroit Coke Corporation facility, located at 7819 Jefferson Avenue in Detroit, Michigan (Wayne County, T2S, R11E, Private Claim 67), occupies approximately 60 acres on the north side of the northern confluence of the Rouge and Detroit Rivers. The facility is in a heavily industrialized area along the Detroit and Rouge Rivers. Both rivers are used for transport of bulk materials by barge as well as recreational boating and fishing. A site location map is shown in Figure 1. Figure 2 is a site map that shows the general layout of the Detroit Coke facility.

Although the property immediately surrounding it is industrial, the facility is located approximately 1,000 feet southeast of a residential neighborhood; approximately 0.5 miles southeast of McMillian School; 0.5 miles southeast of Good Hope School; approximately 0.5 miles south of Cary School; 1.25 miles west of Prince Road Park; and about 1.75 miles west of a hospital near Sandwich Ontario.

The Detroit Coke Corporation site was a coking facility which also produced coal tar and coke oven gas as byproducts. The coke was supplied to foundries for use as a fuel in cupolas; the coal tar was sold to a local coal tar refiner; and the coke oven gas was either used as a fuel on-site, sold, or flared.

Coking operations began at the facility in the early 1900's when the first battery of coke ovens was constructed. Detroit Coke has owned the facility since 1980. Detroit Coke

operated the #4 battery from January 1980 until September 1991 when operations ceased and the plant was closed.

The facility is currently used to store and load bulk coal, coke, and limestone. Since the discontinuance of coking operations, Detroit Coke has emptied and removed tanks, pipelines, and containment units at the facility. Select buildings on the site are also in the process of or are slated for demolition.

A Toxic Release Inventory for the Detroit Coke site was reported in 1990. The U.S. EPA has also prepared an RFA for the Detroit Coke facility. The RFA report, dated December 2, 1992, was based on materials found in facility and agency files, the preliminary RFA submitted by Detroit Coke, and the Visual Site Inspection performed by the agency on July 15-16, 1992. The U.S. EPA determined that the facility has 13 SWMUs requiring additional investigation and possible corrective action. Interim Measures taken at the site pursuant to a RCRA Facility Assessment include:

- Removal of accumulated coal tar residuals from SWMU 11;
- Removal of underground lines, such as coke oven gas lines;
- Pre-demolition asbestos abatement;
- Removal of the No. 6 fuel oil tank; and
- Demolition (in progress) of about 95% of the existing site structures, excluding warehouses, by Murphy Demolition Inc., under contract to Detroit Coke.

Condition D of Detroit Coke's RCRA permit (number M1-163-1W-0004) identifies the 13 SWMUs requiring possible investigation and corrective actions. In the RCRA Corrective Action framework, a Release Assessment (RA) may be performed to document the presence or absence of hazardous wastes or constituents at individual SWMUs in order to determine whether further investigation is warranted during the RCRA Facility Investigation (RFI).

Detroit Coke Corporation has elected to conduct an RA at SWMUs 1, 2, 18 and 20, based on historical records and known housekeeping practices which suggest that a release has not occurred at these units. The RA was intended to generate data which are sufficient in quality and quantity to support the determination that a release has not occurred at a SWMU and thus that no further investigation at that SWMU is required. The purpose of this report is to document the results of the RA investigation.

2.2 LOCAL GEOLOGY AND HYDROGEOLOGY

The site topography is relatively flat with an elevation of around 590 feet above mean sea level. Ground surface at the site slopes gently toward the Detroit River to the east and the Rouge River to the south. Surface elevations range from about 590 feet MSL in the north to about 580 feet MSL adjacent to the rivers.

2.2.1 SOILS AND GEOLOGY

The site is located within a glacial lake plain once occupied by ancestral Lake Erie. The surficial geology of the site consists of fill material underlain by approximately 100 feet of glacial deposits including alluvial deposits, lacustrine and deltaic sand, lacustrine clay, and lacustrine and deltaic loam. These sediments were deposited during the Wisconsinan stage of the Pleistocene glaciation, and are related to the advance and withdrawal of the Erie-Huron ice lobe. Bedrock formations immediately underlying the glacial deposits consist of approximately 4,000 feet of Paleozoic sedimentary deposits which dip northwest at approximately 30 feet/mile.

2.2.2 GROUND WATER

The uppermost permeable unit at the site is the surficial fill material of approximately 10-15 feet in thickness. Perched ground water is present at depths as shallow as 3 feet within this unit, but more typically exists at depths of 10 to 15 feet. Alluvial deposits consisting primarily of silt and clay; along with glacial lake plain deposits of clay and varying amounts of sand exist beneath the fill layer over most of the site. Ground water in varying quantities occurs within these units. The regional ground water flow is to the south and southeast toward the Detroit and Rouge Rivers.

Public drinking water is obtained primarily from surface water sources and supplied by the Detroit Metro Water Department. The surface water sources include Lake St. Claire, Detroit River, Clinton River, River Rouge, Huron River and inland lakes. There are some private wells in the area that obtain water from the glacial deposits, either the Berea Sandstone or the Sylvania Sandstone Formations.

2.3 PURPOSE AND SCOPE

The following are the specific RA objectives and associated tasks:

- Determine the background concentration for PNA compounds in the soil. Collect eight background soil samples and analyze for PNA compounds. Establish background values in accordance with MDNR guidance.

- Determine whether an obvious release has occurred from SWMUs 1, 2, 18 and 20. Collect and field screen (visual and PID) up to 32 soil samples for potential laboratory analyses.

- Where an obvious release is apparent based on field screening results, confirm with laboratory analyses. Analyze in the laboratory 20-30% of the most impacted soil samples for the appropriate indicator list.

- Where an obvious release is not apparent based on field screening results, determine the presence or absence of soil impact. Analyze in the laboratory 50% of the soil samples for the appropriate indicator parameters associated with each SWMU. Selection to be based on field screening results (most impacted or randomly if no impact is observed).

- Determine if a release has occurred to ground water from SWMUs which structurally extend to the water table. If necessary, install temporary monitoring wells and collect ground water samples in three locations: downgradient of SWMUs 1, 2 and 20. Analyze these samples in the laboratory for the appropriate indicator list.

- Determine up-gradient ground water quality with respect to the comprehensive indicator list. If the foreground data needs screening relative to potential regional impact, install and sample two up-gradient temporary monitoring wells and analyze the ground water samples.

2.4 PRESENT INVESTIGATION

In accordance with the RCRA Corrective Action framework, a multi-faceted work plan was developed to address the RA. The work plan is comprised of a Project Management Plan (PMP), and the following support plans:

- Field Sampling Plan (FSP);
- Data Management Plan (DMP);
- Health and Safety Plan (HSP); and
- Quality Assurance Project Plan (QAPP).

The Project Management Plan covers the technical approach, scope and rationale of field activities, schedule, budget, and personnel necessary to complete the RA. The support plans outline the approach undertaken by Detroit Coke and their consultant, Horizon Environmental, to ensure that all personnel, materials, and services for, or incidental to, implementing the investigation are furnished.

The Field Sampling Plan (FSP) describes all field activities, including detailed discussions of all sampling protocols.

The Data Management Plan describes the documentation and tracking procedures for investigation data and results. The plan identifies data documentation materials and procedures, project file requirements, and project-related progress reporting procedures and documents. The format used to present the raw data and conclusions of the investigation is also presented.

The Health and Safety Plan describes the health and safety guidelines and procedures developed for the field activities associated with the scope of work outlined in the RA.

The QAPP, read in conjunction with the FSP, documents all monitoring procedures, sampling, field measurements, and sample analysis procedures that were performed during the investigation. The QAPP is followed to ensure that all information, data, and resulting decisions are technically sound, statistically valid, and properly documented.

3.0 SCOPE OF WORK / OBJECTIVES

3.1 TECHNICAL APPROACH

The objective of the sampling and analysis strategy developed for the RA is to confirm the absence or presence of a release of the hazardous waste or constituents managed in SWMUs 1, 2, 18, and 20. The U.S. EPA recommends that the technical approach for an RA be developed on a case-by-case basis, taking into account unit- and site-specific factors, including:

- the likely mechanism of release;
- the characteristics of the materials managed in the unit (mobility, volatility, miscibility, solubility, and other relevant characteristics); and
- characteristics of the site that affect contaminant fate and transport (topography, lithology, stratigraphy, hydrogeology, etc.).

Given the long industrial history of the site and the region in which it is located, the technical approach for this RA has also taken into account a fourth factor: characteristics of the site and region that have a significant potential for causing analytical interference during the course of the RA. Such characteristics include current and historical uses of the site and adjacent properties, the prevalence of fill materials in the area, and proximity to large air emission sources.

The sampling and analysis strategy for the RA was designed to identify the existence, relative to the former Michigan Act 307 criteria[3], of release indicator parameters, if any, in the environmental media judged to have the greatest potential for impact due to past releases from the SWMUs, taking into account the factors described above. The technical rationale for the strategy is summarized in the sections which follow.

3.1.1 SAMPLING LOCATIONS

Sample locations around each unit were identified based on the likely mechanism of release from the unit. Given the existence of a UST at SWMU 1 and the significant depth of the settling basins at SWMU 2, the potential exists for releases to have occurred to both surface and the subsurface soils. Consequently, the sampling and analysis strategy calls for sampling from both shallow and deeper soils around these units. In all cases, screening techniques were used in the field to bias sample collection toward areas with the highest potential for release.

Based on the design and construction of SWMUs 18 and 20, and the manner in which materials were stored and handled during their active life, the most likely mechanism of release, if any, would have been to the ground surface. Given the surface release mechanism at SWMUs 18 and 20 and the immobility of most of the major constituents managed in these units, shallow soils are likely to be the first and maximum point of contact for released constituents. Accordingly, sample locations were selected in the shallow soils (2-3 feet) in and surrounding these units. The 2 to 3 foot depth interval was selected to avoid interference from coal fines prevalent across the site. Sample locations, for units which are still intact, have also taken into considerations cracks in concrete containment, visibly deteriorated areas, and low lying areas such as sumps.

3.1.2 SAMPLING FREQUENCY

The number of samples collected around each unit are dictated by the Michigan Department of Natural Resources (MDNR) *Guidance for the Verification of Remediation* (April 1994). This guidance, which was developed to verify the absence of contamination above a pre-specified level during RCRA closures or after the completion of remediation, provides a useful basis for constructing a statistically sound sampling strategy. The guidance employs statistical techniques based on the size of the unit to specify the number of samples that must be collected to draw conclusions regarding the absence of a release. The guidance also specifies field screening and other techniques that may be used to bias sample locations towards areas of highest probability of impact. This guidance was used in the absence of any specific guidance from the U.S. EPA since the objectives of a RCRA clean closure and an RA are essentially identical: to confirm the absence or presence of releases from a waste management unit.

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[3] Since amended and promulgated under Part 201 of the Natural Resources and Environmental Protection Act (Act 451).

3.1.3 RELEASE INDICATOR PARAMETERS

Release indicator parameters were selected to represent the major constituents managed in each unit while at the same time minimizing the potential for analytical interferences due to the long industrial history of the site and region. Selected soil samples and all ground water samples were analyzed for parameters that are indicative of a release from the associated SWMU. Samples associated with SWMUs that handled oil (including diesel) were analyzed for aromatic purgeables (benzene, toluene, ethylbenzene, and xylenes), and PNA compounds. Samples associated with SWMUs that handled coal tar, coal tar gasses and/or ammonia liquor were analyzed for aromatic purgeables and base/neutral/acid semi-volatile organic fractions (BNAs including pyridine). These parameters have been identified as appropriate indicator chemicals based upon the materials managed in each SWMU. The release indicator parameters are intended to be sufficient to indicate a release at a unit without being subject to interference from constituents that may be present due to non-SWMU related activities at the site (fill material, coal fines, air deposition products).

Due to similarities in chemical composition to wastes managed in the SWMUs, fill material, surficial coal fines, and air deposition products known to be present at the site may generate confounding results. To further minimize the potential for analytical interferences which may generate false positive readings, the sampling and analysis strategy provided for the collection of background samples and the development of site-specific background values. These samples were collected in U.S. EPA approved areas removed from all SWMUs. These background data were used to establish site-specific background values initially in accordance with MDNR guidance; however, due to the results of a Coefficient of Variance test and subsequent invalidation of the majority of the data set, a default mean value was calculated. These background values were used to screen foreground data collected around the units to confirm absence or presence of a release.

3.1.4 GROUND WATER

Ground water quality conditions in the vicinity of the SWMUs were investigated as part of the RA only when the physical structure (past or present) of the SWMU under investigation extended to the water table. The determination of need for ground water sampling was made during collection of soil samples adjacent to the SWMUs. As described above, soil sampling at each SWMU extended to the base of the SWMU structure. If ground water was encountered during soil sample collection, a temporary monitoring well was installed directly adjacent to, and downgradient (south), of the SWMU for the collection of a ground water sample and water level measurement.

3.2 FIELD INVESTIGATION

3.2.1 SWMU-SPECIFIC SAMPLING AND ANALYSIS

Refer to Figure 2 for the general location of each specific SWMU. Table 1 specifies the number and type of samples collected at each SWMU and the parameters each sample analyzed for.

SWMU 1 - OIL PUMP SPRAY STORAGE AREA (FIGURE 3)

Oil stored in this unit was sprayed onto the coal prior to its placement in the ovens. This unit originally consisted of an oil UST having a storage capacity of 12,000 gallons. The UST is still present although it was emptied and filled with sand prior to abandonment. A concrete secondary containment structure was constructed over the abandoned UST for containment of a 10,000 gallon above ground oil storage tank. The tank contained oil and diesel fuel. The above ground oil storage tank and concrete containment unit are no longer present at the site.

To evaluate a potential release from the UST, the sampling strategy called for the collection of soil samples from borings placed at the ends of the UST and extending to a depth of 10 feet below grade. Since ground water was encountered within 10 feet of the ground surface, a ground water sample was collected from the downgradient side (south) via a temporary monitoring well. The potential release to shallow soils due to spillage overflow, or leakage of the shallow containment structure was evaluated by collecting and analyzing soil samples from depths of 2 to 3 feet around the unit.

SWMU 2 - COAL FINES RECOVERY AREA (FIGURE 4)

This unit consisted of two 15 x 40 foot concrete settling basins which were approximately 16-18 feet deep. The basins were used to recover coal from process water. Rainwater, residual coal fines and residual coal tar were removed from the unit in 1992. The concrete basins were "shoveled clean" and filled with approximately 500 cubic yards of clay.

The soil sampling strategy for this SWMU called for collection to a depth of 18 feet (corresponding to the depth of the bottom of the basins) at regular intervals around the unit to evaluate a potential release to soils due to overflow or leakage of the basins. Ground water encountered within approximately 9 feet of the surface was collected and sampled via a downgradient temporary monitoring well.

SWMU 18 - FLARE STACK (FIGURE 5)

This unit consisted of a stack which was used to flare excess coke oven gas. Detroit Coke demolished the flare stack and associated piping. Soil samples for this SWMU were collected from depths of 2 to 3 feet within the vicinity of the former stack location to evaluate a potential release to shallow soils.

SWMU 20 - OIL STORAGE BUILDING (FIGURE 6)

This unit consisted of a 40 x 60 foot curbed concrete pad. Blind sumps penetrating to depths of about 5 feet below grade were located in each corner of the pad to collect spills. The unit was used to store virgin oils prior to their use in the coking process. Detroit Coke demolished and removed the concrete pad, and capped the area with approximately 12 inches of clay.

The sampling strategy called for the collection of soil samples from depths of 2 to 3 feet to evaluate a potential release to shallow soils due to overflow or leakage of the shallow containment structure. Potential release to deeper soils due to leakage of the sumps was evaluated with soil samples collected adjacent to three of the four former sump locations at depths of 5 to 6 feet.

3.2.2 BACKGROUND SAMPLE COLLECTION AND ANALYSIS

The background soil and ground water sampling program was established to develop site-specific values that reflect baseline levels of PNA compounds in soil, and purgeable aromatics and BNA's, including pyridine, in ground water. These baseline levels are indicative of both native and anthropogenic components (primarily past industrial activities). It is not the purpose of the background sampling program to establish values that reflect the site's condition prior to industrialization of the area 100 years ago. Comparison of the foreground data, collected in the vicinity of a SWMU using a biased methodology, to these baseline background levels, will assist in identifying releases from the SWMUs. The background soil sampling and temporary monitoring well locations are shown in Figure 7.

Soil

Soil samples were collected and analyzed in accordance with the MDNR guidance to establish site-specific background for PNA compounds in soil. MDNR guidance requires a minimum of four representative samples to establish background. Often, collection and analysis of four samples is sufficient; however, due to inherent variability which can result in outliers that are not representative of site conditions, additional samples are sometimes required. To ensure a sufficient representative data population, the sampling strategy employed for this RA called for a total of eight soil samples to be collected and

analyzed: one soil sample from a depth interval of 2 to 3 feet in each of eight locations that are remote from the SWMUs. The sample locations were selected during a U.S. EPA visit and did not evidence significant surficial contamination from coal fines. The sample depth interval has been selected to be representative of the same soil horizon being sampled at a number of SWMUs. Soils from a total of 8 background sample locations were collected as part of the RA. Analytical results from this sample set were subjected to a Coefficient Variance Test to determine the representativeness of the sample population prior to employing a Mean Plus Three Standard Deviation (MPTSD) approach to determine acceptable background concentrations for PNA compounds at the site. The resultant coefficient of the variance invalidated 5 of the 8 samples as statistical outliers. Consequently, this precluded employing the MPTSD approach. Instead, the mean of the data set for each constituent of concern, was established as a default background value. These values were then used in the initial screening process of foreground soil samples to assist in determining if a release has occurred at a particular SWMU[4]. Table 3 includes the analytical results of background soil samples and the default background values calculated for analytical parameter.

Ground Water

Background ground water quality was to be determined if analytical results for foreground samples did not definitely indicate a release from the SWMU being investigated and/or were suggestive of a regional ground water quality problem. Based upon the depth to ground water in the vicinity of the SWMUs investigated during the RA, ground water sampling was determined to be necessary (ground water encountered during soil sample collection). Consequently, background ground water quality was determined through the installation and sampling of two upgradient temporary monitoring wells (MW-4 and 5).

Based on an anticipated southward direction of ground water flow, the wells were installed north of the SWMUs as shown on Figure 7. Ground water samples from these wells were analyzed for the comprehensive list of indicator parameters which consists of purgeable aromatics and BNAs including pyridine. Table 4 includes the analytical results of the background ground water samples.

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[4] Direct Contact Drinking Water and GSI Values established under the former Michigan Environmental Response Act (Act 307), now amended and promulgated under Part 201 of the Natural Resources and Environmental Protection Act (Act 451).

4.0 METHODS OF INVESTIGATION

4.1 FIELD INVESTIGATION

Prior to initiating sampling activities associated with the RA, a site survey coordinate system was established and 11 permanent benchmarks were installed to allow for accurate determination of sample locations and elevations during the course of the RA and the subsequent RFI to follow. Table 5 summarizes the relevant information about each benchmark established at the site.

Each investigative and background sample collected during the RA was assigned a unique number to identify the type and location of the sample in accordance with the FSP.

Additionally, all data collection activities were recorded in bound field notebooks in accordance with the FSP. Measurements made and samples collected and relevant observations regarding samples are among the things that were recorded. A copy of the recorded field notes is presented in Appendix A. Table 1 summarizes relevant information regarding background samples.

4.1.1 SOIL SAMPLING PROCEDURES

Soil sampling procedures and drilling equipment varied depending on the subsurface soil conditions encountered at each specific location. Most of the soil samples were collected with a Geoprobe® system probe-drive sampler. Where penetration of the Geoprobe® sampler was precluded by the presence of coarse fill materials or the required depth of sampling, soil samples were collected using hollow-stem auger drilling and split-spoon sampling techniques. The depth, soil type, and field screening results were logged for each sampling interval and are presented in Table 1. The sample locations relative to the site survey coordinate system were also determined and recorded on the drillers' log where appropriate or mapped on Figures 3 through 7.

All soil samples were field screened visually for evidence of impact (staining) and with a photoionization detector (PID) for volatile organic compounds (VOCs) vapors. Where field screening results indicated obvious impact, 20 to 30 percent of the impacted samples were selected for laboratory analysis to confirm the release. Where field screening results did not indicate obvious soil impact, a representative number of the soil samples (50 percent) were selected for laboratory analysis to determine if a release has occurred. This selection was made either randomly or, where impact was indicated (i.e., positive PID readings), by the most impacted samples. Selected soil samples were analyzed for parameters that are judged to be indicative of a release for the associated SWMU.

Soil samples taken with Geoprobe® system were collected using a 22-inch long, 1.7-inch diameter (ID) nickel plated sampling tube and a PETG (clear plastic) liner. A slightly larger sampler was used than specified in the FSP to allow a greater volume of sample to be collected in a single attempt. Samples were collected by driving the sampler down to the top of the desired sample interval, removing the stop-pin to allow sample collection, and then pushing the sample tube to the bottom of the sample interval. The sample tube was withdrawn from the borehole and the PETG liner was removed to retrieve the soil core.

Where necessary due to site conditions, soil borings were drilled for sample collection using a 4.25-inch (ID) hollow stem augers (HSA). Soil samples were collected using a 2-foot long, 2-inch diameter split-spoon sampler in accordance with ASTM Method D1586 and Horizon's SOP included in Appendix B of the QAPP.

Immediately upon collection by either the Geoprobe® or the HSA method, each soil sample was split. One portion was preserved for potential laboratory analysis and the other portion was field screened visually for evidence of impact (staining) and for volatile organic compound vapors using a PID, in accordance with Horizon's SOP included in Appendix B of the QAPP. Table 1 specifies the type of sampling technique used to collect each sample and the results of field and PID screening performed at each location.

On occasion, where duplicate sampling was required, and when the quantity of sample recovered for a specific depth interval was not sufficient in volume to accommodate laboratory volume requirements, a sample from the next depth interval was used.

Borings were backfilled with a mixture of soil cuttings and bentonite, and the upper foot of the borehole was sealed with holeplug. Impacted cuttings will be addressed under the remedial response initiated for the SWMU, eliminating the need for off-site disposal of soils during the RA.

4.1.2 GROUND WATER SAMPLING PROCEDURES

The construction and completion details of each well are presented in Table 2. Soil boring logs and well completion diagrams are presented in Appendix B.

Temporary wells were installed to straddle the water table. All monitoring wells were installed using a 4.25 inch (ID) hollow stem auger. The wells were constructed using 2-inch diameter (ID) galvanized steel riser pipe and 5-foot long continuous wire-wrapped stainless steel screens. A silica-sand filter pack was placed in the annular space of each well to a depth approximately one foot above the top of the screen, if possible. The filter pack was capped with approximately one foot of bentonite to form an annular seal. The remainder of the borehole annulus was backfilled with a mixture of bentonite and cuttings and the upper foot sealed with holeplug. Soil cuttings not used were stockpiled next to

the well, and will be used to backfill the borehole when the casing and screen are pulled and the well abandoned.

All of the wells were completed with an above ground casing "stick-up" of 2 to 3 feet. A locking j-plug cap was installed. All well materials were purchased pre-cleaned or were decontaminated using a high pressure steam wash.

Each temporary monitoring well was developed by pumping and surging water through the well screen until relatively sediment free water was produced. The wells were developed with a peristaltic pump until stabilized samples were obtained. Development water was discharged onto the ground surface next to the well.

Prior to sampling, the temporary monitoring wells were purged of a minimum of three well volumes in accordance with Horizon's SOP in Appendix B of the QAPP. Purging and sampling of the monitoring wells was done with a peristaltic pump and dedicated Teflon® tubing, and disposable Teflon® bailers with new polypropylene rope. Sample collection was performed using low-flow rates and careful bailing techniques to minimize turbulence and possible volatilization and/or collection of suspended particulates and other colloids.

Ground water from each well and the outer surface of the bailer was visually inspected for the presence of free-product. A total of five ground water samples were collected during the RA and submitted to the laboratory for analysis.

Each temporary well was located relative to the site survey coordinate system. Top-of-casing and ground surface elevations were determined to within 0.01-foot relative to the permanent site benchmarks. The location coordinates of each well and the top of casing elevations are recorded on the drillers' log of the well, these data are also summarized on Table 2.

4.1.3 DECONTAMINATION PROCEDURES

Drilling and soil sampling equipment were washed in an alconox solution and/or steam cleaned after each use and rinsed with distilled water. All well materials were purchased pre-cleaned. Ground water samples were collected with a peristaltic pump and dedicated Teflon® tubing, and disposable Teflon® bailers with new polypropylene rope.

4.1.4 SAMPLE PREPARATION, PRESERVATION, HANDLING, AND SHIPPING

All samples collected for analyses were placed in appropriate containers, labeled, and placed in an iced cooler for shipment. Each sample was logged into the laboratory Chain-of-Custody form after labeling. The Chain-of-Custody forms were maintained

throughout the collection, transport and delivery of each sample and are presented in Appendix C along with the analytical data sheets. Sample packaging and shipment procedures are described in detail in Horizon's SOP's contained in Appendix B of the QAPP.

4.2 SWMU-SPECIFIC FIELD INVESTIGATIONS

Field activities were conducted from June 5 through 9, 1995 and the associated field notes are presented in Appendix A.

SWMU 1 - OIL PUMP STORAGE AREA (FIGURE 3)

Two soil borings and one monitoring well were installed with HSA drilling equipment in SWMU 1.

Boring B1-1 was drilled to a depth of 11 feet, with soil samples collected at the 2 to 3, and 5 to 6 foot intervals. Ground water was encountered in the sample collected from 8 to 10 feet.

Boring B1-2 was drilled to a total depth of 10 feet, with soil samples collected at the 2 to 3, and 4.5 to 6.5 foot intervals. The 8 to 10 foot sample was wet with a strong diesel odor and noticeable sheen. Based on the presence of obviously impacted ground water from the field screening of the B1-2 soil boring, a ground water monitoring well (MW-2-95) was placed on the downgradient (south) side of the SWMU.

Two out of five soil samples collected were randomly selected for submittal to the laboratory for analysis:

Sample ID	Depth	Analyses
B1-1	5 - 6 feet	BTEX, PNA compounds
B1-2	2 - 3 feet	BTEX, PNA compounds

SWMU 2 - COAL FINES RECOVERY AREA (FIGURE 4)

A total of 7 soil borings were sampled using Geoprobe® equipment and one monitoring well was installed by HSA equipment in SWMU 2, as follows :

Soil Boring/ Monitoring Well ID	Total depth (Feet BGL)	Sampled Intervals (Feet)	Submitted for Analysis
B2-1	3	2-3	none
B2-2	3	2-3	none
B2-3	3	2-3	none
B2-4	3	2-3	none
B2-5	3	2-3	2-3 feet; BTEX & PNA compounds
B2-6	3	2-3; 3-4; 4-6	2-3 feet; BTEX & PNA compounds
B2-7	6	2-3; 3-4	3-4 feet; BTEX & PNA compounds
MW-1-95	13	7-12	BTEX, BNAs & Pyidine

The sampling strategy for SWMU 2 originally called for a sampling depth of 18 feet corresponding to the depth of the bottom of the settlement basins being investigated. However, soil boring B2-7 encountered ground water with a strong diesel odor at a depth of approximately 6 feet and subsequent soil sampling depths were modified to stay above the saturated zone. Since ground water was encountered prior to reaching the base of the containment structure, monitoring well MW-1-95 was installed on the downgradient (south) side of the SWMU adjacent to soil sampling location B2-6.

NOTE: No samples were submitted to the lab from the B2-1 location; however, two samples, collected from the 3 to 4 foot, and 6 to 8 foot intervals, at B2-6 were mislabeled as B2-1, 3 to 4 and 6 to 8. These samples were submitted to the lab and consequently the laboratory results expressed as B2-1 3 to 4 & 6 to 8 are actually B2-6 3 to 4 & 6 to 8.

SWMU 18 - FLARE STACK (FIGURE 5)

Four soil borings were sampled at SWMU 18 to depths of 3 feet each using Geoprobe® equipment. Each boring was sampled at the 2 to 3 foot interval. Ground water was not encountered. Field screening of the samples yielded results as follows:

Sample Boring ID	Sample Depth (Feet)	PID Field Screening Results (ppm)
B18-1	2-3	72
B18-2	2-3	42
B18-3	2-3	39
B18-4	2-3	80

Based on the highest PID readings, two of the four samples (B18-1 and B18-4) were submitted for laboratory analysis. The samples were analyzed for BTEX and PNA compounds.

SWMU 20 - OIL STORAGE BUILDING (FIGURE 6)

Five soil borings and one monitoring were installed in SWMU 20 as follows:

Soil Boring/Monitoring Well ID	Sample Depth (Feet)	PID field screen results (ppm)
B20-1	1-2	25
B20-2	1-2	23
B20-3	1-2	0
B20-5	1-2	0
B20-6	1-2	0
MW-3-95	5.5	

Although the soil sampling strategy for SWMU 20 called for samples to be collected from the 2 to 3 foot interval, and the 5 to 6 foot interval around the sumps, shallow ground water was encountered in the first two borings at 2.8 to 2.9 feet requiring a modification in sample depth to the 1 to 2 foot interval to remain above the saturated zone. Based on the presence of shallow ground water and the PID field screening results of the vadose zone soils, a ground water monitoring well (MW-3-95) was installed on the down-gradient (south) side of the SWMU.

NOTE: The duplicate from soil sample B20-3 from the 1 to 2 foot depth interval, was mislabeled on the Chain-of-Custody form as the 2 to 3 foot depth interval. The mislabeling was carried through the laboratory analysis and is reported in the laboratory results as being from the 2 to 3 foot interval.

BACKGROUND SAMPLES

A total of eight background soil samples were collected using Geoprobe® equipment across the northern and northwestern perimeter of the site. Ground water was encountered in SWMUs 1, 2 and 20, requiring the installation of temporary monitoring wells at those units for the purpose of sample collection and analysis. Consequently, background ground water sampling and quality characterization was deemed necessary for comparative purposes to foreground data from the specific SWMUs. In accordance with the sampling plans, two upgradient monitoring wells (MW-4-95 and MW-5-95) were installed with HSA equipment. The locations of the background soil borings and monitoring wells are also shown in Figure 7. This figure also presents the resultant analytical data for background sample analyses. Table 3 and 4 present the soil and ground water analytical data, respectively, for all samples collected during the RA, including the background samples.

4.3 LABORATORY ANALYSIS

Analytical work was conducted at Earth Tech's Environmental Laboratory in Grand Rapids, Michigan. Samples were delivered to the laboratory under strict Chain-of-Custody documentation procedures on June 13th, 1995. A summary of the samples collected and corresponding analytical parameters evaluated during this RA is presented in Table 3. Both the soil and ground water samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes using U.S. EPA Method 8260; and for Semi-Volatile Organic Compounds (PNA compounds or BNAs with pyridine) using U.S. EPA Method 8270.

4.3.1 INDEPENDENT DATA VALIDATION (REFER TO THE LISTING OF ACRONYMS FOLLOWING THE TABLE OF CONTENTS)

4.3.1.1 Semivolatile Organics Data Validation (Earth Tech Submittals 32826-2 & 3, June 1995 Samples)

The following is a summary of the independent data validation of 8 water samples, 26 soil samples, and 3 equipment blanks collected for the Detroit Coke RA. The samples were analyzed by the Earth Tech Laboratory for semivolatiles by Method 8270. The samples were included in laboratory submittals 32826-2 and 32826-3. Data validation was performed according to the U.S. EPA National Functional Guidelines for Organic Analyses (1994).

Holding Times

All samples were extracted and analyzed within hold times.

GC/MS Instrument Performance Check

DFTPP was analyzed at the required frequency. Mass spectra for DFTPP met the required ion abundances.

Initial Calibration

One initial calibration compound exceeded 30% RSD:

Date	GC/MS	Compound
6/26/95	134	4-Nitrophenol (36.4%)

This compound was detected in the site samples. A review of the sensitivity and linearity of the GC/MS showed that the BDL results for the above compound required no qualifications. All other RSDs were <30%.

All RRFs were >0.05.

Continuing Calibration Check

The compounds listed in the table presented below had RRFs in the continuing calibration standard that exceeded 25% RPD. The samples were not qualified because the analytes were not detected and there was sufficient sensitivity to achieve the detection limits.

Continuing Calibration Standard Performance Deviations

Date	Compounds	% RPD	GC/MS
6/29/95	Hexachlorobenzene	26.2%	134
	Hexachlorobutadiene	27.6%	
	Hexachlorocyclopentadiene	32.7%	

Blanks

Blanks were acceptable for all compounds.

System Monitoring Compounds

Surrogate recoveries were not reported for the samples listed below due to dilution. The presence of high background levels of hydrocarbons required the dilution of the sample extracts. A review of the GC/MS data found levels of surrogates detected; however, the concentrations were below the lowest standard. Based on professional judgment, the data does not require qualification.

DS-SSB20-3-9502-30 DUP-2-3FT	DC-SSB20-1-9502-18 1-2ft
DS-SSB20-2-9502-19 1-2ft	DC-SSB20-5-9502-31 1-2ft
DC-SSB20-6-9502-32 1-2ft	DC-SSB2-1-9502-20 3-4ft
DC-SSB2-5-9502-14 2-3ft	DC-SSB18-1-9502-16 2-3ft
DC-SSB18-4-9502-29 2-3ft	DC-SSB1-2-9502-24 2-3ft
DC-SSB1-2-9502-24 DUP-2-3ft	DC-BG02-9502-05 2-3ft
DC-BG04-9502-05 2-3ft	DC-BG05-9502-08 2-3ft
DC-BG07-9502-10 2-3ft	DC-BG07-9502-10 DUP-2-3ft

All other samples had acceptable surrogate recoveries.

MS/MSD

The MS/MSD results for pyrene in sample DS-SSB20-3-9502-30 1-2 feet yielded 112% and 138% recoveries. The laboratory control limit for pyrene was 40%-119%. The pyrene result for the above sample should be qualified as estimated (J) due to matrix interference.

All other MS/MSD results were acceptable.

LCS

The LCS was acceptable.

Internal Standards

All internal standard recoveries were acceptable.

Target Compound Identification

Mass spectra were included for all target compounds identified. Identification was correct based on retention times and mass spectra.

Compound Quantitation and Detection Limits

Reported results were checked against the raw data and found to be correctly reported. RA detection limits were not achieved in a number of samples due to matrix problems related to a high background level of hydrocarbons. These samples required dilution. RA detection limits were obtained in all other samples.

Tentatively Identified Compounds

The tentatively identified compounds were not required to be reported.

System Performance

The performance of the GC/MS systems were acceptable.

Overall Assessment of the Data

Based on professional judgment, this data set can be used with the qualifications given below:

DS-SSB20-3-9502-30 1-2ft	**pyrene 0.59 (J) mg/kg**

4.3.1.2 Volatile Organics Data Validation (Earth Tech Submittals 32826-2 & 3, June 1995 Samples)

The following summarizes the independent data validation of 8 water samples, 16 soil samples, and 2 trip blanks collected for the Detroit Coke RA. The samples were analyzed by the Earth Tech Laboratory for benzene, toluene, ethyl benzene, and xylene by Method 8240. The samples were included laboratory submittals 32826-2 and 32826-3. Data validation was performed according to the USEPA National Functional Guidelines for Organic Analyses (1994).

Holding Times

Sample DC-SSB1-2-9502-24, 2 to 3 feet, was initially analyzed within hold time; however, the high level of benzene required dilution. The diluted sample was analyzed one day out of hold time. The benzene result for this sample should be qualified as estimated (J).

All other samples were analyzed within the two week hold time.

GC/MS Instrument Performance Check

BFB was analyzed at the required frequency. Mass spectra for BFB met the required ion abundances.

Initial Calibration

The initial calibration standard RRFs were less than 30% RSD values for all compounds.

Continuing Calibration Check

All continuing calibration standard RRFs were less than 25% RPD.

Blanks

Blanks were acceptable for all compounds.

System Monitoring Compounds

The recovery of dibromofluoromethane in sample DC-SSB20-1-9501-18 1 to 2 feet. was 47% indicating matrix interference. The other two surrogates were recovered at acceptable levels. Benzene was the only target compound associated with this surrogate and the result for this compound should be qualified as estimated (J).

Surrogate recoveries were acceptable for all samples.

MS/MSD

All MS/MSD results were within the acceptable range of 75%-125%.

LCS

All LCS analyses were within the acceptable range of 80%-120%.

Internal Standards

The internal standards related to the target compounds were within the acceptable range of 50%-150%.

Target Compound Identification

Mass spectra were included for all target compounds identified. Identification was correct based on retention times and mass spectra.

Compound Quantitation and Detection Limits

The compounds were correctly reported based on the raw data. The required detection limits were achieved on all samples except when dilution was required.

Tentatively Identified Compounds

The tentatively identified compounds were not required to be reported.

System Performance

The performance of the GC/MS systems was acceptable.

Overall Assessment of the Data

Based on professional judgment, this data set can be used with the qualifications given below:

DC-SSB1-2-9502-24 2-3ft	**benzene**	**40 (J)**	**mg/kg**
DC-SSB20-1-9501-18 1-2ft	**benzene**	**0.013 (J)**	**mg/kg**

5.0 RESULTS

5.1 SITE HYDROGEOLOGY

In conjunction with this RA, an Expanded Hydrogeological Investigation was conducted to gather additional stratigraphic and hydrogeologic information with respect to the Detroit Coke Site. The pertinent details of this hydrogeologic investigation are presented in The Expanded Hydrogeological Investigation Report included with this document as Attachment I. In general, the scope of the investigation included six exploratory soil borings to depths ranging from 28 to 65 feet below grade for the purpose of gathering detailed stratigraphic information. Based on the information gleaned from the exploratory borings, eight piezometers were installed (5 shallow and 3 deep) to determine hydrologic conditions beneath the site.

A summary of water level information for the 5 ground water monitoring wells that were installed as part of this RA and the 8 piezometers installed during the expanded hydrogeologic study is presented in Table 2. The depth to ground water at the site is generally 8 to 10 feet. Shallower depths to water observed in MW-3 and MW-4 may represent a small, local perched zone.

Figure 8 is a contour map based on the relative water level elevations encountered beneath the site. The direction of ground water flow is toward the south and southeast, with components of flow toward both the River Rouge and the Detroit River. The average ground water flow gradient is approximately 0.007 feet per foot. This gradient and the *in situ* permeability data gathered during the hydrogeological investigation were used to calculate a range in ground water flow velocities beneath the site. The resultant velocities ranged from 0.04 to 0.4 feet per day.

Stratigraphic information gathered from the exploratory soil borings drilled during the expanded hydrogeologic study and the monitoring wells installed during the RA investigation is presented in cross-sections A-A' and B-B', figures 9 and 10, respectively. The two cross-sections demonstrate the presence of fill material to depths of approximately 9 to 13 feet across the site. A thin (3 to 6 foot) sand unit occurs at the base of the fill in borings TB-6, TB-5, TB-1, TB-3, and MW-2. This sand unit is included as fill material based on the observation of rubble in that interval from boring TB-5, and the stratigraphic equivalency with the other borings. The fill layer is generally underlain by a thick clay layer beneath the northern portion of the site that grades laterally into a sand toward the south and southeast adjacent the Rouge and Detroit rivers. It is likely that the sandy sediments were deposited as a result of fluvial processes associated with the Rouge and Detroit rivers. The clay is of sufficient extent and thickness to be an effective barrier (aquiclude) to flow between the upper fill layer and the lower saturated zone beneath the clay in the central potion of the site; however, in proximity to the rivers the clay has been truncated by fluvial erosion and the upper and

lower saturated zones are likely in hydraulic communication. The lower saturated unit is likely a lens of fluvially deposited sand resulting from a meander of one or both of the former river channels and is not considered to be a lateral extensive unit remote from the rivers.

Figure 11 is a contour map showing the relative top-of-clay elevation and demonstrates a gentle gradient toward the southeast. Over the majority of the site ground water is perched upon this clay. In proximity to the rivers, the clay is absent and the upper and lower saturated units are both likely in hydraulic communication with each other and the rivers.

5.2 DATA EVALUATION

As described in the January 1995 Release Assessment work plan for the Detroit Coke facility, the objective of this investigation was to determine if a release has occurred from a given SWMU. Since the Detroit Coke site is located in a highly industrialized area, the presence of detectable levels of constituents in soil or ground water does not necessarily indicate that a release has occurred from the SWMU. Therefore, to determine if a release from the unit has occurred, the analytical results for soil and ground water samples are compared to both background and generic risk-based cleanup criteria. Background levels were established for PNA compounds in soil since these compounds would be expected to be present as a result of historical industrial activity in the area. Background concentrations were established as the mean for eight background samples collected at the site. The analytical results of background soil sampling are presented on Figure 7 and summarized in Table 3.

In addition, ground water background samples were collected at the site. Two upgradient temporary monitoring wells, MW-4-95 and MW-5-95, were installed to provide background ground water quality data for comparative purposes. The wells were screened to straddle the water table (3 to 8 Feet below grade). Detectable concentrations of semi-volatile or volatile organic compounds were not found in either of the samples collect from these wells. However, installation of a piezometer (P-6D-95) in support of the hydrogeologic investigation of the site, located immediately adjacent to MW-4, screened at a greater depth (11 to 16 feet below grade) encountered a "creosote-like" product, with apparent density significantly greater than that of water. It is probable that the density difference is the reason that neither the product, nor a dissolved partition thereof, were detected in the ground water sample collected from MW-4-95.

The analytical results of background water quality are presented on Figure 7a and summarized in Table 4.

Risk-based cleanup criteria were also used to screen the analytical results for soils at the site. Both the generic residential and generic industrial direct contact criteria developed

in accordance with Part 201 of Public Act 451 (formerly Act 307) were used. For this initial screening, analytical results of soil samples were compared to soil criteria protective of direct human contact exposures.

The risk-based cleanup criteria promulgated under Part 201 were also used to screen the analytical results of ground water samples collected in the vicinity of the SWMUs at the site. The generic residential and industrial health-based drinking water values as well as ground water/surface water interface values were used in this screening process.

The least stringent of the site action criteria (background, risk-based generic criteria for health-based drinking water and direct human contact, as applicable) were used to determine if a sample or the SWMU from which it was derived warranted further consideration during the RFI. For instance, if the generic risk-based criteria were exceeded for an analyte(s) but the concentration of the detected analyte(s) were below the established site-specific background value(s) the sample was not considered further as an exceedance of site action criteria. Or conversely, if the background criteria were exceeded but the generic risk-based criteria were not the sample was dropped from further consideration.

The results of this screening process are discussed in the following sections.

5.2.1 SOIL QUALITY

A summary of the analytical results from the soil samples collected at SWMUs 1, 2, 18 and 20, and the background samples, is presented in Table 3. Data that exceed the different screening criteria are distinguished in the following manner:

- Data that are equal to or exceed the calculated background values are shaded;
- Data that are equal to or exceed the generic residential direct contact values are presented in bold type-face; and
- Data that are equal to or exceed the generic industrial direct contact values are presented outlined in bold.

SWMU 1 - OIL PUMP SPRAY STORAGE AREA (FIGURE 3)

Soil samples were submitted to the laboratory from the 2 to 3 foot, and 5 to 6 foot intervals in borings B1-1 and B1-2, respectively. Benzo(a)pyrene in the 2 to 3 foot sample from boring B1-2 exceeded the generic residential direct contact criterion, but did not exceed the generic industrial direct contact criterion nor the background value established for that compound. Similarly, benzo(b&k)fluoranthene exceeded the generic

residential direct contact criterion; however, did not exceed the generic industrial direct contact criterion nor the background criterion. Consequently, neither compound were considered to exceed site action criteria.

SWMU 2 - COAL FINES RECOVERY AREA (FIGURE 4)

Soils were submitted for analysis from three of the seven borings drilled at SWMU 2. These were located on the west end, and the south side of the unit. The samples were collected from borings B2-5, 6 and 7 at depths of 2 to 3 feet below grade from borings B2-5 and B2-6, and 3 to 4 feet below grade from boring B2-7.

Concentrations of benzo(a)pyrene were detected in excess of the residential direct contact criteria in borings B2-6 and B2-7. Benzo(a)anthracene and benzo(b&k)fluoranthene exceeded the residential direct contact criterion and the background criteria in boring B2-5; however, neither exceeded their respective industrial direct contact values. Benzo(a)pyrene was detected in B2-5 in excess of both the industrial direct contact criteria and background criteria in the 2 to 3 foot sample collected from boring B2-5.

(See Table 3 for additional less significant exceedances of either the background or the generic residential direct contact criteria).

SWMU 18 - FLARE STACK (FIGURE 5)

Samples were submitted for analysis from the 2 to 3 foot interval in two of the four borings sampled. Of the two samples submitted, the only exceedance under the residential direct contact criteria was for benzo(a)pyrene; however, neither the background nor the generic industrial direct contact criterion were exceeded for this compound.

SWMU 20 - OIL STORAGE BUILDING (FIGURE 6)

Soil samples from all five of the borings drilled at SWMU 20 were submitted to the laboratory for analysis. Slight to moderate exceedances of the residential direct contact criteria for benzo(a)pyrene and benzo(b&k)fluoranthene were observed in boring B20-5 on the west-central side of the unit, and in boring B20-3 in the southeast corner of the unit. However, the detected concentrations for these constituents were below the industrial direct contact criteria and background values established for those compounds. The remaining three sample locations did not exhibit concentrations exceeding the criteria for the semi-volatile compounds for which they were analyzed; however, matrix interference caused the method detection limit to be raised in five of the six samples collected at this SWMU.

Data Qualifications

Data qualifiers are presented with the raw analytical data in Appendix D. The significance of the data qualifiers was further evaluated during the independent data validation process, the results of which are discussed in Section 4.3.1 of this report.

5.2.2 GROUND WATER QUALITY

A summary of the analytical results from ground water samples collected in SWMUs 1, 2, 20, and two background area monitoring wells is presented in Table 4. Data that exceed the different screening criteria are distinguished on Table 4 in the following manner:

- Data that are equal to or exceed Generic Residential Drinking Water values are presented in a bold type-face;
- Data that are equal to or exceed Generic Industrial Drinking Water values are shaded; and
- Data that are equal to or exceed the Ground Water/Surface Water Interface criteria are outlined in bold.

Figure 7a is an index map that presents the location and summarizes the results of the ground water samples taken.

SWMU 1 - OIL PUMP SPRAY STORAGE AREA (FIGURE 3 & 7A)

Based on the observation of obvious contamination (strong diesel odor and sheen) in boring B1-2 on the west side of the unit, monitoring well MW-2-95 was installed on the downgradient (south) side of the SWMU. Laboratory analysis of ground water from this well showed a very slight exceedance of the generic residential and industrial drinking water values for benzene. All other compounds analyzed were below the detectable limits for the analytical methods used.

SWMU 2 - COAL FINES RECOVERY AREA (FIGURE 4 & 7A)

Monitoring well MW-1-95 was installed on the west end of the south side of SWMU 2 based on the presence of odoriferous shallow ground water encountered during the drilling of soil borings within the unit. Laboratory analysis of the ground water from this well showed detectable amounts of acenaphthene, naphthalene, and benzene. Of these three detectable compounds, only benzene exceeded the generic residential and industrial drinking water values. Only acenaphthene was detected in exceedance of the GSI value.

SWMU 18 - FLARE STACK

No ground water was encountered during the drilling and soil sampling at SWMU 18.

SWMU 20 - OIL STORAGE BUILDING (FIGURE 6 & 7A)

Monitoring well MW-3-95 was installed on the south (downgradient) side of SWMU 20. Detectable concentrations of fluorene, naphthalene, phenanthrene, pyrene, benzene, toluene, and total xylenes were noted in the laboratory analysis of the ground water from this well. Only benzene was found in excess of the generic residential and industrial drinking water standards. Only naphthalene was detected in exceedance of the GSI value established for that constituent.

Background Samples

Ground water was encountered during the collection of soil samples at SWMUs 1, 2 and 20 and monitoring wells were installed downgradient of those SWMUs to determine water quality. In accordance with the sampling plan, if foreground monitoring wells were necessary two upgradient temporary monitoring wells would be installed to provide background ground water quality data for comparative purposes. Monitoring wells MW-4-95 and MW-5-95 were installed to provide the background ground water quality data. Laboratory analysis from the ground water samples for both wells did not show any detectable concentrations of the semi-volatile or volatile compounds for which they were analyzed. However, as mentioned previously and as discussed in Attachment I (Expanded Hydrogeological Investigation Report), a "creosote-like" product was encountered at a location (P-6D-95) immediately adjacent to MW-4-95 in the 11 to 16 foot depth interval.

Background water quality data are presented on Figure 7 and summarized in Table 4.

Data Qualifications

Data qualifiers are presented with the raw analytical data in Appendix D. The significance of the data qualifiers was further evaluated during the independent data validation process, the results of which are discussed in Section 4.3.1 of this report.

6.0 DISCUSSION

The fundamental purpose of this Release Assessment was to determine the presence or absence of hazardous wastes or hazardous constituents at individual SWMUs to determine whether further investigation is warranted during the RFI. The RA was intended to generate data which are sufficient in quality and quantity to support the

determination that a release has not occurred at a SWMU and thus that no further investigation at that SWMU is required.

The soils at SWMU 1 were found to contain two PNA compounds at concentrations that exceeded the generic residential direct contact value in one location, B1-2; however a duplicate sample B1-2_{dup}, collected from this location did not exhibit the exceedances. The generic industrial direct contact criteria were not exceeded. The compounds which exceeded the residential criteria were benzo(a)pyrene and benzo(b&k)fluoranthene. These compounds, particularly benzo(a)pyrene, are pyrosynthesized as a result of the combustion of most organic fuels and occur as a condensate of the resulting exhausts, additionally, this compound commonly occurs in food (e.g., hamburger 2.5ppb, barbecued ribs 6 to 10ppb) and occurred in 1959 at a concentration of 31 ng/m^3 in the ambient air of the Detroit area.[5]

SWMU 2 showed evidence of impact above the site-specific background criteria for several PNA compounds and above the generic industrial criterion for benzo(a)pyrene at one location.

The soil at SWMU 18 also exhibited a low level exceedance of the generic residential direct contact criterion for benzo(a)pyrene at one location; the generic industrial criterion was not exceeded.

Soils at SWMU 20 showed no evidence of soil impact above either the generic residential or industrial direct human contact criteria nor the established background values for the Detroit Coke site.

For ground water, SWMU 1, 2, and 20 showed evidence of impact from benzene, indicating the possibility of a plume emanating from SWMU 20 and trending downgradient toward SWMUs 1 and 2. The concentration of benzene decreases to the southeast toward SWMUs 1 and 2. This may also be related to a potential off-site upgradient source in connection with the "creosote-like" product encountered at P-6D-95. Although the product observed at P-6D-95 was apparently denser than water, the benzene could be a dissolved partition thereof manifesting itself in the downgradient direction.

SWMUs 2 and 20 also showed concentrations of acenaphthene and naphthalene, respectively, in ground water above the GSI criteria but below the residential drinking water values. No background values were established for these compounds because the analysis of background ground water samples did not contain concentrations of these compounds above the method detection limits. Although these PNA compounds were detected, the concentrations are only slight exceedances of the GSI criteria. However, it

[5] *Handbook of Environmental Data on Organic Chemicals,* second edition, Karel Vershueren, 1983.

is possible that PNA compounds and benzene are occurring in ground water discharging to the rivers at concentrations exceeding the GSI criteria.

7.0 RECOMMENDATIONS

Soils and ground water at SWMU 1 exhibit evidence of a release from that unit. However, the resultant effect on environmental media is slight with respect to the screening criteria used during the RA. Additional ground water sampling at a slightly greater depth is recommended at this location during the RFI. Soils are adequately characterized as having nuisance levels of constituent of concern; however, simple exposure controls (e.g., capping with topsoil) will likely be an appropriate corrective measure.

Soils at SWMU 2 exhibited, again, only nuisance exceedances of PNA criteria. Ground water contained a slight exceedance of the generic industrial drinking water criteria for benzene, and an exceedance of the GSI criteria for acenaphthene. Additional ground water sampling at depth near SWMU 2 is recommended during the RFI. Additional soil sampling is not recommended here.

It is recommended that SWMU 18 be eliminated from the RCRA Corrective Action Program being implemented at the facility. A slight exceedance of the strictest criteria (generic residential direct contact) employed to screen soils was evidenced; however, it is highly unlikely that this site will ever be used for residential purposes.

Soils sampled at SWMU 20 exhibited no exceedances, consequently further investigation of soils at this SWMU is not necessary. Ground water, on the other hand, showed impact above applicable criteria, however, it is not entirely clear whether or not the impact is attributable to a release from SWMU 20 or if this is a manifestation of the ground water impact detected directly upgradient of this unit in P-6D-95. Consequently, ground water quality investigation at a slightly greater depth in the vicinity of this unit is recommended during the RFI.

Additionally, as a result of the Expanded Hydrogeological Investigation (Attachment I), a significant question has arisen regarding a possible upgradient source of ground water impact that is contributing to the degradation of ground water quality beneath this facility. The "creosote-like" product that was observed while drilling and installing P-6D-95 has not been characterized analytically. It is recommended that this product be characterized prior to full development of the RFI scope of work. It is possible that this potential off-site source of ground water impact could significantly alter the scope of work recommended for the RFI.

In summary:

1. It is recommended that SWMUs 1, 2 and 20 move forward to the RFI phase of the Corrective Action Program.

2. SWMU 18 should be dropped from the program based on the lack of any significant evidence of a release at this unit.

3. Upgradient ground water quality should be further evaluated by sampling and analysis of P-6D-95 in the immediate future.

4. Prepare an RFI work plan that includes minimal additional characterization of ground water in the vicinity of the SWMUs. Instead, determine ground water quality in proximity to the rivers and determine the potential for discharge to the rivers in excess of applicable GSI criteria. The rationale for a perimeter ground water characterization approach to the RFI rather than a SWMU specific approach will be thoroughly explained and justified in the work plan.

5. Soils at the site do not require additional investigation. This media should move directly to the Corrective Measures Study phase and simple exposure control mechanisms evaluated.

TABLE 1
SUMMARY OF INVESTIGATIVE ACTIVITIES
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation
Detroit, Michigan

SWMU 1

Sample Identification	Sample Matrix	Sample Location	Date	Time	Method	Depth (feet)	PID (ppm)	Water Table Depth (ft) [1]	Laboratory Analysis
DC-SS13-9502-22	Soil	B1-1	6/8/95	9:20	HSA	2-3	0		Hold
DC-SS14-9502-23	Soil	B1-1	6/8/95	9:30	HSA	5-6	0		EPA Methods 8260 and 8270
DC-SS15-9502-24	Soil	B1-2	6/8/95	11:05	HSA	2-3	0		EPA Methods 8260 and 8270
DC-SS15-9502-24 DP	Soil	B1-2	6/8/95	11:05	HSA	2-3	0		EPA Methods 8260 and 8270
DC-SS16-9502-25	Soil	B1-2	6/8/95	11:10	HSA	4.5-6.5	0		Hold
No Sample		B1-2			HSA	8-10			None
DC-MW02-9502-02	Ground Water	MW-2-95	6/22/95		HSA			8.8	EPA Methods 8260 and 8270

SWMU 2

Sample Identification	Sample Matrix	Sample Location	Date	Time	Method	Depth (feet)	PID (ppm)	Water Table Depth (ft) [1]	Laboratory Analysis
DC-SS01-9502-01	Soil	B2-1	6/6/95	11:46	Geoprobe	2-3	0		Hold
DC-SS11-9502-20	Soil	B2-1	6/8/95	8:10	HSA	3-4	12		EPA Methods 8260 and 8270 [2]
DC-SS12-9502-21	Soil	B2-1	6/8/95	8:12	HSA	6-8	30	8' +/-	EPA Methods 8260 and 8270 [2]
DC-SS02-9502-02	Soil	B2-2	6/6/95		Geoprobe	2-3	0		Hold
DC-SS03-9502-03	Soil	B2-3	6/6/95	13:30	Geoprobe	2-3	0		Hold
DC-SS04-9502-13	Soil	B2-4	6/7/95	13:40	Geoprobe	2-3	0		Hold
DC-SS05-9502-14	Soil	B2-5	6/7/95	14:03	Geoprobe	2-3	7.2		EPA Methods 8260 and 8270 [2]
DC-SS06-9502-15	Soil	B2-6	6/7/95	14:20	Geoprobe	2-3	3.2	no	EPA Methods 8260 and 8270 [2]
DC-SS17-9502-26	Soil	B2-7	6/8/95	13:20	HSA	2-3	0		Hold
DC-SS18-9502-27	Soil	B2-7	6/8/95	13:40	HSA	4-6	0	6'	EPA Methods 8260 and 8270 [2]
DC-MW01-9502-01	Ground Water	MW-1-95	6/22/95		HSA			8.9	EPA Methods 8260 and 8270 [2]

TABLE 1
SUMMARY OF INVESTIGATIVE ACTIVITIES
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation
Detroit, Michigan

SWMU 18

Sample Identification	Sample Matrix	Sample Location	Date	Time	Method	Depth (feet)	PID (ppm)	Water Table Depth (ft) [1]	Laboratory Analysis
DC-SS07-9502-16	Soil	B18-1	6/7/95	15:25	Geoprobe	2-3	72		EPA Methods 8260 and 8270 [2]
DC-SS08-9502-17	Soil	B18-2	6/7/95	15:50	Geoprobe	2-3	42	no	Hold
DC-SS19-9502-28	Soil	B18-3	6/8/95	13:55	Geoprobe	2-3	39		Hold
DC-SS20-9502-29	Soil	B18-4	6/8/95	14:10	Geoprobe	2-3	80		EPA Methods 8260 and 8270 [2]

SWMU 20

Sample Identification	Sample Matrix	Sample Location	Date	Time	Method	Depth (feet)	PID (ppm)	Water Table Depth (ft) [1]	Laboratory Analysis
DC-SS09-9502-18	Soil	B20-1	6/7/95	16:36	Geoprobe	1-2	25	2.8	EPA Methods 8240 and 8270 [2]
DC-SS10-9502-19	Soil	B20-2	6/7/95	16:55	Geoprobe	1-2	23	2.9	EPA Methods 8240 and 8270 [2]
DC-SS21-9502-30	Soil	B20-3	6/8/95	14:45	Geoprobe	1-2			EPA Methods 8240 and 8270 [2]
DC-SS21-9502-30 DP	Soil	B20-3	6/8/95	14:45	Geoprobe	1-2			EPA Methods 8240 and 8270 [2]
DC-SS22-9502-31	Soil	B20-5	6/9/95	12:40	Geoprobe	1-2			EPA Methods 8240 and 8270 [2]
DC-SS23-9502-32	Soil	B20-6	6/9/95	13:00	Geoprobe	1-2			EPA Methods 8240 and 8270 [2]
DC-MW03-9502-03	Ground Water	MW-3-95	6/8/95		HSA			2.84	EPA Methods 8240 and 8270

TABLE 1
SUMMARY OF INVESTIGATIVE ACTIVITIES
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation
Detroit, Michigan

BACKGROUND									
Sample Identification	Sample Matrix	Sample Location	Date	Time	Method	Depth (feet)	PID (ppm)	Water Table Depth (ft) [1]	Laboratory Analysis
DC-BG01-9502-04	Soil		6/6/95	14:05	Geoprobe	2-3	0	no	EPA Method 8270
DC-BG02-9502-05	Soil		6/6/95	14:35	Geoprobe	2-3	0	no	EPA Method 8270
DC-BG03-9502-06	Soil		6/6/95		Geoprobe	2-3	0	2.0	None
DC-BG04-9502-07	Soil		6/6/95	16:50	Geoprobe	2-3	0	3.0	EPA Method 8270
DC-BG05-9502-08	Soil		6/6/95	17:35	Geoprobe	2-3	0	3.0	EPA Method 8270
DC-BG06-9502-09	Soil		6/6/95	18:00	Geoprobe	2-3	0	2.8	EPA Method 8270
DC-BG07-9502-10	Soil		6/6/95	18:30	Geoprobe	2-3	0	no	EPA Method 8270
DC-BG07-9502-10 DP	Soil		6/6/95	18:30	Geoprobe	2-3	0		EPA Method 8270
DC-BG08-9502-11	Soil		6/7/95	7:50	Geoprobe	2-3	0	3.0	EPA Method 8270
DC-BG09-9502-12	Soil		6/7/95	8:40	Geoprobe	2-3	0		EPA Method 8270
DC-MW04-9502-04	Ground Water	MW-4-95	6/22/95		HSA			2.89	EPA Methods 8240 and 8270 [2]
DC-MW05-9502-05	Ground Water	MW-5-95	6/22/95		HSA			4.89	EPA Methods 8240 and 8270 [2]

Footnotes:
[1] Water table depths are depths below ground surface.
[2] Samples were analyzed only for BTEX, base neutral acid extractables and pyridine.

TABLE 2
MONITORING WELL, PIEZOMETER, AND STAFF GAUGE CONSTRUCTION SUMMARY
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation
Detroit, Michigan

Monitoring Well Identification	Survey Coordinates		Screened Interval (ft)	Total Depth (ft)	Ground Elevation	TOC Elevation	Date	Depth to Water (ft) [1]	Water Level Elevation [1]	pH (s.u.)	Conductivity (ms/cm)
	South (ft)	West (ft)									
MW-1-95	936	448	7.6 - 12.6	12.6	103.18	105.18	6/22/95	10.90	94.28	7.02	2.29
MW-2-95	950	770	7.7 - 12.7	12.7	103.32	104.52	6/22/95	10.00	94.52	6.19	2.90
MW-3-95	544	1266	0.0 - 5.2	5.2	102.60	104.31	6/22/95	3.55	100.76	10.09	3.14
MW-4-95	34	1426	3.0 - 8.0	8.0	108.13	111.13	6/22/95	5.89	105.24	8.04	1.15
MW-5-95	0	606	3.0 - 8.0	8.0	107.58	110.58	6/22/95	7.89	102.69	11.3	0.71

Piezometer Identification	Survey Coordinates		Screened Interval (ft)	Total Depth (ft)	Ground Elevation	TOC Elevation	Date	Depth to Water (ft) [1]	Water Level Elevation [1]	pH (s.u.)	Conductivity (ms/cm)
	South (ft)	West (ft)									
P-1s-95	134	2052	8.0 - 13.0	13.0	106.64	109.55	6/22/95	8.44	101.11	7.13	6.82
P-2s-95	263	18	6.5 - 11.5	11.5	104.63	107.13	6/22/95	9.97	97.16		
P-3s-95	912	140	7.5 - 12.5	12.5	99.76	102.29	6/22/95	8.24	94.05	7.09	6.61
P-4s-95	1520	1140	5.0 - 10.0	10.0	99.95	101.70	6/22/95	7.52	94.18	10.21	2.83
P-4d-95	1524	1132	41.3 - 46.3	46.3	99.65	102.40	6/22/95	8.75	93.65	6.71	1.00
P-5s-95	794	1834	4.6 - 9.6	9.6	102.52	104.22	6/22/95	8.13	96.09	7.65	3.17
P-5d-95	796	1826	15.0 - 20.0	20.0	102.24	104.74	6/22/95	9.47	95.27	8.25	3.28
P-6d-95	30	1428	11.0 - 16.0	16.0	108.07	110.49	6/22/95	5.40	105.09	Product in well	

Staff Gauge Identification	Survey Coordinates		Screened Interval (ft)	Total Depth (ft)	Ground Elevation	TOC Elevation	Date	Depth to Water (ft) [1]	Water Level Elevation [1]	pH (s.u.)	Conductivity (ms/cm)
	South (ft)	West (ft)									
SG - 1	1180	166				97.61		3.46	94.15	NA	NA
SG - 2	1232	1520				100.49		6.25	94.24	NA	NA

[1] Depth to Water and ground water elevation values based on depth of ground water from top of casing.

TABLE 3
SUMMARY OF ANALYTICAL RESULTS FOR SURFICIAL AND SHALLOW SOILS
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation

SWMU Number:					1	1	1	2	2	2	2
Sample Identification:		Back-Ground Value	Generic Residential Direct Contact Value	Generic Industrial Direct Contact Value	DC-SSB1-1 9502-23	DC-SSB1-2 9502-24	DC-SSB1-2 9502-24	DC-SSB2-1 9502-20	DC-SSB2-1 9502-21	DC-SSB2-5 9502-14	DC-22B2-6 9502-15
Lab Identification:					120212	120213	120214	120205	120206	120207	120208
Sample Depth:					5-6'	2-3'	DUP-2-3'	3-4'	6-8'	2-3'	2-3'
Sample Date:					6/8/95	6/8/95	6/8/95	6/8/95	6/8/95	6/7/95	6/7/95
Semi-Volatiles	*Units*										
Acenaphthene	mg/kg		7.60E+04	8.10E+05	<.33	<6.6	<6.6	<3.3	<.66	<33	<.66
Acenaphthylene	mg/kg		1.50E+03	1.60E+04	<.33	<6.6	<6.6	<3.3	<.66	<33	<.66
Anthracene	mg/kg		4.20E+05	1E+6 (G)	<.33	<6.6	<6.6	<3.3	.73	68	1.3
Benzo (a) Anthracene	mg/kg	40	14	210	.87	12	<6.6	9.1	4.1	83	2.8
Benzo (a) Pyrene	mg/kg	39	1.4	21	1.1	**14**	<6.6	**16**	**6.2**	56	**3.6**
Benzo (b&k) Fluoranthene	mg/kg	70	14	210(E)	2.3	**25**	9	**24**	5.7	130	6.7
Benzo (g,h,i) Perylene	mg/kg	28	1.50E+03	1.60E+04	1.2	11	<6.6	15	5.9	36	3.2
Benzoic Acid	mg/kg		1E+6 (G)	1E+6 (G)				<33	<6.6	<330	<6.6
Benzyl Alcohol	mg/kg		1.60E+05	1E+6 (G)				<13	<2.6	<130	<2.6
Bis (2-Chloroethoxy) Methane	mg/kg		NA	NA				<3.3	<.66	<33	<.66
Bis (2-Chloroethyl) Ether	mg/kg		2.3	23				<3.3	<.66	<33	<.66
Bis (2-chloroisopropyl) Ether	mg/kg		NA	NA				<3.3	<.66	<33	<.66
Bis (2-ethylhexyl) phthalate	mg/kg		7.00E+02	1.10E+04				<3.3	<.66	<33	<.66
4-Bromophenyl Phenylether	mg/kg		NA	NA				<3.3	<.66	<33	<.66
Butyl Benzyl Phthalate	mg/kg		6.80E+04	7.20E+05				<3.3	<.66	<33	<.66
4-Chloro-3-Methylphenol	mg/kg		2.20E+03	1.50E+04				<3.3	<.66	<33	<.66
4-Chloroaniline	mg/kg		NA	NA				<13	<2.6	<130	<2.6
2-Chloronaphthalene	mg/kg		NA	NA				<3.3	<.66	<33	<.66
2-Chlorophenol	mg/kg		6.80E+02	4.60E+03				<3.3	<.66	<33	<.66
4-Chlorophenyl Phenyl-Ether	mg/kg		NA	NA				<3.3	<.66	<33	<.66
Chrysene	mg/kg	38	1.40E+03	2.10E+04	1.1	13	<6.6	10	4.3	75	3.5
Di-n-Butylphthalate	mg/kg		5.10E+04	5.40E+05				<3.3	<.66	<33	<.66
Di-n-Octylphthalate	mg/kg		7.60E+03	8.10E+04				<3.3	<.66	<33	<.66
Dibenzo (a,h) Anthracene	mg/kg		1.4	21	<.33	<6.6	<6.6	<3.3	1.1	<33	<.66
Dibenzofuran	mg/kg		ID	ID				<3.3	<.66	<33	0.82
1,2-Dichlorobenzene	mg/kg		9.40E+03	6.40E+04				<3.3	<.66	<33	<.66
1,3-Dichlorobenzene	mg/kg		9.40E+03	6.40E+04				<3.3	<.66	<33	<.66
1,4-Dichlorobenzene	mg/kg		1.10E+02	1.00E+03				<3.3	<.66	<33	<.66
3,3'-Dichlorobenzidine	mg/kg		5.7	55				<20	<4	<200	<4
2,4-Dichlorophenol	mg/kg		4.20E+03	4.50E+04				<3.3	<.66	<33	<.66
Diethylphthalate	mg/kg		3.20E+05	1E+06 (G)				<3.3	<.66	<33	<.66

TABLE 3
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RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation

SWMU Number:					1	1	1	2	2	2	2
Sample Identification:		Back-Ground Value	Generic Residential Direct Contact Value	Generic Industrial Direct Contact Value	DC-SSB1-1	DC-SSB1-2	DC-SSB1-2	DC-SSB2-1	DC-SSB2-1	DC-SSB2-5	DC-22B2-6
Lab Identification:					9502-23 120212	9502-24 120213	9502-24 120214	9502-20 120205	9502-21 120206	9502-14 120207	9502-15 120208
Sample Depth:					5-6'	2-3'	DUP-2-3'	3-4'	6-8'	2-3'	2-3'
Sample Date:					6/8/95	6/8/95	6/8/95	6/8/95	6/8/95	6/7/95	6/7/95
Semi-Volatiles	*Units*										
Dimethylphthalate	mg/kg		1E+6 (G)	1.00E+6 (G)				<3.3	<.66	<33	<.66
2,4-Dimethylphenol	mg/kg		2.10E+04	2.30E+05				<3.3	<.66	<33	<.66
4,6-Dinitro-2-Methylphenol	mg/kg		NA	NA				<17	<3.4	<170	<3.4
2,4-Dinitrophenol	mg/kg		NA	NA				<17	<3.4	<170	<3.4
2,4-Dinitrotoluene	mg/kg		15	220				<3.3	<.66	<33	<.66
2,6-Dinitrotoluene	mg/kg		NA	NA				<3.3	<.66	<33	<.66
Fluoranthene	mg/kg	86	5.10E+04	5.40E+05	1.1	20	<6.6	10	5	170	4.7
Fluorene	mg/kg		5.10E+04	5.40E+05	<.33	<6.6	<6.6	<3.3	<.66	43	<.66
Hexachlorobenzene	mg/kg		6.2	94				<3.3	<.66	<33	<.66
Hexachlorobutadiene	mg/kg		1.30E+02	1.90E+03				<3.3	<.66	<33	<.66
Hexachlorocyclopentadiene	mg/kg		3.00E+03	3.20E+04				<3.3	<.66	<33	<.66
Hexachloroethane	mg/kg		1.80E+02	1.80E+03				<3.3	<.66	<33	<.66
Indeno (1,2,3-cd) Pyrene	mg/kg	24	14	210	1	9.9	<6.6	12	5.1	<33	2.8
Isophorone	mg/kg		2.70E+03	2.60E+04				<3.3	<.66	<33	<.66
2-Methylnaphthalene	mg/kg		ID	ID				<3.3	1.2	<33	0.69
2-Methylphenol	mg/kg		5.50E+03	3.70E+04				<3.3	<.66	<33	<.66
4-Methylphenol	mg/kg		2.10E+03	2.30E+04				<3.3	<.66	<33	<.66
N-Nitroso-di-n-Propylamine	mg/kg		0.37	3.5				<3.3	<.66	<33	<.66
N-Nitroso-di-Phenylamine	mg/kg		5.20E+02	5.10E+03				<3.3	<.66	<33	<.66
Naphthalene	mg/kg		1.50E+04	1.60E+05	<.33	<6.6	<6.6	<3.3	2.7	51	2.5
2-Nitroaniline	mg/kg		NA	NA				<17	<3.4	<170	<3.4
3-Nitroaniline	mg/kg		NA	NA				<17	<3.4	<170	<3.4
4-Nitroaniline	mg/kg		NA	NA				<17	<3.4	<170	<3.4
Nitrobenzene	mg/kg		51	340				<3.3	<.66	<33	<.66
2-Nitrophenol	mg/kg		1.20E+03	1.30E+04				<3.3	<.66	<33	<.66
4-Nitrophenol	mg/kg		NA	NA				<17	<3.4	<170	<3.4
Pentachlorophenol	mg/kg		82	1.30E+03				<17	<3.4	<170	<3.4
Phenanthrene	mg/kg	36	1.50E+03	1.60E+04	0.63	12	<6.6	5.4	3.2	220	4.4
Phenol	mg/kg		6.60E+04	4.50E+05				<3.3	<.66	<33	<.66
Pyrene	mg/kg	73	3.20E+04	3.40E+05	1.1	16	<6.6	10	4.5	140	4.6
1,2,4-Trichlorobenzene	mg/kg		6.30E+03	6.80E+04				<3.3	<.66	<33	<.66

TABLE 3
SUMMARY OF ANALYTICAL RESULTS FOR SURFICIAL AND SHALLOW SOILS
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation

SWMU Number:					1	1	1	2	2	2	2
Sample Identification:		Back-Ground Value	Generic Residential Direct Contact Value	Generic Industrial Direct Contact Value	DC-SSB1-1 9502-23	DC-SSB1-2 9502-24	DC-SSB1-2 9502-24	DC-SSB2-1 9502-20	DC-SSB2-1 9502-21	DC-SSB2-5 9502-14	DC-22B2-6 9502-15
Lab Identification:					120212	120213	120214	120205	120206	120207	120208
Sample Depth:					5-6'	2-3'	DUP-2-3'	3-4'	6-8'	2-3'	2-3'
Sample Date:					6/8/95	6/8/95	6/8/95	6/8/95	6/8/95	6/7/95	6/7/95
Semi-Volatiles	*Units*										
2,4,5-Trichlorophenol	mg/kg		4.20E+04	4.50E+05				<17	<3.4	<170	<3.4
2,4,6-Trichlorophenol	mg/kg		9.00E+02	1.40E+04				<3.3	<.66	<33	<.66
Pyridine	mg/kg		1.10E+02	740				<3.3	<.66	<33	<.66
Volatiles	*Units*										
Benzene	mg/kg		88	850	.021	40*	20	3.3	<.01	<.01	<.01
Ethylbenzene	mg/kg		1.10E+04	7.20E+04	<.01	1.7	2	1.3	<.01	<.01	<.01
Toluene	mg/kg		2.40E+04	1.60E+05	<.01	8.8	12	5.3	<.01	<.01	<.01
Xylene, Total	mg/kg		2.00E+05	1.00E+6 (G)	<.03	7.8	9	6.1	<.03	<.03	<.03
Percent Solids	%				79	86	80	84	82	85	91

TABLE 3
SUMMARY OF ANALYTICAL RESULTS FOR SURFICIAL AND SHALLOW SOILS
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation

SWMU Number:					2	18	18	20	20	20
Sample Identification:		Back-Ground Value	Generic Residential Direct Contact Value	Generic Industrial Direct Contact Value	DC-SSB2-7	DC-SSB18-1	DC-SSB18-4	DC-SSB20-1	DC-SSB20-2	DC-SSB20-3
					9502-27	9502-16	9502-29	9502-18	9502-19	9502-30
Lab Identification:					120209	120210	120211	120201	120202	120199
Sample Depth:					3-4'	2-3'	2-3'	1-2'	1-2'	1-2'
Sample Date:					6/7/95	6/7/95	6/8/95	6/7/95	6/7/95	6/8/95
Semi-Volatiles	*Units*									
Acenaphthene	mg/kg		7.60E+04	8.10E+05	<1.7	<3.3	<3.3	<17	<33	<.33
Acenaphthylene	mg/kg		1.50E+03	1.60E+04	<1.7	<3.3	<3.3	<17	<33	<.33
Anthracene	mg/kg		4.20E+05	1E+6 (G)	<1.7	<3.3	<3.3	<17	<33	<.33
Benzo (a) Anthracene	mg/kg	40	14	210	2	3.7	<3.3	<17	<33	.66
Benzo (a) Pyrene	mg/kg	39	1.4	21	**2.4**	**4.5**	<3.3	<17	<33	.59
Benzo (b&k) Fluoranthene	mg/kg	70	14	210(E)	4.6	8.8	4.2	<17	<33	1.50
Benzo (g,h,i) Perylene	mg/kg	28	1.50E+03	1.60E+04	2	<3.3	<3.3	<17	<33	.54
Benzoic Acid	mg/kg		1E+6 (G)	1E+6 (G)	<17	<33	<33	<170	<330	<3.3
Benzyl Alcohol	mg/kg		1.60E+05	1E+6 (G)	<6.5	<13	<13	<65	<130	<1.3
Bis (2-Chloroethoxy) Methane	mg/kg		NA	NA	<1.7	<3.3	<3.3	<17	<33	<.33
Bis (2-Chloroethyl) Ether	mg/kg		2.3	23	<1.7	<3.3	<3.3	<17	<33	<.33
Bis (2-chloroisopropyl) Ether	mg/kg		NA	NA	<1.7	<3.3	<3.3	<17	<33	<.33
Bis (2-ethylhexyl) phthalate	mg/kg		7.00E+02	1.10E+04	<1.7	<3.3	<3.3	<17	<33	<.33
4-Bromophenyl Phenylether	mg/kg		NA	NA	<1.7	<3.3	<3.3	<17	<33	<.33
Butyl Benzyl Phthalate	mg/kg		6.80E+04	7.20E+05	<1.7	<3.3	<3.3	<17	<33	<.33
4-Chloro-3-Methylphenol	mg/kg		2.20E+03	1.50E+04	<1.7	<3.3	<3.3	<17	<33	<.33
4-Chloroaniline	mg/kg		NA	NA	<6.5	<13	<13	<65	<130	<1.3
2-Chloronaphthalene	mg/kg		NA	NA	<1.7	<3.3	<3.3	<17	<33	<.33
2-Chlorophenol	mg/kg		6.80E+02	4.60E+03	<1.7	<3.3	<3.3	<17	<33	<.33
4-Chlorophenyl Phenyl-Ether	mg/kg		NA	NA	<1.7	<3.3	<3.3	<17	<33	<.33
Chrysene	mg/kg	38	1.40E+03	2.10E+04	2.2	5.7	<3.3	<17	<33	0.81
Di-n-Butylphthalate	mg/kg		5.10E+04	5.40E+05	<1.7	<3.3	<3.3	<17	<33	<.33
Di-n-Octylphthalate	mg/kg		7.60E+03	8.10E+04	<1.7	<3.3	<3.3	<17	<33	<.33
Dibenzo (a,h) Anthracene	mg/kg		1.4	21	<1.7	<3.3	<3.3	<17	<33	<.33
Dibenzofuran	mg/kg		ID	ID	<1.7	<3.3	<3.3	<17	<33	<.33
1,2-Dichlorobenzene	mg/kg		9.40E+03	6.40E+04	<1.7	<3.3	<3.3	<17	<33	<.33
1,3-Dichlorobenzene	mg/kg		9.40E+03	6.40E+04	<1.7	<3.3	<3.3	<17	<33	<.33
1,4-Dichlorobenzene	mg/kg		1.10E+02	1.00E+03	<1.7	<3.3	<3.3	<17	<33	<.33
3,3'-Dichlorobenzidine	mg/kg		5.7	55	<10	<20	<20	<100	<200	<2
2,4-Dichlorophenol	mg/kg		4.20E+03	4.50E+04	<1.7	<3.3	<3.3	<17	<33	<.33
Diethylphthalate	mg/kg		3.20E+05	1E+06 (G)	<1.7	<3.3	<3.3	<17	<33	<.33

TABLE 3
SUMMARY OF ANALYTICAL RESULTS FOR SURFICIAL AND SHALLOW SOILS
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation

SWMU Number:					2	18	18	20	20	20
Sample Identification:		Back-Ground Value	Generic Residential Direct Contact Value	Generic Industrial Direct Contact Value	DC-SSB2-7 9502-27	DC-SSB18-1 9502-16	DC-SSB18-4 9502-29	DC-SSB20-1 9502-18	DC-SSB20-2 9502-19	DC-SSB20-3 9502-30
Lab Identification:					120209	120210	120211	120201	120202	120199
Sample Depth:					3-4'	2-3'	2-3'	1-2'	1-2'	1-2'
Sample Date:					6/7/95	6/7/95	6/8/95	6/7/95	6/7/95	6/8/95
Semi-Volatiles	***Units***									
Dimethylphthalate	mg/kg		1E+6 (G)	1.00E+6 (G)	<1.7	<3.3	<3.3	<17	<33	<.33
2,4-Dimethylphenol	mg/kg		2.10E+04	2.30E+05	<1.7	<3.3	<3.3	<17	<33	<.33
4,6-Dinitro-2-Methylphenol	mg/kg		NA	NA	<8.5	<17	<17	<85	<170	<1.7
2,4-Dinitrophenol	mg/kg		NA	NA	<8.5	<17	<17	<85	<170	<1.7
2,4-Dinitrotoluene	mg/kg		15	220	<1.7	<3.3	<3.3	<17	<33	<.33
2,6-Dinitrotoluene	mg/kg		NA	NA	<1.7	<3.3	<3.3	<17	<33	<.33
Fluoranthene	mg/kg	86	5.10E+04	5.40E+05	2.6	6.9	4.8	<17	<33	0.75
Fluorene	mg/kg		5.10E+04	5.40E+05	<1.7	<3.3	<3.3	<17	<33	<.33
Hexachlorobenzene	mg/kg		6.2	94	<1.7	<3.3	<3.3	<17	<33	<.33
Hexachlorobutadiene	mg/kg		1.30E+02	1.90E+03	<1.7	<3.3	<3.3	<17	<33	<.33
Hexachlorocyclopentadiene	mg/kg		3.00E+03	3.20E+04	<1.7	<3.3	<3.3	<17	<33	<.33
Hexachloroethane	mg/kg		1.80E+02	1.80E+03	<1.7	<3.3	<3.3	<17	<33	<.33
Indeno (1,2,3-cd) Pyrene	mg/kg	24	14	210	1.7	<3.3	<3.3	<17	<33	0.48
Isophorone	mg/kg		2.70E+03	2.60E+04	<1.7	<3.3	<3.3	<17	<33	<.33
2-Methylnaphthalene	mg/kg		ID	ID	<1.7	4.2	4.6	<17	<33	<.33
2-Methylphenol	mg/kg		5.50E+03	3.70E+04	<1.7	<3.3	<3.3	<17	<33	<.33
4-Methylphenol	mg/kg		2.10E+03	2.30E+04	<1.7	<3.3	<3.3	<17	<33	<.33
N-Nitroso-di-n-Propylamine	mg/kg		0.37	3.5	<1.7	<3.3	<3.3	<17	<33	<.33
N-Nitroso-di-Phenylamine	mg/kg		5.20E+02	5.10E+03	<1.7	<3.3	<3.3	<17	<33	<.33
Naphthalene	mg/kg		1.50E+04	1.60E+05	<1.7	51	45	<17	<33	<.33
2-Nitroaniline	mg/kg		NA	NA	<8.5	<17	<17	<85	<170	<1.7
3-Nitroaniline	mg/kg		NA	NA	<8.5	<17	<17	<85	<170	<1.7
4-Nitroaniline	mg/kg		NA	NA	<8.5	<17	<17	<85	<170	<1.7
Nitrobenzene	mg/kg		51	340	<1.7	<3.3	<3.3	<17	<33	<.33
2-Nitrophenol	mg/kg		1.20E+03	1.30E+04	<1.7	<3.3	<3.3	<17	<33	<.33
4-Nitrophenol	mg/kg		NA	NA	<8.5	<17	<17	<85	<170	<1.7
Pentachlorophenol	mg/kg		82	1.30E+03	<8.5	<17	<17	<85	<170	<1.7
Phenanthrene	mg/kg	36	1.50E+03	1.60E+04	2	3.8	4.5	<17	<33	0.4
Phenol	mg/kg		6.60E+04	4.50E+05	<1.7	<3.3	<3.3	<17	<33	<.33
Pyrene	mg/kg	73	3.20E+04	3.40E+05	2.3	5.7	<3.3	<17	<33	0.59
1,2,4-Trichlorobenzene	mg/kg		6.30E+03	6.80E+04	<1.7	<3.3	<3.3	<17	<33	<.33

TABLE 3
SUMMARY OF ANALYTICAL RESULTS FOR SURFICIAL AND SHALLOW SOILS
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation

SWMU Number:					2	18	18	20	20	20
Sample Identification:		Back-Ground Value	Generic Residential Direct Contact Value	Generic Industrial Direct Contact Value	DC-SSB2-7 9502-27	DC-SSB18-1 9502-16	DC-SSB18-4 9502-29	DC-SSB20-1 9502-18	DC-SSB20-2 9502-19	DC-SSB20-3 9502-30
Lab Identification:					120209	120210	120211	120201	120202	120199
Sample Depth:					3-4'	2-3'	2-3'	1-2'	1-2'	1-2'
Sample Date:					6/7/95	6/7/95	6/8/95	6/7/95	6/7/95	6/8/95
Semi-Volatiles	*Units*									
2,4,5-Trichlorophenol	mg/kg		4.20E+04	4.50E+05	<8.5	<17	<17	<85	<170	<1.7
2,4,6-Trichlorophenol	mg/kg		9.00E+02	1.40E+04	<1.7	<3.3	<3.3	<17	<33	<.33
Pyridine	mg/kg		1.10E+02	740	<1.7	<3.3	<3.3	<17	<33	<.33
Volatiles	*Units*									
Benzene	mg/kg		88	850	<.01	.056	.14	.013	<.01	<.01
Ethylbenzene	mg/kg		1.10E+04	7.20E+04	<.01	<.01	<.01	.019	<.01	<.01
Toluene	mg/kg		2.40E+04	1.60E+05	<.01	<.01	.056	.029	.012	<.01
Xylene, Total	mg/kg		2.00E+05	1.00E+6 (G)	<.03	<.03	.23	.39	<.03	<.03
Percent Solids	%				79	85	94	88	90	83

TABLE 3
SUMMARY OF ANALYTICAL RESULTS FOR SURFICIAL AND SHALLOW SOILS
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation

SWMU Number:					20	20	20	BG	BG	BG	BG
Sample Identification:		Back-Ground Value	Generic Residential Direct Contact Value	Generic Industrial Direct Contact Value	DC-SSB20-3 9502-30	DC-SSB20-5 9502-31	DC-SSB20-6 9502-32	DC-BG01 9502-04	DC-BG02 9502-05	DC-BG03 9502-12	DC-BG04 9502-07
Lab Identification:					120200	120203	120204	120215	120216	120223	120217
Sample Depth:					DUP-2-3'	1-2'	1-2'	2-3'	2-3'	2-3'	2-3'
Sample Date:					6/8/95	6/9/95	6/9/95	6/6/95	6/6/95	6/7/95	6/6/95
Semi-Volatiles	*Units*										
Acenaphthene	mg/kg		7.60E+04	8.10E+05	<6.6	<3.3	<17	<.33	<3.3	<.66	<66
Acenaphthylene	mg/kg		1.50E+03	1.60E+04	<6.6	<3.3	<17	<.33	<3.3	<.66	<66
Anthracene	mg/kg		4.20E+05	1E+6 (G)	19	4.7	<17	<.33	<3.3	<.66	<66
Benzo (a) Anthracene	mg/kg	40	14	210	**23**	6.9	<17	<.33	7.2	1.2	140
Benzo (a) Pyrene	mg/kg	39	1.4	21	**16**	**5.6**	<17	0.48	**8.8**	**1.5**	150
Benzo (b&k) Fluoranthene	mg/kg	70	14	210(E)	**29**	**14**	<17	<.33	**16**	2.6	260
Benzo (g,h,i) Perylene	mg/kg	28	1.50E+03	1.60E+04	9.1	3.5	<17	0.44	6.8	1.3	110
Benzoic Acid	mg/kg		1E+6 (G)	1E+6 (G)	<66	<33	<170				
Benzyl Alcohol	mg/kg		1.60E+05	1E+6 (G)	<26	<13	<65				
Bis (2-Chloroethoxy) Methane	mg/kg		NA	NA	<6.6	<3.3	<17				
Bis (2-Chloroethyl) Ether	mg/kg		2.3	23	<6.6	<3.3	<17				
Bis (2-chloroisopropyl) Ether	mg/kg		NA	NA	<6.6	<3.3	<17				
Bis (2-ethylhexyl) phthalate	mg/kg		7.00E+02	1.10E+04	<6.6	<3.3	<17				
4-Bromophenyl Phenylether	mg/kg		NA	NA	<6.6	<3.3	<17				
Butyl Benzyl Phthalate	mg/kg		6.80E+04	7.20E+05	<6.6	<3.3	<17				
4-Chloro-3-Methylphenol	mg/kg		2.20E+03	1.50E+04	<6.6	<3.3	<17				
4-Chloroaniline	mg/kg		NA	NA	<26	<13	<65				
2-Chloronaphthalene	mg/kg		NA	NA	<6.6	<3.3	<17				
2-Chlorophenol	mg/kg		6.80E+02	4.60E+03	<6.6	<3.3	<17				
4-Chlorophenyl Phenyl-Ether	mg/kg		NA	NA	<6.6	<3.3	<17				
Chrysene	mg/kg	38	1.40E+03	2.10E+04	27	8.3	<17	<.33	8.3	1.6	120
Di-n-Butylphthalate	mg/kg		5.10E+04	5.40E+05	<6.6	<3.3	<17				
Di-n-Octylphthalate	mg/kg		7.60E+03	8.10E+04	<6.6	<3.3	<17				
Dibenzo (a,h) Anthracene	mg/kg		1.4	21	<6.6	<3.3	<17	<.33	<3.3	<.66	<66
Dibenzofuran	mg/kg		ID	ID	8.6	<3.3	<17				
1,2-Dichlorobenzene	mg/kg		9.40E+03	6.40E+04	<6.6	<3.3	<17				
1,3-Dichlorobenzene	mg/kg		9.40E+03	6.40E+04	<6.6	<3.3	<17				
1,4-Dichlorobenzene	mg/kg		1.10E+02	1.00E+03	<6.6	<3.3	<17				
3,3'-Dichlorobenzidine	mg/kg		5.7	55	<40	<20	<100				
2,4-Dichlorophenol	mg/kg		4.20E+03	4.50E+04	<6.6	<3.3	<17				
Diethylphthalate	mg/kg		3.20E+05	1E+06 (G)	<6.6	<3.3	<17				

TABLE 3
SUMMARY OF ANALYTICAL RESULTS FOR SURFICIAL AND SHALLOW SOILS
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation

SWMU Number:					20	20	20	BG	BG	BG	BG
Sample Identification:		Back-Ground Value	Generic Residential Direct Contact Value	Generic Industrial Direct Contact Value	DC-SSB20-3	DC-SSB20-5	DC-SSB20-6	DC-BG01	DC-BG02	DC-BG03	DC-BG04
					9502-30	9502-31	9502-32	9502-04	9502-05	9502-12	9502-07
Lab Identification:					120200	120203	120204	120215	120216	120223	120217
Sample Depth:					DUP-2-3'	1-2'	1-2'	2-3'	2-3'	2-3'	2-3'
Sample Date:					6/8/95	6/9/95	6/9/95	6/6/95	6/6/95	6/7/95	6/6/95
Semi-Volatiles	***Units***										
Dimethylphthalate	mg/kg		1E+6 (G)	1.00E+6 (G)	<6.6	<3.3	<17				
2,4-Dimethylphenol	mg/kg		2.10E+04	2.30E+05	<6.6	<3.3	<17				
4,6-Dinitro-2-Methylphenol	mg/kg		NA	NA	<34	<17	<85				
2,4-Dinitrophenol	mg/kg		NA	NA	<34	<17	<85				
2,4-Dinitrotoluene	mg/kg		15	220	<6.6	<3.3	<17				
2,6-Dinitrotoluene	mg/kg		NA	NA	<6.6	<3.3	<17				
Fluoranthene	mg/kg	86	5.10E+04	5.40E+05	55	12	<17	0.38	9.4	1.7	260
Fluorene	mg/kg		5.10E+04	5.40E+05	19	<3.3	<17	<.33	<3.3	<.66	<66
Hexachlorobenzene	mg/kg		6.2	94	<6.6	<3.3	<17				
Hexachlorobutadiene	mg/kg		1.30E+02	1.90E+03	<6.6	<3.3	<17				
Hexachlorocyclopentadiene	mg/kg		3.00E+03	3.20E+04	<6.6	<3.3	<17				
Hexachloroethane	mg/kg		1.80E+02	1.80E+03	<6.6	<3.3	<17				
Indeno (1,2,3-cd) Pyrene	mg/kg	24	14	210	8.8	<3.3	<17	0.37	6.2	1.1	97
Isophorone	mg/kg		2.70E+03	2.60E+04	<6.6	<3.3	<17				
2-Methylnaphthalene	mg/kg		ID	ID	<6.6	<3.3	<17				
2-Methylphenol	mg/kg		5.50E+03	3.70E+04	<6.6	<3.3	<17				
4-Methylphenol	mg/kg		2.10E+03	2.30E+04	<6.6	<3.3	<17				
N-Nitroso-di-n-Propylamine	mg/kg		0.37	3.5	<6.6	<3.3	<17				
N-Nitroso-di-Phenylamine	mg/kg		5.20E+02	5.10E+03	<6.6	<3.3	<17				
Naphthalene	mg/kg		1.50E+04	1.60E+05	10	<3.3	<17	<.33	<3.3	<.66	<66
2-Nitroaniline	mg/kg		NA	NA	<34	<17	<85				
3-Nitroaniline	mg/kg		NA	NA	<34	<17	<85				
4-Nitroaniline	mg/kg		NA	NA	<34	<17	<85				
Nitrobenzene	mg/kg		51	340	<6.6	<3.3	<17				
2-Nitrophenol	mg/kg		1.20E+03	1.30E+04	<6.6	<3.3	<17				
4-Nitrophenol	mg/kg		NA	NA	<34	<17	<85				
Pentachlorophenol	mg/kg		82	1.30E+03	<34	<17	<85				
Phenanthrene	mg/kg	36	1.50E+03	1.60E+04	72	8.2	<17	<.33	3.7	2.2	110
Phenol	mg/kg		6.60E+04	4.50E+05	<6.6	<3.3	<17				
Pyrene	mg/kg	73	3.20E+04	3.40E+05	40	8.8	<17	0.34	8.6	1.7	200
1,2,4-Trichlorobenzene	mg/kg		6.30E+03	6.80E+04	<6.6	<3.3	<17				

TABLE 3
SUMMARY OF ANALYTICAL RESULTS FOR SURFICIAL AND SHALLOW SOILS
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation

SWMU Number:					20	20	20	BG	BG	BG	BG
Sample Identification:		Back-Ground Value	Generic Residential Direct Contact Value	Generic Industrial Direct Contact Value	DC-SSB20-3 9502-30	DC-SSB20-5 9502-31	DC-SSB20-6 9502-32	DC-BG01 9502-04	DC-BG02 9502-05	DC-BG03 9502-12	DC-BG04 9502-07
Lab Identification:					120200	120203	120204	120215	120216	120223	120217
Sample Depth:					DUP-2-3'	1-2'	1-2'	2-3'	2-3'	2-3'	2-3'
Sample Date:					6/8/95	6/9/95	6/9/95	6/6/95	6/6/95	6/7/95	6/6/95
Semi-Volatiles	*Units*										
2,4,5-Trichlorophenol	mg/kg		4.20E+04	4.50E+05	<34	<17	<85				
2,4,6-Trichlorophenol	mg/kg		9.00E+02	1.40E+04	<6.6	<3.3	<17				
Pyridine	mg/kg		1.10E+02	740	<6.6	<3.3	<17				
Volatiles	*Units*										
Benzene	mg/kg		88	850	<.01	<.01	<.01				
Ethylbenzene	mg/kg		1.10E+04	7.20E+04	<.01	<.01	<.01				
Toluene	mg/kg		2.40E+04	1.60E+05	<.01	.017	<.01				
Xylene, Total	mg/kg		2.00E+05	1.00E+6 (G)	<.03	<.03	<.03				
Percent Solids	%				82	88	89	89	85	83	91

TABLE 3
SUMMARY OF ANALYTICAL RESULTS FOR SURFICIAL AND SHALLOW SOILS
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation

SWMU Number:					BG	BG	BG	BG	BG
Sample Identification:		Back-	Generic	Generic	DC-BG05	DC-BG06	DC-BG07	DC-BG07	DC-BG08
		Ground	Residential	Industrial	9502-08	9502-09	9502-10	9502-10	9502-11
Lab Identification:		Value	Direct	Direct	120218	120219	120220	120221	120222
Sample Depth:			Contact	Contact	2-3'	2-3'	2-3'	DUP	2-3'
Sample Date:			Value	Value	6/695	6/6/95	6/6/95	6/6/95	6/7/95
Semi-Volatiles	*Units*								
Acenaphthene	mg/kg		7.60E+04	8.10E+05	<6.6	<.33	<66	<66	<.66
Acenaphthylene	mg/kg		1.50E+03	1.60E+04	<6.6	<.33	<66	<66	<.66
Anthracene	mg/kg		4.20E+05	1E+6 (G)	<6.6	<.33	70	<66	<.66
Benzo (a) Anthracene	mg/kg	40	14	210	10	0.57	120	160	3
Benzo (a) Pyrene	mg/kg	39	1.4	21	**9.8**	0.67	80	140	**2.9**
Benzo (b&k) Fluoranthene	mg/kg	70	14	210(E)	**18**	1.5	170	260	5.2
Benzo (g,h,i) Perylene	mg/kg	28	1.50E+03	1.60E+04	6.6	0.59	<66	95	2.6
Benzoic Acid	mg/kg		1E+6 (G)	1E+6 (G)					
Benzyl Alcohol	mg/kg		1.60E+05	1E+6 (G)					
Bis (2-Chloroethoxy) Methane	mg/kg		NA	NA					
Bis (2-Chloroethyl) Ether	mg/kg		2.3	23					
Bis (2-chloroisopropyl) Ether	mg/kg		NA	NA					
Bis (2-ethylhexyl) phthalate	mg/kg		7.00E+02	1.10E+04					
4-Bromophenyl Phenylether	mg/kg		NA	NA					
Butyl Benzyl Phthalate	mg/kg		6.80E+04	7.20E+05					
4-Chloro-3-Methylphenol	mg/kg		2.20E+03	1.50E+04					
4-Chloroaniline	mg/kg		NA	NA					
2-Chloronaphthalene	mg/kg		NA	NA					
2-Chlorophenol	mg/kg		6.80E+02	4.60E+03					
4-Chlorophenyl Phenyl-Ether	mg/kg		NA	NA					
Chrysene	mg/kg	38	1.40E+03	2.10E+04	9.9	0.64	120	160	2.6
Di-n-Butylphthalate	mg/kg		5.10E+04	5.40E+05					
Di-n-Octylphthalate	mg/kg		7.60E+03	8.10E+04					
Dibenzo (a,h) Anthracene	mg/kg		1.4	21	<6.6	<.33	<66	<66	<.66
Dibenzofuran	mg/kg		ID	ID					
1,2-Dichlorobenzene	mg/kg		9.40E+03	6.40E+04					
1,3-Dichlorobenzene	mg/kg		9.40E+03	6.40E+04					
1,4-Dichlorobenzene	mg/kg		1.10E+02	1.00E+03					
3,3'-Dichlorobenzidine	mg/kg		5.7	55					
2,4-Dichlorophenol	mg/kg		4.20E+03	4.50E+04					
Diethylphthalate	mg/kg		3.20E+05	1E+06 (G)					

TABLE 3
SUMMARY OF ANALYTICAL RESULTS FOR SURFICIAL AND SHALLOW SOILS
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation

SWMU Number:					BG	BG	BG	BG	BG
Sample Identification:		Back-Ground Value	Generic Residential Direct Contact Value	Generic Industrial Direct Contact Value	DC-BG05	DC-BG06	DC-BG07	DC-BG07	DC-BG08
Lab Identification:					9502-08	9502-09	9502-10	9502-10	9502-11
Sample Depth:					120218	120219	120220	120221	120222
Sample Date:					2-3'	2-3'	2-3'	DUP	2-3'
					6/695	6/6/95	6/6/95	6/6/95	6/7/95
Semi-Volatiles	*Units*								
Dimethylphthalate	mg/kg		1E+6 (G)	1.00E+6 (G)					
2,4-Dimethylphenol	mg/kg		2.10E+04	2.30E+05					
4,6-Dinitro-2-Methylphenol	mg/kg		NA	NA					
2,4-Dinitrophenol	mg/kg		NA	NA					
2,4-Dinitrotoluene	mg/kg		15	220					
2,6-Dinitrotoluene	mg/kg		NA	NA					
Fluoranthene	mg/kg	86	5.10E+04	5.40E+05	21	0.83	320	390	5.1
Fluorene	mg/kg		5.10E+04	5.40E+05	<6.6	<.33	<66	<66	<.66
Hexachlorobenzene	mg/kg		6.2	94					
Hexachlorobutadiene	mg/kg		1.30E+02	1.90E+03					
Hexachlorocyclopentadiene	mg/kg		3.00E+03	3.20E+04					
Hexachloroethane	mg/kg		1.80E+02	1.80E+03					
Indeno (1,2,3-cd) Pyrene	mg/kg	24	14	210	<6.6	0.51	<66	79	2.2
Isophorone	mg/kg		2.70E+03	2.60E+04					
2-Methylnaphthalene	mg/kg		ID	ID					
2-Methylphenol	mg/kg		5.50E+03	3.70E+04					
4-Methylphenol	mg/kg		2.10E+03	2.30E+04					
N-Nitroso-di-n-Propylamine	mg/kg		0.37	3.5					
N-Nitroso-di-Phenylamine	mg/kg		5.20E+02	5.10E+03					
Naphthalene	mg/kg		1.50E+04	1.60E+05	<6.6	<.33	<66	<66	<.66
2-Nitroaniline	mg/kg		NA	NA					
3-Nitroaniline	mg/kg		NA	NA					
4-Nitroaniline	mg/kg		NA	NA					
Nitrobenzene	mg/kg		51	340					
2-Nitrophenol	mg/kg		1.20E+03	1.30E+04					
4-Nitrophenol	mg/kg		NA	NA					
Pentachlorophenol	mg/kg		82	1.30E+03					
Phenanthrene	mg/kg	36	1.50E+03	1.60E+04	8.9	0.38	160	150	2.1
Phenol	mg/kg		6.60E+04	4.50E+05					
Pyrene	mg/kg	73	3.20E+04	3.40E+05	16	0.72	270	350	4.8
1,2,4-Trichlorobenzene	mg/kg		6.30E+03	6.80E+04					

TABLE 3
SUMMARY OF ANALYTICAL RESULTS FOR SURFICIAL AND SHALLOW SOILS
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation

SWMU Number:					BG	BG	BG	BG	BG
Sample Identification:		Back-Ground Value	Generic Residential Direct Contact Value	Generic Industrial Direct Contact Value	DC-BG05 9502-08	DC-BG06 9502-09	DC-BG07 9502-10	DC-BG07 9502-10	DC-BG08 9502-11
Lab Identification:					120218	120219	120220	120221	120222
Sample Depth:					2-3'	2-3'	2-3'	DUP	2-3'
Sample Date:					6/695	6/6/95	6/6/95	6/6/95	6/7/95
Semi-Volatiles	***Units***								
2,4,5-Trichlorophenol	mg/kg		4.20E+04	4.50E+05					
2,4,6-Trichlorophenol	mg/kg		9.00E+02	1.40E+04					
Pyridine	mg/kg		1.10E+02	740					
Volatiles	***Units***								
Benzene	mg/kg		88	850					
Ethylbenzene	mg/kg		1.10E+04	7.20E+04					
Toluene	mg/kg		2.40E+04	1.60E+05					
Xylene, Total	mg/kg		2.00E+05	1.00E+6 (G)					
Percent Solids	%				82	85	85	85	85

TABLE 3
SUMMARY OF ANALYTICAL RESULTS FOR SURFICIAL AND SHALLOW SOILS
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation

Notes:
- Applicable portions of PA 451 are currently being reviewed by the USEPA and are subject to approval.
- Background concentrations have been determined using the method stated in the MDNR Guidance Document for Verification of Soil Remediation.
- Generic Residential Direct Contact Criteria from Public Act 451, Part 201, MERA Operational Memorandum #8 (revision 4), 6/5/95, MDNR.
- Generic Industrial Direct Contact Criteria from Public Act 451, Part 201, MERA Operational Memorandum #14 (revision #2), 6/6/95, MDNR.
- Shaded values are at or exceed Background Values for that constituent.
- Values presented in bold type-face are at or exceed the Generic Residential Direct Contact Value for that constituent.
- Values outlined in bold are at or exceed the Generic Industrial Direct Contact Value for that constituent.

Footnotes:
(E) Criteria represents that of Benzo(b)fluoranthene the more conservative value of Benzo(b)fluoranthene and Benzo(k)fluoranthene.
(G) Criteria exceeds 100% in soil, hence it is reduced to 100%.
NA MDNR Criteria for compound not available.
ID Inadequate data to develop criterion.
* See attached statement of Data Qualifications.

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR SHALLOW GROUND WATER
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation

SWMU Number		Generic	Generic		2	1	20	20	20	BG	BG
Sample Identification		Residential	Industrial		DC-MW01	DC-MW02	DC-MW03	DC-MW03	DC-MW3-950	DC-MW04	DC-MW05
		Drinking	Drinking		9502-01	9502-02	9502-03	9502-03-DUP	2-33	9502-04	9502-05
Lab Identification:		Water	Water	GSI	120228	120233	120231	120232	120995	120230	120229
Sample Date:		Value	Value	Value	6/9/95	6/9/95	6/9/95	6/9/95	6/16/95	6/9/95	6/9/95
Semi-Volatiles	***Units***										
Acenaphthene	ug/L	1300	3800	3.8	6	<5	<5	<5	<5	<5	<5
Acenaphthylene	ug/L	26	75	(B)	<5	<5	<5	<5	<5	<5	<5
Anthracene	ug/L	7300	21,000	1.10E+05	<5	<5	<5	<5	<5	<5	<5
Benzo (a) Anthracene	ug/L	1.2	4.8 (F)	0.31	<5	<5	<5	<5	<5	<5	<5
Benzo (a) Pyrene	ug/L	0.2 (C)	0.2 (C)	0.31	<5	<5	<5	<5	<5	<5	<5
Benzo (b&k) Fluoranthene	ug/L	1.2	4.8(E)	0.31(E)	<5	<5	<5	<5	<5	<5	<5
Benzo (g,h,i) Perylene	ug/L	26	75	(B)	<5	<5	<5	<5	<5	<5	<5
Benzoic Acid	ug/L	32000	92000	(B)	<50					<50	<50
Benzyl Alcohol	ug/L	10000	29000	22	<50					<50	<50
Bis (2-Chloroethoxy) Methane	ug/L	NA	NA	NA	<5					<5	<5
Bis (2-Chloroethyl) Ether	ug/L	0.77	3.2	4.2	<5					<5	<5
Bis (2-chloroisopropyl) Ether	ug/L	NA	NA	NA	<5					<5	<5
Bis (2-ethylhexyl) phthalate	ug/L	6 (C)	6 (C)	59	<5					<5	<5
4-Bromophenyl Phenylether	ug/L	NA	NA	NA	<5					<5	<5
Butyl Benzyl Phthalate	ug/L	1200	3300	(B)	<5					<5	<5
4-Chloro-3-Methylphenol	ug/L	150	420	4.4	<5					<5	<5
4-Chloroaniline	ug/L	NA	NA	NA	<20					<20	<20
2-Chloronaphthalene	ug/L	NA	NA	NA	<5					<5	<5
2-Chlorophenol	ug/L	45	130	10	<5					<5	<5
4-Chlorophenyl Phenyl-Ether	ug/L	NA	NA	NA	<5					<5	<5
Chrysene	ug/L	120	480	0.31	<5	<5	<5	<5	<5	<5	<5
Di-n-Butylphthalate	ug/L	880	2500	12000	<5					<5	<5
Di-n-Octylphthalate	ug/L	130	380	(B)	<5					<5	<5
Dibenzo (a,h) Anthracene	ug/L	0.12	0.48	0.31	<5	<5	<5	<5	<5	<5	<5
Dibenzofuran	ug/L	ID	ID	(B)	<5					<5	<5
1,2-Dichlorobenzene	ug/L	600 (C)	600 (C)	7	<5					<5	<5
1,3-Dichlorobenzene	ug/L	600 (C)	600 (C)	180	<5					<5	<5
1,4-Dichlorobenzene	ug/L	75 (C)	75 (C)	15	<5					<5	<5
3,3'-Dichlorobenzidine	ug/L	1.9	7.7	0.063	<20					<20	<20
2,4-Dichlorophenol	ug/L	73	210	34 (D)	<5					<5	<5
Diethylphthalate	ug/L	5500	16000	1.20E+05	<5					<5	<5

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR SHALLOW GROUND WATER
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation

SWMU Number		Generic	Generic		2	1	20	20	20	BG	BG
Sample Identification		Residential Drinking	Industrial Drinking		DC-MW01 9502-01	DC-MW02 9502-02	DC-MW03 9502-03	DC-MW03 9502-03-DUP	DC-MW3-950 2-33	DC-MW04 9502-04	DC-MW05 9502-05
Lab Identification:		Water	Water	GSI	120228	120233	120231	120232	120995	120230	120229
Sample Date:		Value	Value	Value	6/9/95	6/9/95	6/9/95	6/9/95	6/16/95	6/9/95	6/9/95
Semi-Volatiles	*Units*										
Dimethylphthalate	ug/L	73000	2.1 E+5	2.90E+06	<5					<5	<5
2,4-Dimethylphenol	ug/L	370	1000	31	<5					<5	<5
4,6-Dinitro-2-Methylphenol	ug/L	NA	NA	NA	<20					<20	<20
2,4-Dinitrophenol	ug/L	NA	NA	NA	<20					<20	<20
2,4-Dinitrotoluene	ug/L	1.3	5.1	91	<5					<5	<5
2,6-Dinitrotoluene	ug/L	NA	NA	NA	<5					<5	<5
Fluoranthene	ug/L	880	2500	370	<5	<5	<5	<5	<5	<5	<5
Fluorene	ug/L	880	2500	14000	<5	<5	7	7	10	<5	<5
Hexachlorobenzene	ug/L	1 (C)	1 (C)	0.0019	<5					<5	<5
Hexachlorobutadiene	ug/L	11	45	500	<5					<5	<5
Hexachlorocyclopentadiene	ug/L	50 (C)	50 (C)	0.54	<5					<5	<5
Hexachloroethane	ug/L	61	250	13	<5					<5	<5
Indeno (1,2,3-cd) Pyrene	ug/L	1.2	4.8	0.31	<5	<5	<5	<5	<5	<5	<5
Isophorone	ug/L	900	3700	860	<5					<5	<5
2-Methylnaphthalene	ug/L	ID	ID	(B)	<5					<5	<5
2-Methylphenol	ug/L	370	1000	38	<5					<5	<5
4-Methylphenol	ug/L	37	100	6.2	<5					<5	<5
N-Nitrosodi-n-Propylamine	ug/L	0.12	0.5	(B)	<5					<5	<5
N-Nitroso-di-Phenylamine	ug/L	170	710	160	<5					<5	<5
Naphthalene	ug/L	260	750	29	8	<5	110	85	100	<5	<5
2-Nitroaniline	ug/L	NA	NA	NA	<20					<20	<20
3-Nitroaniline	ug/L	NA	NA	NA	<20					<20	<20
4-Nitroaniline	ug/L	NA	NA	NA	<20					<20	<20
Nitrobenzene	ug/L	3.4	9.6	1900	<5					<5	<5
2-Nitrophenol	ug/L	20	58	(B)	<5					<5	<5
4-Nitrophenol	ug/L	NA	NA	NA	<20					<20	<20
Pentachlorophenol	ug/L	1 (C)	1 (C)	.8 (D)	<20					<20	<20
Phenanthrene	ug/L	26	75	(B)	<5	<5	13	12	19	<5	<5
Phenol	ug/L	4400	13000	1100	<5					<5	<5
Pyrene	ug/L	550	1600	11000	<5	<5	<5	<5	5	<5	<5

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR SHALLOW GROUND WATER
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation

SWMU Number Sample Identification Lab Identification: Sample Date:		Generic Residential Drinking Water Value	Generic Industrial Drinking Water Value	GSI Value	2 DC-MW01 9502-01 120228 6/9/95	1 DC-MW02 9502-02 120233 6/9/95	20 DC-MW03 9502-03 120231 6/9/95	20 DC-MW03 9502-03-DUP 120232 6/9/95	20 DC-MW3-950 2-33 120995 6/16/95	BG DC-MW04 9502-04 120230 6/9/95	BG DC-MW05 9502-05 120229 6/9/95
Semi-Volatiles	*Units*										
1,2,4-Trichlorobenzene	ug/L	70 (C)	70 (C)	22	<5					<5	<5
2,4,5-Trichlorophenol	ug/L	730	2100	25	<50					<50	<50
2,4,6-Trichlorophenol	ug/L	77	320	27 (D)	<5					<5	<5
Pyridine	ug/L	7.3	21	20	<10					<10	<10
Volatiles	*Units*										
Benzene	ug/L	5 (C)	5 (C)	53	16	5.5	38	38		<1	<1
Ethylbenzene	ug/L	74 (A)	74 (A)	31	<1	<1	<1	<1		<1	<1
Toluene	ug/L	790 (A)	790 (A)	110	<1	<1	1.7	1.7		<1	<1
Xylene, Total	ug/L	280 (A)	280 (A)	59	<3	<3	6.5	6.2		<3	<3

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR SHALLOW GROUND WATER
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation

SWMU Number Sample Identification Lab Identification: Sample Date:		Generic Residential Drinking Water Value	Generic Industrial Drinking Water Value	GSI Value	DC-BG08 9502-11-EB 120234 6/7/95	DC-SSB2-7 9502-26-EB 120226 6/8/95	DC-SSB20-9052-30-EB 120227 6/8/95	TRIP BLANK 120224 6/13/95	TRIP BLANK 120225 6/13/95
Semi-Volatiles	***Units***								
Acenaphthene	ug/L	1300	3800	3.8	<5	<5	<5		
Acenaphthylene	ug/L	26	75	(B)	<5	<5	<5		
Anthracene	ug/L	7300	21,000	1.10E+05	<5	<5	<5		
Benzo (a) Anthracene	ug/L	1.2	4.8 (F)	0.31	<5	<5	<5		
Benzo (a) Pyrene	ug/L	0.2 (C)	0.2 (C)	0.31	<5	<5	<5		
Benzo (b&k) Fluoranthene	ug/L	1.2	4.8(E)	0.31(E)	<5	<5	<5		
Benzo (g,h,i) Perylene	ug/L	26	75	(B)	<5	<5	<5		
Benzoic Acid	ug/L	32000	92000	(B)		<50	<50		
Benzyl Alcohol	ug/L	10000	29000	22		<50	<50		
Bis (2-Chloroethoxy) Methane	ug/L	NA	NA	NA		<5	<5		
Bis (2-Chloroethyl) Ether	ug/L	0.77	3.2	4.2		<5	<5		
Bis (2-chloroisopropyl) Ether	ug/L	NA	NA	NA		<5	<5		
Bis (2-ethylhexyl) phthalate	ug/L	6 (C)	6 (C)	59		<5	<5		
4-Bromophenyl Phenylether	ug/L	NA	NA	NA		<5	<5		
Butyl Benzyl Phthalate	ug/L	1200	3300	(B)		<5	<5		
4-Chloro-3-Methylphenol	ug/L	150	420	4.4		<5	<5		
4-Chloroaniline	ug/L	NA	NA	NA		<20	<20		
2-Chloronaphthalene	ug/L	NA	NA	NA		<5	<5		
2-Chlorophenol	ug/L	45	130	10		<5	<5		
4-Chlorophenyl Phenyl-Ether	ug/L	NA	NA	NA		<5	<5		
Chrysene	ug/L	120	480	0.31	<5	<5	<5		
Di-n-Butylphthalate	ug/L	880	2500	12000		<5	<5		
Di-n-Octylphthalate	ug/L	130	380	(B)		<5	<5		
Dibenzo (a,h) Anthracene	ug/L	0.12	0.48	0.31	<5	<5	<5		
Dibenzofuran	ug/L	ID	ID	(B)		<5	<5		
1,2-Dichlorobenzene	ug/L	600 (C)	600 (C)	7		<5	<5		
1,3-Dichlorobenzene	ug/L	600 (C)	600 (C)	180		<5	<5		
1,4-Dichlorobenzene	ug/L	75 (C)	75 (C)	15		<5	<5		
3,3'-Dichlorobenzidine	ug/L	1.9	7.7	0.063		<20	<20		
2,4-Dichlorophenol	ug/L	73	210	34 (D)		<5	<5		
Diethylphthalate	ug/L	5500	16000	1.20E+05		<5	<5		

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR SHALLOW GROUND WATER
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation

SWMU Number Sample Identification Lab Identification: Sample Date:		Generic Residential Drinking Water Value	Generic Industrial Drinking Water Value	GSI Value	DC-BG08 9502-11-EB 120234 6/7/95	DC-SSB2-7 9502-26-EB 120226 6/8/95	DC-SSB20- 9052-30-EB 120227 6/8/95	TRIP BLANK 120224 6/13/95	TRIP BLANK 120225 6/13/95
Semi-Volatiles	***Units***								
Dimethylphthalate	ug/L	73000	2.1 E+5	2.90E+06		<5	<5		
2,4-Dimethylphenol	ug/L	370	1000	31		<5	<5		
4,6-Dinitro-2-Methylphenol	ug/L	NA	NA	NA		<20	<20		
2,4-Dinitrophenol	ug/L	NA	NA	NA		<20	<20		
2,4-Dinitrotoluene	ug/L	1.3	5.1	91		<5	<5		
2,6-Dinitrotoluene	ug/L	NA	NA	NA		<5	<5		
Fluoranthene	ug/L	880	2500	370	<5	<5	<5		
Fluorene	ug/L	880	2500	14000	<5	<5	<5		
Hexachlorobenzene	ug/L	1 (C)	1 (C)	0.0019		<5	<5		
Hexachlorobutadiene	ug/L	11	45	500		<5	<5		
Hexachlorocyclopentadiene	ug/L	50 (C)	50 (C)	0.54		<5	<5		
Hexachloroethane	ug/L	61	250	13		<5	<5		
Indeno (1,2,3-cd) Pyrene	ug/L	1.2	4.8	0.31	<5	<5	<5		
Isophorone	ug/L	900	3700	860		<5	<5		
2-Methylnaphthalene	ug/L	ID	ID	(B)		<5	<5		
2-Methylphenol	ug/L	370	1000	38		<5	<5		
4-Methylphenol	ug/L	37	100	6.2		<5	<5		
N-Nitrosodi-n-Propylamine	ug/L	0.12	0.5	(B)		<5	<5		
N-Nitroso-di-Phenylamine	ug/L	170	710	160		<5	<5		
Naphthalene	ug/L	260	750	29	<5	<5	<5		
2-Nitroaniline	ug/L	NA	NA	NA		<20	<20		
3-Nitroaniline	ug/L	NA	NA	NA		<20	<20		
4-Nitroaniline	ug/L	NA	NA	NA		<20	<20		
Nitrobenzene	ug/L	3.4	9.6	1900		<5	<5		
2-Nitrophenol	ug/L	20	58	(B)		<5	<5		
4-Nitrophenol	ug/L	NA	NA	NA		<20	<20		
Pentachlorophenol	ug/L	1 (C)	1 (C)	.8 (D)		<20	<20		
Phenanthrene	ug/L	26	75	(B)	<5	<5	<5		
Phenol	ug/L	4400	13000	1100	<5	<5	<5		
Pyrene	ug/L	550	1600	11000		<5	<5		

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR SHALLOW GROUND WATER
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation

SWMU Number Sample Identification Lab Identification: Sample Date:		Generic Residential Drinking Water Value	Generic Industrial Drinking Water Value	GSI Value	DC-BG08 9502-11-EB 120234 6/7/95	DC-SSB2-7 9502-26-EB 120226 6/8/95	DC-SSB20- 9052-30-EB 120227 6/8/95	TRIP BLANK 120224 6/13/95	TRIP BLANK 120225 6/13/95
Semi-Volatiles	*Units*								
1,2,4-Trichlorobenzene	ug/L	70 (C)	70 (C)	22		<5	<5		
2,4,5-Trichlorophenol	ug/L	730	2100	25		<50	<50		
2,4,6-Trichlorophenol	ug/L	77	320	27 (D)		<5	<5		
Pyridine	ug/L	7.3	21	20		<10	<10		
Volatiles	*Units*								
Benzene	ug/L	5 (C)	5 (C)	53		<1	<1	<1	<1
Ethylbenzene	ug/L	74 (A)	74 (A)	31		<1	<1	<1	<1
Toluene	ug/L	790 (A)	790 (A)	110		<1	1	<1	<1
Xylene, Total	ug/L	280 (A)	280 (A)	59		<3	<3	<3	<3

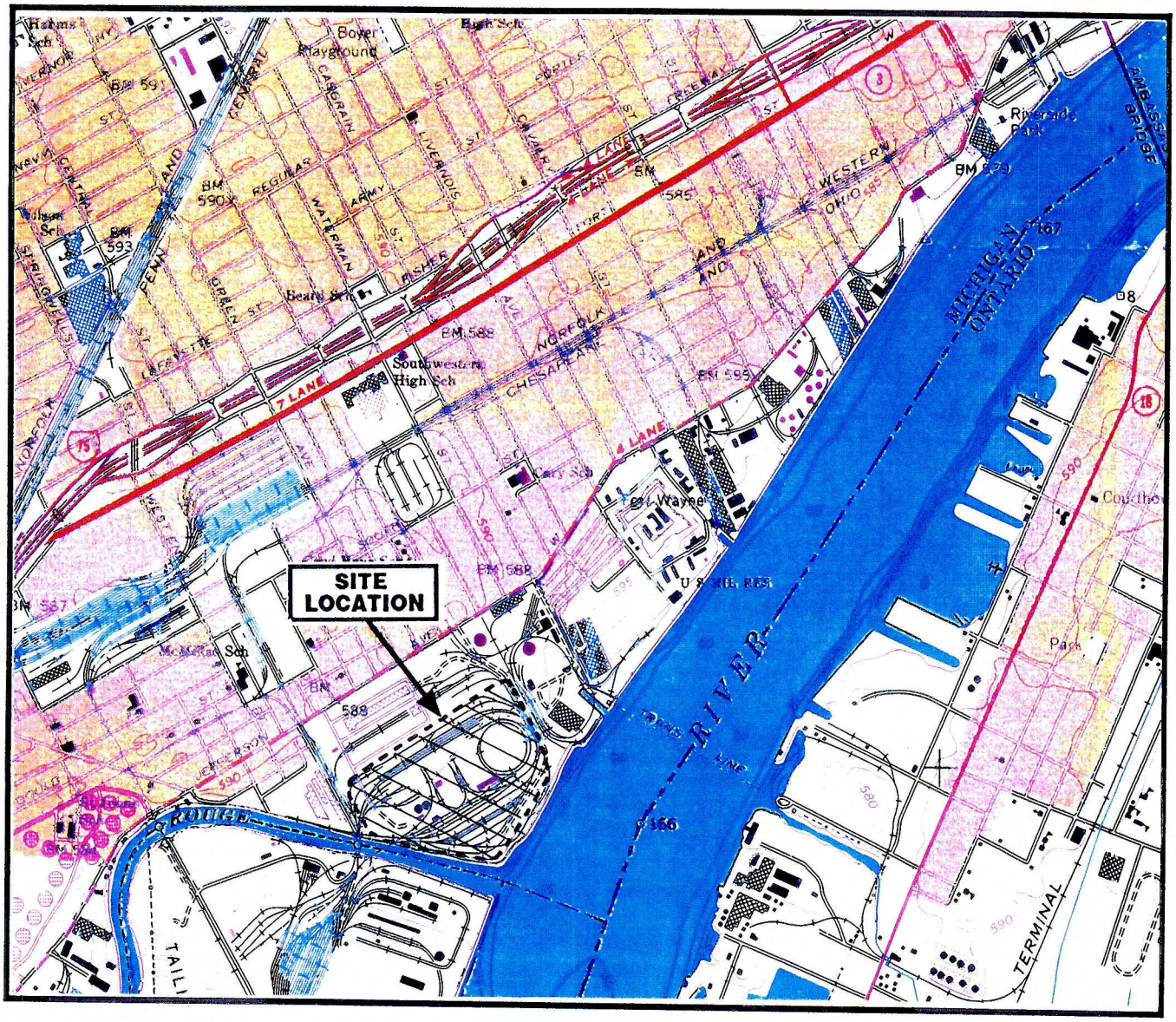
TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR SHALLOW GROUND WATER
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation

Notes:
- Applicable portions of PA 451 are currently being reviewed by the USEPA and are subject to approval.
- Generic Residential Health-Based Drinking Water Value Criteria from Public Act 451, Part 201, MERA Operational Memorandum #8 (revision 4), 6/5/95, MDNR.
- Generic Industrial Health-Based Drinking Water Value Criteria from Public Act 451, Part 201, MERA Operational Memorandum #14 (revision #2), 6/6/95, MDNR.
- GSI Value Criteria from Public Act 451, Part 201, MERA Operational Memorandum #14 (revision 2), 6/6/95, MDNR.
- Values presented in bold type-face are at or exceed the Generic Residential Drinking Water Value.
- Values presented in shaded boxes are at or exceed the Generic Industrial Drinking Water Value.
- Values presented outlined in bold are at or exceed the GSI Value.

Footnotes:
(A) Aesthetic Drinking Water Value must be applied when lower than the Health-Based Drinking Water Value.
(B) Chemical has either not been evaluated or an inadequate data base precludes the development of a GSI value.
(C) State of Michigan Drinking Water Standard established pursuant to Section 5 of the Safe Drinking Water Act , Act No. 399 of the Public Acts of 1976 used as the default.
(D) GSI value is pH, temperature, or water hardness dependent.
(E) Criteria represents that of Benzo(b)fluoranthene the more conservative value of Benzo(b)fluoranthene and Benzo(k)fluoranthene.
(F) Criteria for carcinogenic poly nuclear aromatic hydrocarbons (PAH's) were developed using "relative potential potencies" (RPP's) to benzo (a) pyrene.
NA MDNR Criteria for compound not available.
ID Inadequate data to develop criterion.

TABLE 5
SURVEY COORDINATES OF ON-SITE BENCHMARKS
RCRA Facility Investigation - Release Assessment
Detroit Coke Corporation
Detroit, Michigan

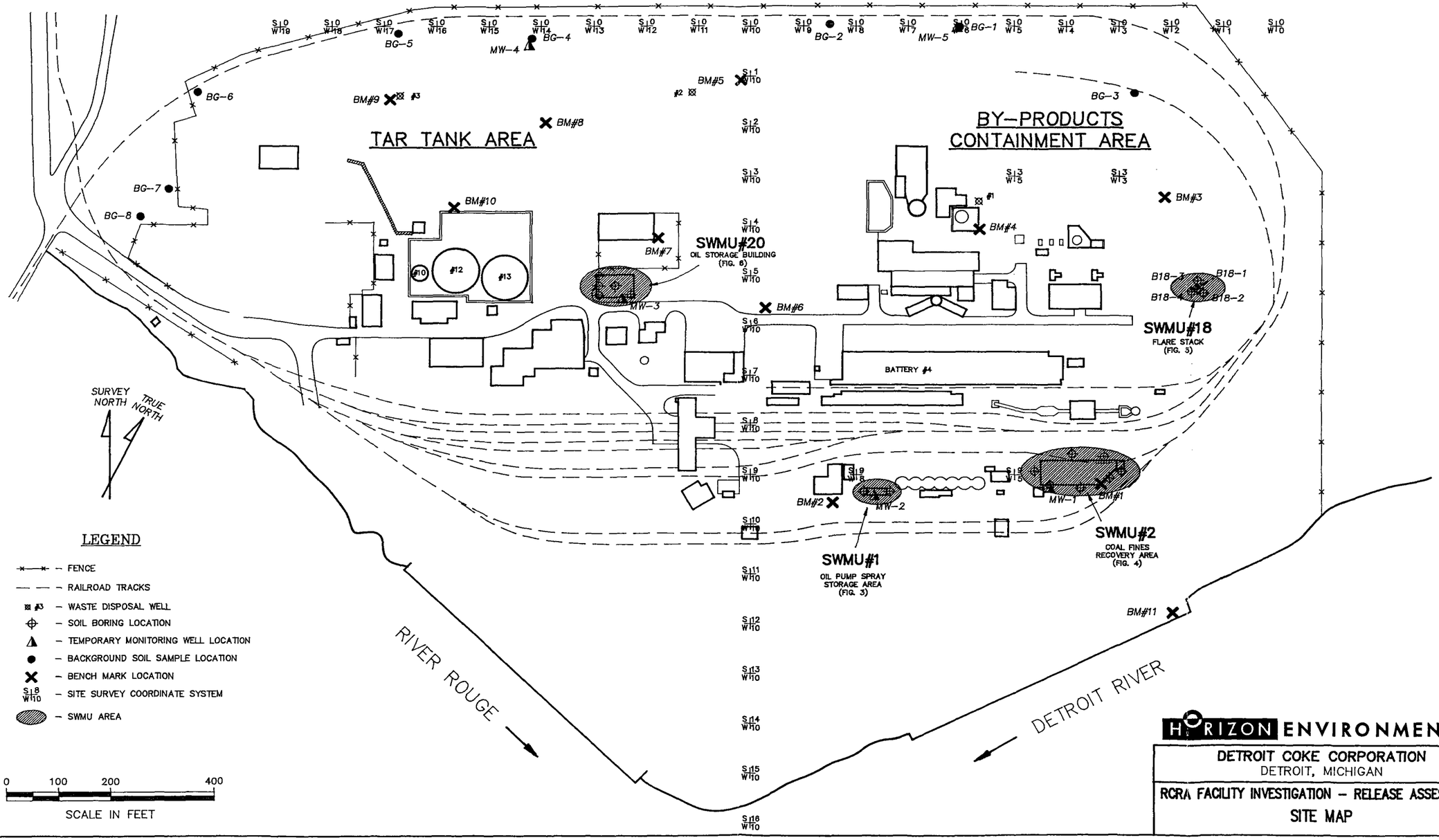
Bench Mark No.	Relative Elevation (ft)	Site Survey Coordinates		Location Description
		South (ft)	West (ft)	
BM - 1	105.78	926	336	Top of ramp wall SWMU #2, South wall near angle.
BM - 2	105.88	960	848	Power pole west of SWMU #1, West side of white trailer.
BM - 3	106.61	350	208	Power pole N & W of SWMU #18, newer pole along East/West power line.
BM - 4	107.47	412	566	# 1 waste disposal well, containment tank area, top of wall, Southeast corner.
BM - 5	111.77	82	770	Bumper post North & East of #2 disposal well, top of post.
BM - 6	106.73	570	972	Light pole South & East of yellow building near SWMU #20.
BM - 7	106.76	430	1180	Power pole between SWMU #20 & Battery #4 demolition.
BM - 8	108.99	194	1390	Top of yellow bumper post between tank farm & MW-4
BM - 9	108.28	148	1684	Northeast corner of shed pad for #3 waste disposal well.
BM - 10	106.09	368	1558	Power pole along North containment wall of tar tanks.
BM - 11	100.00	1192	200	Ferry tie, easternmost yellow post, river side of casing.



NORTH

HORIZON ENVIRONMENTAL

DETROIT COKE CORPORATION DETROIT, MICHIGAN	PROJECT NUMBER: DCC-0101
SITE LOCATION MAP	FIGURE: 1 SEPTEMBER, 1995



HORIZON ENVIRONMENTAL

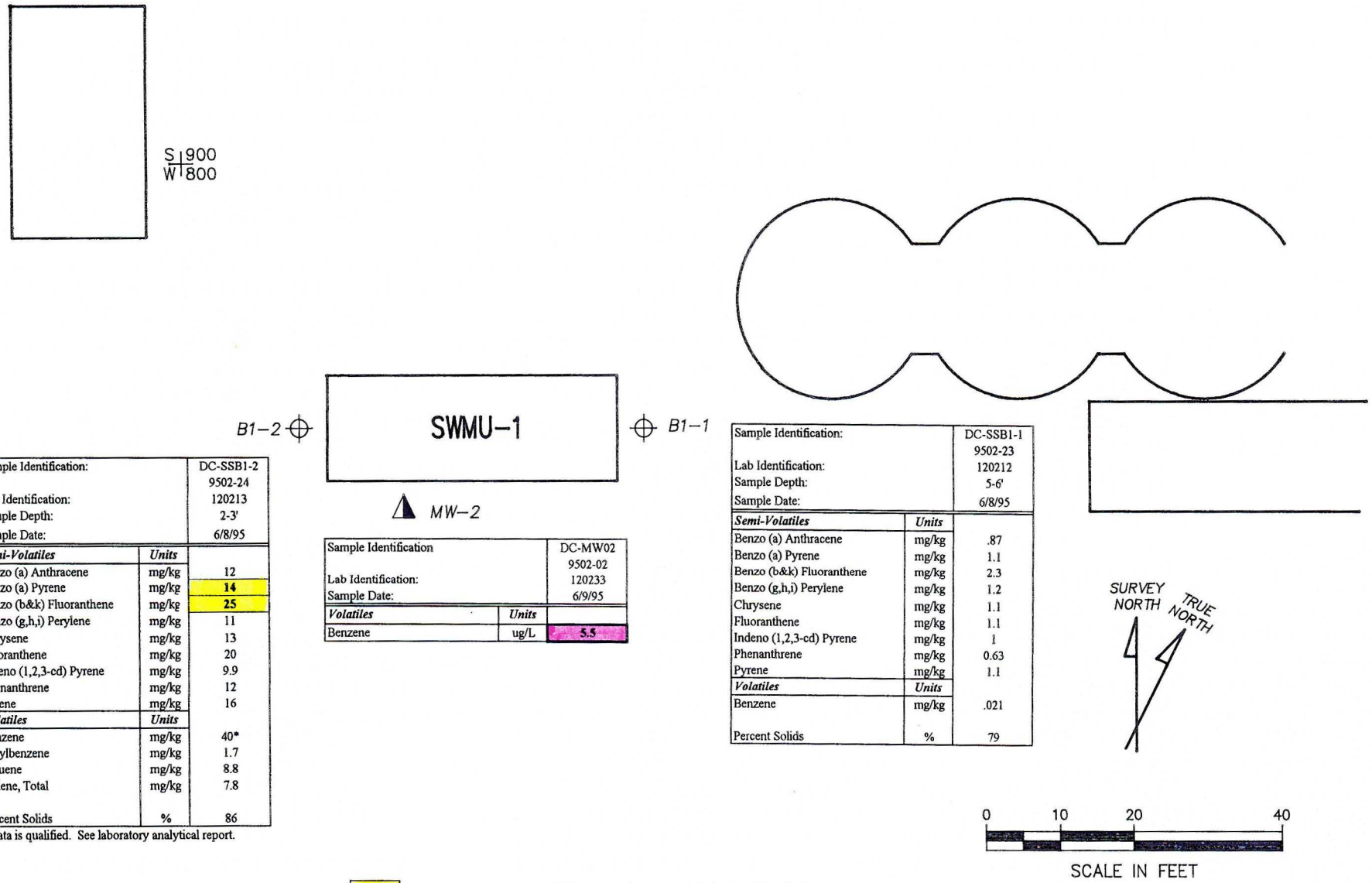
PROJECT NUMBER: DCC-0101

DETROIT COKE CORPORATION
DETROIT, MICHIGAN

RCRA FACILITY INVESTIGATION – RELEASE ASSESSMENT
SITE MAP

FIGURE: 2

SEPTEMBER, 1995



Sample Identification:		DC-SSB1-2
		9502-24
Lab Identification:		120213
Sample Depth:		2-3'
Sample Date:		6/8/95
Semi-Volatiles	***Units***	
Benzo (a) Anthracene	mg/kg	12
Benzo (a) Pyrene	mg/kg	**14**
Benzo (b&k) Fluoranthene	mg/kg	**25**
Benzo (g,h,i) Perylene	mg/kg	11
Chrysene	mg/kg	13
Fluoranthene	mg/kg	20
Indeno (1,2,3-cd) Pyrene	mg/kg	9.9
Phenanthrene	mg/kg	12
Pyrene	mg/kg	16
Volatiles	***Units***	
Benzene	mg/kg	40*
Ethylbenzene	mg/kg	1.7
Toluene	mg/kg	8.8
Xylene, Total	mg/kg	7.8
Percent Solids	%	86

*Data is qualified. See laboratory analytical report.

Sample Identification		DC-MW02
		9502-02
Lab Identification:		120233
Sample Date:		6/9/95
Volatiles	***Units***	
Benzene	ug/L	**5.5**

Sample Identification:		DC-SSB1-1
		9502-23
Lab Identification:		120212
Sample Depth:		5-6'
Sample Date:		6/8/95
Semi-Volatiles	***Units***	
Benzo (a) Anthracene	mg/kg	.87
Benzo (a) Pyrene	mg/kg	1.1
Benzo (b&k) Fluoranthene	mg/kg	2.3
Benzo (g,h,i) Perylene	mg/kg	1.2
Chrysene	mg/kg	1.1
Fluoranthene	mg/kg	1.1
Indeno (1,2,3-cd) Pyrene	mg/kg	1
Phenanthrene	mg/kg	0.63
Pyrene	mg/kg	1.1
Volatiles	***Units***	
Benzene	mg/kg	.021
Percent Solids	%	79

LEGEND

⊕ – SOIL BORING LOCATION

◭ – MONITORING WELL LOCATION

1.0 Soil analytical data which exceeds the Generic Residential Direct Contact value.

1.0 Ground water analytical data which exceeds the Generic Residential Drinking Water value.

1.0 Analytical data which exceeds the Generic Industrial Direct Contact value (soil sample) or Generic Industrial Drinking Water value (ground water sample).

1.0 Analytical data which exceeds the GSI value (ground water sample) or Background value (soil sample).

HORIZON ENVIRONMENTAL

PROJECT NUMBER: DCC–0101

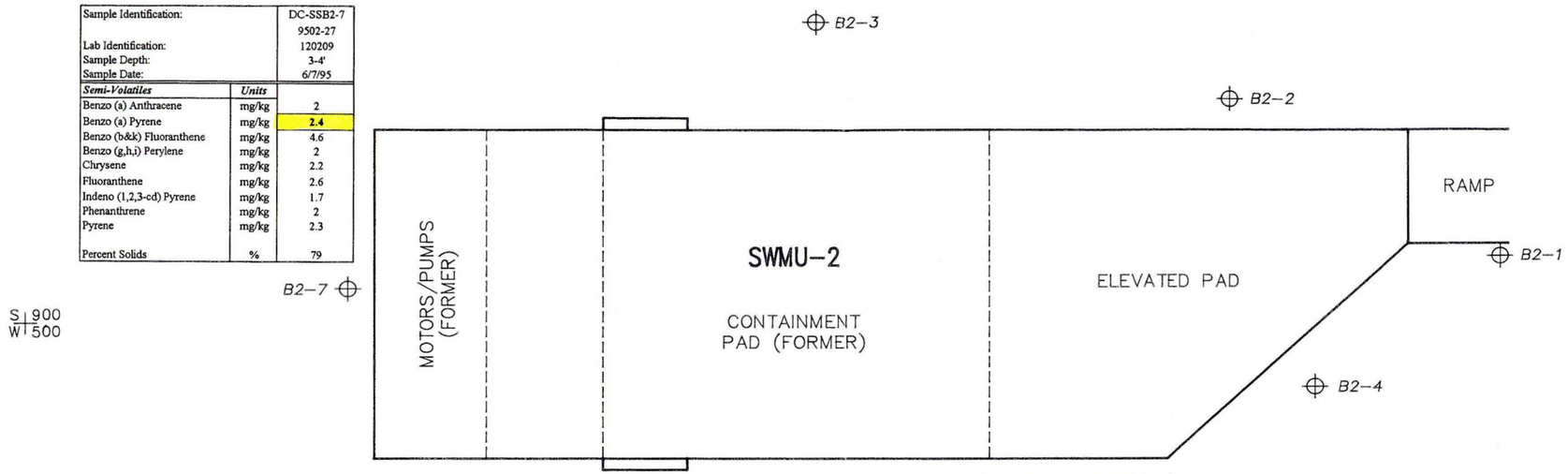
DETROIT COKE CORPORATION
DETROIT, MICHIGAN

RCRA FACILITY INVESTIGATION – RELEASE ASSESSMENT
SWMU #1 (OIL PUMP STORAGE AREA)

FIGURE: 3

SEPTEMBER, 1995

Sample Identification:		DC-SSB2-7
		9502-27
Lab Identification:		120209
Sample Depth:		3-4'
Sample Date:		6/7/95
Semi-Volatiles	***Units***	
Benzo (a) Anthracene	mg/kg	2
Benzo (a) Pyrene	mg/kg	**2.4**
Benzo (b&k) Fluoranthene	mg/kg	4.6
Benzo (g,h,i) Perylene	mg/kg	2
Chrysene	mg/kg	2.2
Fluoranthene	mg/kg	2.6
Indeno (1,2,3-cd) Pyrene	mg/kg	1.7
Phenanthrene	mg/kg	2
Pyrene	mg/kg	2.3
Percent Solids	%	79

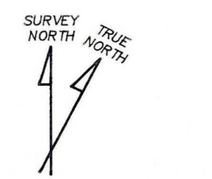


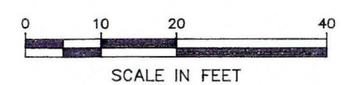
Sample Identification:		DC-SSB2-1
		9502-20
Lab Identification:		120205
Sample Depth:		3-4'
Sample Date:		6/8/95
Semi-Volatiles	***Units***	
Benzo (a) Anthracene	mg/kg	9.1
Benzo (a) Pyrene	mg/kg	**16**
Benzo (b&k) Fluoranthene	mg/kg	**24**
Benzo (g,h,i) Perylene	mg/kg	15
Chrysene	mg/kg	10
Fluoranthene	mg/kg	10
Indeno (1,2,3-cd) Pyrene	mg/kg	12
Phenanthrene	mg/kg	5.4
Pyrene	mg/kg	10
Volatiles	***Units***	
Benzene	mg/kg	3.3
Ethylbenzene	mg/kg	1.3
Toluene	mg/kg	5.3
Xylene, Total	mg/kg	6.1
Percent Solids	%	84

Sample Identification		DC-MW01
		9502-01
Lab Identification:		120228
Sample Date:		6/9/95
Semi-Volatiles	***Units***	
Acenaphthene	ug/L	6
Naphthalene	ug/L	8
Volatiles	***Units***	
Benzene	ug/L	**16**

Sample Identification:		DC-22B2-6
		9502-15
Lab Identification:		120208
Sample Depth:		2-3'
Sample Date:		6/7/95
Semi-Volatiles	***Units***	
Anthracene	mg/kg	1.3
Benzo (a) Anthracene	mg/kg	2.8
Benzo (a) Pyrene	mg/kg	**3.6**
Benzo (b&k) Fluoranthene	mg/kg	6.7
Benzo (g,h,i) Perylene	mg/kg	3.2
Chrysene	mg/kg	3.5
Dibenzofuran	mg/kg	0.82
Fluoranthene	mg/kg	4.7
Indeno (1,2,3-cd) Pyrene	mg/kg	2.8
2-Methylnaphthalene	mg/kg	0.69
Naphthalene	mg/kg	2.5
Phenanthrene	mg/kg	4.4
Pyrene	mg/kg	4.6
Percent Solids	%	91

Sample Identification:		DC-SSB2-5
		9502-14
Lab Identification:		120207
Sample Depth:		2-3'
Sample Date:		6/7/95
Semi-Volatiles	***Units***	
Anthracene	mg/kg	68
Benzo (a) Anthracene	mg/kg	**83**
Benzo (a) Pyrene	mg/kg	**56**
Benzo (b&k) Fluoranthene	mg/kg	**130**
Benzo (g,h,i) Perylene	mg/kg	**36**
Chrysene	mg/kg	**75**
Fluoranthene	mg/kg	**170**
Fluorene	mg/kg	43
Naphthalene	mg/kg	51
Phenanthrene	mg/kg	**220**
Pyrene	mg/kg	**140**
Percent Solids	%	85





LEGEND

⊕ – SOIL BORING LOCATION

▲ – MONITORING WELL LOCATION

1.0 Soil analytical data which exceeds the Generic Residential Direct Contact value.

1.0 Ground water analytical data which exceeds the Generic Residential Drinking Water value.

1.0 Analytical data which exceeds the Generic Industrial Direct Contact value (soil sample) or Generic Industrial Drinking Water value (ground water sample).

1.0 Analytical data which exceeds the GSI value (ground water sample) or Background value (soil sample).

HORIZON ENVIRONMENTAL

PROJECT NUMBER: DCC-0101

DETROIT COKE CORPORATION
DETROIT, MICHIGAN

RCRA FACILITY INVESTIGATION – RELEASE ASSESSMENT
SWMU #2 (COAL FINES RECOVERY AREA)

FIGURE: 4

SEPTEMBER, 1995

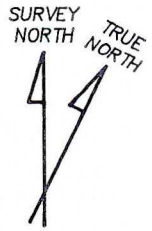
S 500
W 300

1.0 Soil analytical data which exceeds the Generic Residential Direct Contact value.

1.0 Ground water analytical data which exceeds the Generic Residential Drinking Water value.

1.0 Analytical data which exceeds the Generic Industrial Direct Contact value (soil sample) or Generic Industrial Drinking Water value (ground water sample).

1.0 Analytical data which exceeds the GSI value (ground water sample) or Background value (soil sample).



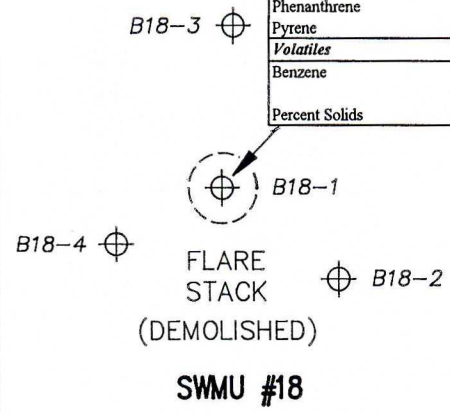
LEGEND

⊕ – SOIL BORING LOCATION

SCALE IN FEET

Sample Identification:		DC-SSB18-1
		9502-16
Lab Identification:		120210
Sample Depth:		2-3'
Sample Date:		6/7/95
Semi-Volatiles	***Units***	
Benzo (a) Anthracene	mg/kg	3.7
Benzo (a) Pyrene	mg/kg	**4.5**
Benzo (b&k) Fluoranthene	mg/kg	8.8
Chrysene	mg/kg	5.7
Fluoranthene	mg/kg	6.9
2-Methylnaphthalene	mg/kg	4.2
Naphthalene	mg/kg	51
Phenanthrene	mg/kg	3.8
Pyrene	mg/kg	5.7
Volatiles	***Units***	
Benzene	mg/kg	.056
Percent Solids	%	85

Sample Identification:		DC-SSB18-4
		9502-29
Lab Identification:		120211
Sample Depth:		2-3'
Sample Date:		6/8/95
Semi-Volatiles	***Units***	
Benzo (b&k) Fluoranthene	mg/kg	4.2
Fluoranthene	mg/kg	4.8
2-Methylnaphthalene	mg/kg	4.6
Naphthalene	mg/kg	45
Phenanthrene	mg/kg	4.5
Volatiles	***Units***	
Benzene	mg/kg	.14
Toluene	mg/kg	.056
Xylene, Total	mg/kg	.23
Percent Solids	%	94



HORIZON ENVIRONMENTAL

PROJECT NUMBER: DCC–0101

DETROIT COKE CORPORATION
DETROIT, MICHIGAN

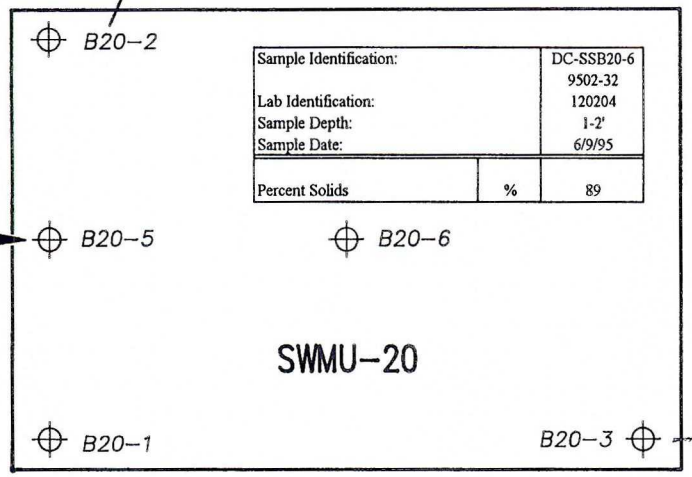
RCRA FACILITY INVESTIGATION – RELEASE ASSESSMENT
SWMU #18 (FLARE STACK)

FIGURE: 5

SEPTEMBER, 1995

Sample Identification:		DC-SSB20-2
		9502-19
Lab Identification:		120202
Sample Depth:		1-2'
Sample Date:		6/7/95
Volatiles	***Units***	
Toluene	mg/kg	.012
Percent Solids	%	90

Sample Identification:		DC-SSB20-5
		9502-31
Lab Identification:		120203
Sample Depth:		1-2'
Sample Date:		6/9/95
Semi-Volatiles	***Units***	
Anthracene	mg/kg	4.7
Benzo (a) Anthracene	mg/kg	6.9
Benzo (a) Pyrene	mg/kg	**5.6**
Benzo (b&k) Fluoranthene	mg/kg	**14**
Benzo (g,h,i) Perylene	mg/kg	3.5
Chrysene	mg/kg	8.3
Fluoranthene	mg/kg	12
Phenanthrene	mg/kg	8.2
Pyrene	mg/kg	8.8
Volatiles	***Units***	
Toluene	mg/kg	.017
Percent Solids	%	88



Sample Identification:		DC-SSB20-6
		9502-32
Lab Identification:		120204
Sample Depth:		1-2'
Sample Date:		6/9/95
Percent Solids	%	89

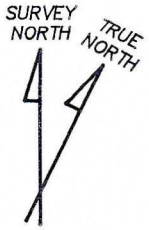
S 500
W 1200

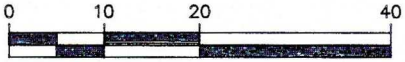
Sample Identification:		DC-SSB20-3
		9502-30
Lab Identification:		120200
Sample Depth:		DUP-2-3'
Sample Date:		6/8/95
Semi-Volatiles	***Units***	
Anthracene	mg/kg	19
Benzo (a) Anthracene	mg/kg	**23**
Benzo (a) Pyrene	mg/kg	**16**
Benzo (b&k) Fluoranthene	mg/kg	**29**
Benzo (g,h,i) Perylene	mg/kg	9.1
Chrysene	mg/kg	27
Dibenzofuran	mg/kg	8.6
Fluoranthene	mg/kg	55
Fluorene	mg/kg	19
Indeno (1,2,3-cd) Pyrene	mg/kg	8.8
Naphthalene	mg/kg	10
Phenanthrene	mg/kg	**72**
Pyrene	mg/kg	40
Percent Solids	%	82

Sample Identification:		DC-SSB20-1
		9502-18
Lab Identification:		120201
Sample Depth:		1-2'
Sample Date:		6/7/95
Volatiles	***Units***	
Benzene	mg/kg	**.013**
Ethylbenzene	mg/kg	**.019**
Toluene	mg/kg	**.029**
Xylene, Total	mg/kg	**.39**
Percent Solids	%	**88**

MW–3

Sample Identification		DC-MW03
		9502-03-DUP
Lab Identification:		120232
Sample Date:		6/9/95
Semi-Volatiles	***Units***	
Fluorene	ug/L	7
Naphthalene	ug/L	**85**
Phenanthrene	ug/L	12
Volatiles	***Units***	
Benzene	ug/L	**38**
Toluene	ug/L	1.7
Xylene, Total	ug/L	6.2





SCALE IN FEET

LEGEND

⊕ – SOIL BORING LOCATION

◮ – MONITORING WELL LOCATION

1.0 Soil analytical data which exceeds the Generic Residential Direct Contact value.

1.0 Ground water analytical data which exceeds the Generic Residential Drinking Water value.

1.0 Analytical data which exceeds the Generic Industrial Direct Contact value (soil sample) or Generic Industrial Drinking Water value (ground water sample).

1.0 Analytical data which exceeds the GSI value (ground water sample) or Background value (soil sample).

HORIZON ENVIRONMENTAL

PROJECT NUMBER: DCC–0101

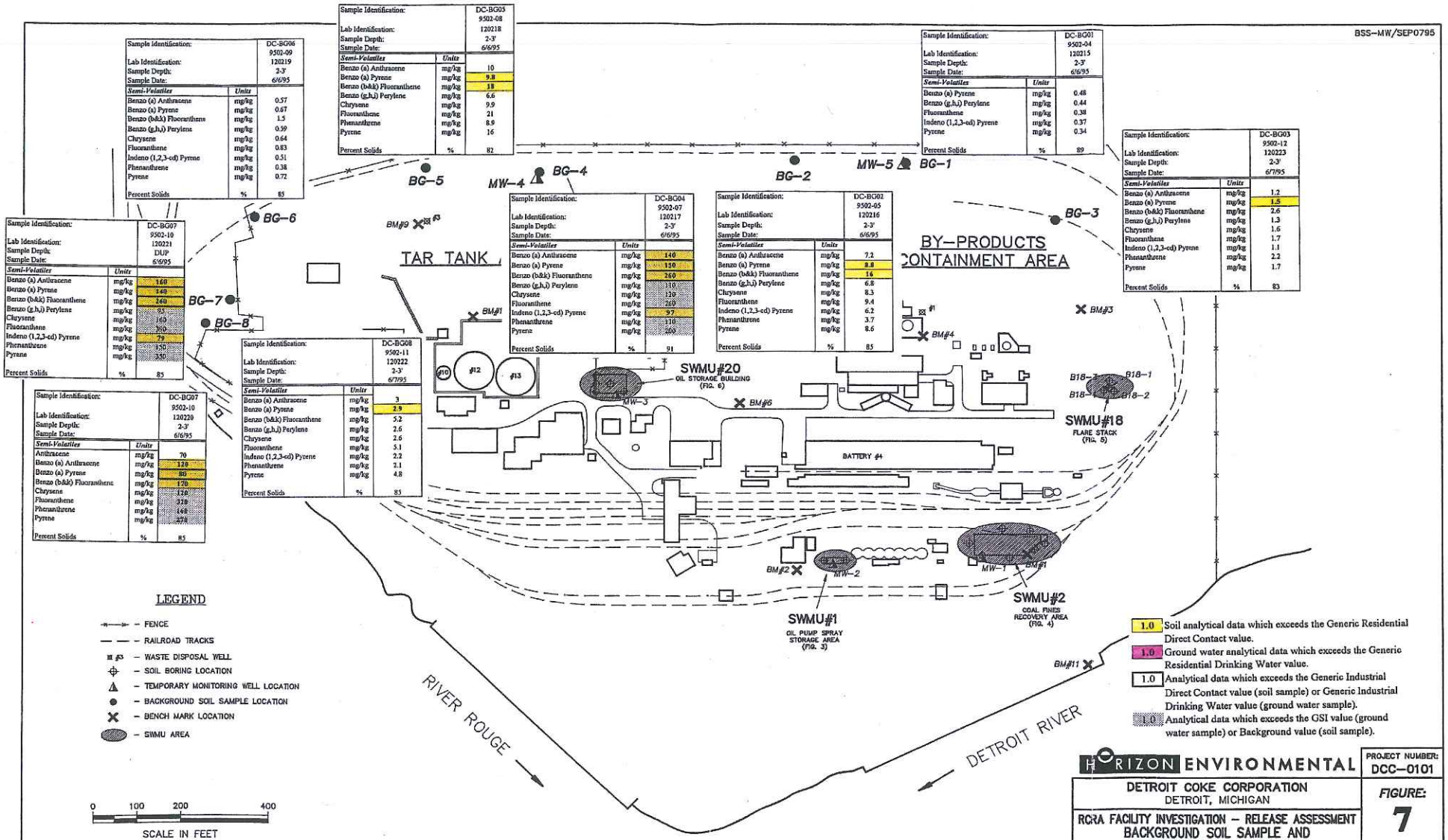
DETROIT COKE CORPORATION
DETROIT, MICHIGAN

RCRA FACILITY INVESTIGATION – RELEASE ASSESSMENT
SWMU #20 (OIL STORAGE BUILDING)

FIGURE: 6

SEPTEMBER, 1995

BSS-MW/SEP0795



Sample Identification:		DC-BG05
Lab Identification:		9502-08 120218
Sample Depth:		2-3'
Sample Date:		6/6/95
Semi-Volatiles	*Units*	
Benzo (a) Anthracene	mg/kg	10
Benzo (a) Pyrene	mg/kg	9.8
Benzo (b&k) Fluoranthene	mg/kg	18
Benzo (g,h,i) Perylene	mg/kg	6.6
Chrysene	mg/kg	9.9
Fluoranthene	mg/kg	21
Phenanthrene	mg/kg	8.9
Pyrene	mg/kg	16
Percent Solids	%	82

Sample Identification:		DC-BG06
Lab Identification:		9502-09 120219
Sample Depth:		2-3'
Sample Date:		6/6/95
Semi-Volatiles	*Units*	
Benzo (a) Anthracene	mg/kg	0.57
Benzo (a) Pyrene	mg/kg	0.67
Benzo (b&k) Fluoranthene	mg/kg	1.5
Benzo (g,h,i) Perylene	mg/kg	0.59
Chrysene	mg/kg	0.64
Fluoranthene	mg/kg	0.83
Indeno (1,2,3-cd) Pyrene	mg/kg	0.51
Phenanthrene	mg/kg	0.38
Pyrene	mg/kg	0.72
Percent Solids	%	85

Sample Identification:		DC-BG07
Lab Identification:		9502-10 120221
Sample Depth:		DUP
Sample Date:		6/6/95
Semi-Volatiles	*Units*	
Benzo (a) Anthracene	mg/kg	160
Benzo (a) Pyrene	mg/kg	140
Benzo (b&k) Fluoranthene	mg/kg	260
Benzo (g,h,i) Perylene	mg/kg	93
Chrysene	mg/kg	160
Fluoranthene	mg/kg	350
Indeno (1,2,3-cd) Pyrene	mg/kg	79
Phenanthrene	mg/kg	150
Pyrene	mg/kg	330
Percent Solids	%	85

Sample Identification:		DC-BG07
Lab Identification:		9502-10 120220
Sample Depth:		2-3'
Sample Date:		6/6/95
Semi-Volatiles	*Units*	
Anthracene	mg/kg	70
Benzo (a) Anthracene	mg/kg	120
Benzo (a) Pyrene	mg/kg	80
Benzo (b&k) Fluoranthene	mg/kg	170
Chrysene	mg/kg	130
Fluoranthene	mg/kg	320
Phenanthrene	mg/kg	160
Pyrene	mg/kg	270
Percent Solids	%	85

Sample Identification:		DC-BG08
Lab Identification:		9502-11 120222
Sample Depth:		2-3'
Sample Date:		6/7/95
Semi-Volatiles	*Units*	
Benzo (a) Anthracene	mg/kg	3
Benzo (a) Pyrene	mg/kg	2.9
Benzo (b&k) Fluoranthene	mg/kg	5.2
Benzo (g,h,i) Perylene	mg/kg	2.6
Chrysene	mg/kg	2.6
Fluoranthene	mg/kg	5.1
Indeno (1,2,3-cd) Pyrene	mg/kg	2.2
Phenanthrene	mg/kg	2.1
Pyrene	mg/kg	4.8
Percent Solids	%	85

Sample Identification:		DC-BG04
Lab Identification:		9502-07 120217
Sample Depth:		2-3'
Sample Date:		6/6/95
Semi-Volatiles	*Units*	
Benzo (a) Anthracene	mg/kg	140
Benzo (a) Pyrene	mg/kg	150
Benzo (b&k) Fluoranthene	mg/kg	260
Benzo (g,h,i) Perylene	mg/kg	110
Chrysene	mg/kg	120
Fluoranthene	mg/kg	260
Indeno (1,2,3-cd) Pyrene	mg/kg	97
Phenanthrene	mg/kg	110
Pyrene	mg/kg	200
Percent Solids	%	91

Sample Identification:		DC-BG02
Lab Identification:		9502-05 120216
Sample Depth:		2-3'
Sample Date:		6/6/95
Semi-Volatiles	*Units*	
Benzo (a) Anthracene	mg/kg	7.2
Benzo (a) Pyrene	mg/kg	8.8
Benzo (b&k) Fluoranthene	mg/kg	16
Benzo (g,h,i) Perylene	mg/kg	6.8
Chrysene	mg/kg	8.3
Fluoranthene	mg/kg	9.4
Indeno (1,2,3-cd) Pyrene	mg/kg	6.2
Phenanthrene	mg/kg	3.7
Pyrene	mg/kg	8.6
Percent Solids	%	85

Sample Identification:		DC-BG01
Lab Identification:		9502-04 120215
Sample Depth:		2-3'
Sample Date:		6/6/95
Semi-Volatiles	*Units*	
Benzo (a) Pyrene	mg/kg	0.48
Benzo (g,h,i) Perylene	mg/kg	0.44
Fluoranthene	mg/kg	0.38
Indeno (1,2,3-cd) Pyrene	mg/kg	0.37
Pyrene	mg/kg	0.34
Percent Solids	%	89

Sample Identification:		DC-BG03
Lab Identification:		9502-12 120223
Sample Depth:		2-3'
Sample Date:		6/7/95
Semi-Volatiles	*Units*	
Benzo (a) Anthracene	mg/kg	1.2
Benzo (a) Pyrene	mg/kg	1.5
Benzo (b&k) Fluoranthene	mg/kg	2.6
Benzo (g,h,i) Perylene	mg/kg	1.3
Chrysene	mg/kg	1.6
Fluoranthene	mg/kg	1.7
Indeno (1,2,3-cd) Pyrene	mg/kg	1.1
Phenanthrene	mg/kg	2.2
Pyrene	mg/kg	1.7
Percent Solids	%	83

HORIZON ENVIRONMENTAL

PROJECT NUMBER: DCC-0101

DETROIT COKE CORPORATION
DETROIT, MICHIGAN

RCRA FACILITY INVESTIGATION – RELEASE ASSESSMENT
BACKGROUND SOIL SAMPLE AND MONITORING WELL LOCATIONS

FIGURE: 7

SEPTEMBER, 1995

SGW–AR/SEP0895

1.0 Soil analytical data which exceeds the Generic Residential Direct Contact value.

1.0 Ground water analytical data which exceeds the Generic Residential Drinking Water value.

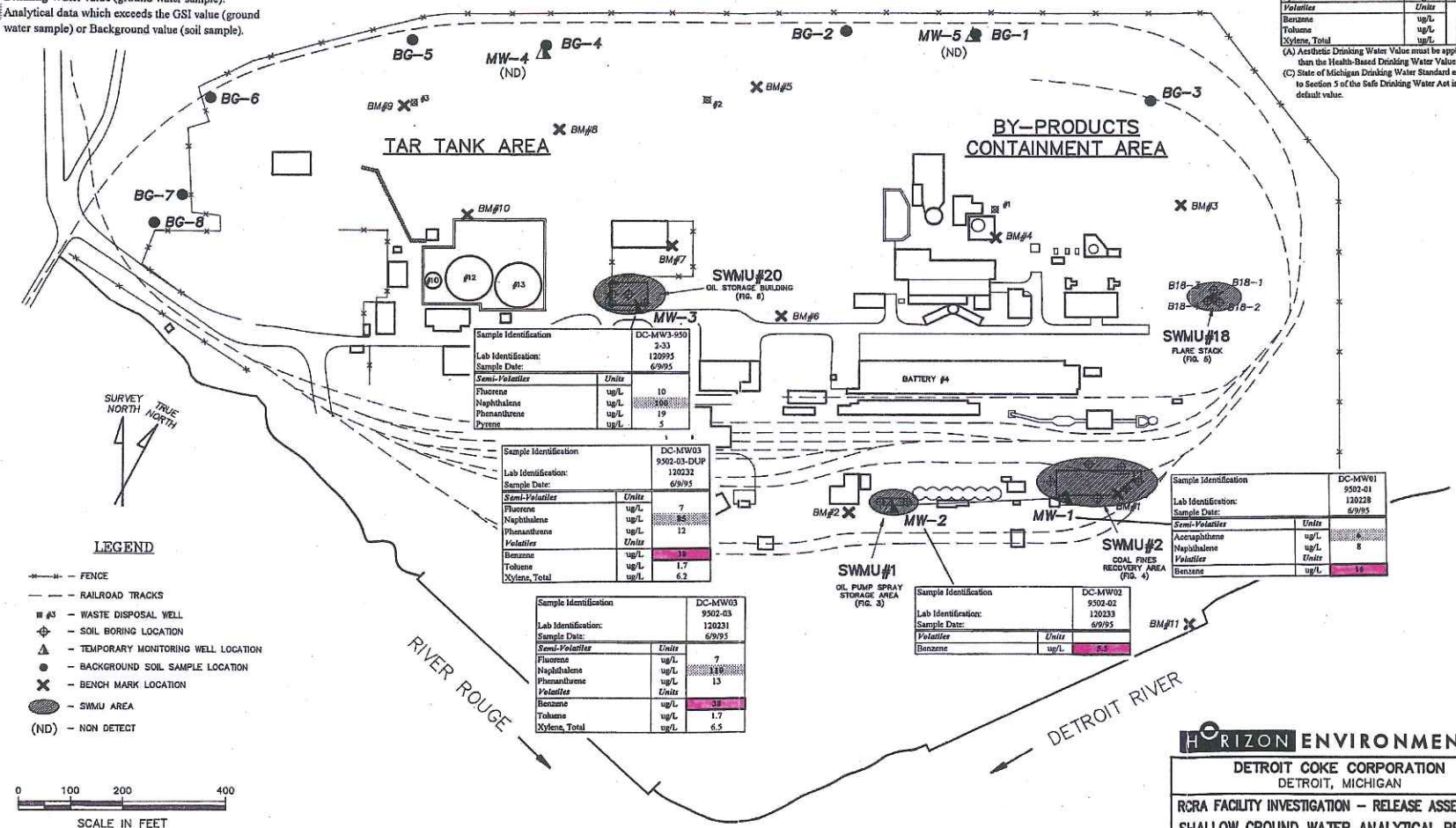
1.0 Analytical data which exceeds the Generic Industrial Direct Contact value (soil sample) or Generic Industrial Drinking Water value (ground water sample).

1.0 Analytical data which exceeds the GSI value (ground water sample) or Background value (soil sample).

Sample Identification Lab Identification: Sample Date:		Residential Drinking Water Value	Industrial Drinking Water Value	GSI Value
Semi-Volatiles	*Units*			
Acenaphthene	ug/L	1300	3800	3.8
Fluorene	ug/L	880	2500	14000
Naphthalene	ug/L	260	750	29
Pyrene	ug/L	550	1600	11000
Volatiles	*Units*			
Benzene	ug/L	5 (C)	5 (C)	53
Toluene	ug/L	790 (A)	790 (A)	110
Xylene, Total	ug/L	280 (A)	280 (A)	59

(A) Aesthetic Drinking Water Value must be applied when lower than the Health-Based Drinking Water Value.

(C) State of Michigan Drinking Water Standard established pursuant to Section 5 of the Safe Drinking Water Act is used as the default value.



Sample Identification Lab Identification: Sample Date:		DC-MW3-950 2-33 120995 6/9/95
Semi-Volatiles	*Units*	
Fluorene	ug/L	10
Naphthalene	ug/L	100
Phenanthrene	ug/L	19
Pyrene	ug/L	5

Sample Identification Lab Identification: Sample Date:		DC-MW03 9502-03-DUP 120232 6/9/95
Semi-Volatiles	*Units*	
Fluorene	ug/L	7
Naphthalene	ug/L	85
Phenanthrene	ug/L	12
Volatiles	*Units*	
Benzene	ug/L	18
Toluene	ug/L	1.7
Xylene, Total	ug/L	6.2

Sample Identification Lab Identification: Sample Date:		DC-MW03 9502-03 120231 6/9/95
Semi-Volatiles	*Units*	
Fluorene	ug/L	7
Naphthalene	ug/L	110
Phenanthrene	ug/L	13
Volatiles	*Units*	
Benzene	ug/L	32
Toluene	ug/L	1.7
Xylene, Total	ug/L	6.5

Sample Identification Lab Identification: Sample Date:		DC-MW02 9502-02 120233 6/9/95
Volatiles	*Units*	
Benzene	ug/L	5.5

Sample Identification Lab Identification: Sample Date:		DC-MW01 9502-01 120228 6/9/95
Semi-Volatiles	*Units*	
Acenaphthene	ug/L	6
Naphthalene	ug/L	8
Volatiles	*Units*	
Benzene	ug/L	14

LEGEND

- FENCE
- RAILROAD TRACKS
- #3 – WASTE DISPOSAL WELL
- SOIL BORING LOCATION
- TEMPORARY MONITORING WELL LOCATION
- BACKGROUND SOIL SAMPLE LOCATION
- BENCH MARK LOCATION
- SWMU AREA
- (ND) – NON DETECT

0 100 200 400

SCALE IN FEET

HORIZON ENVIRONMENTAL

DETROIT COKE CORPORATION
DETROIT, MICHIGAN

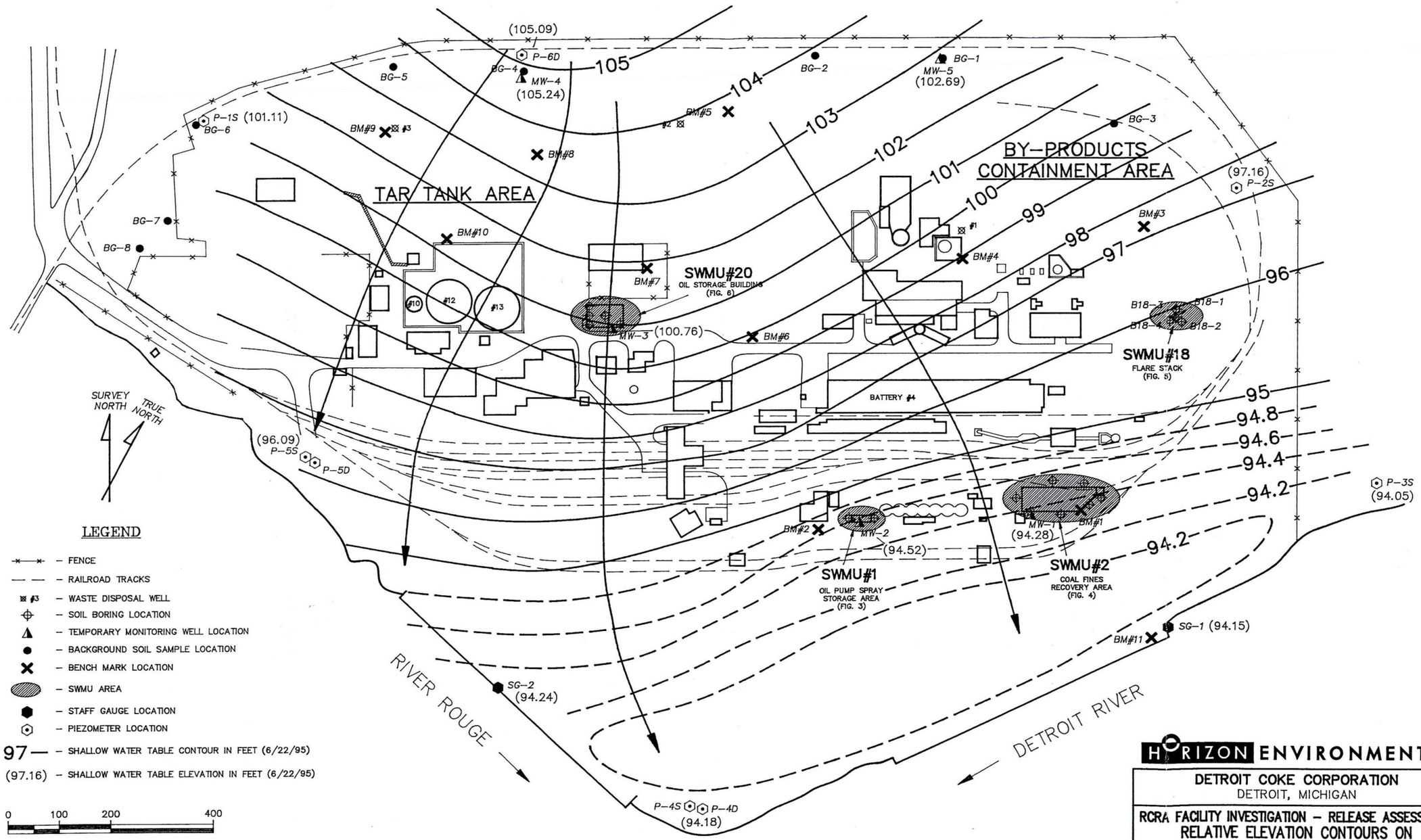
RCRA FACILITY INVESTIGATION – RELEASE ASSESSMENT
SHALLOW GROUND WATER ANALYTICAL RESULTS

PROJECT NUMBER: DCC–0101

FIGURE: 7A

SEPTEMBER, 1995

GW-JUN95/SEP0795



HORIZON ENVIRONMENTAL

PROJECT NUMBER: DCC-0101

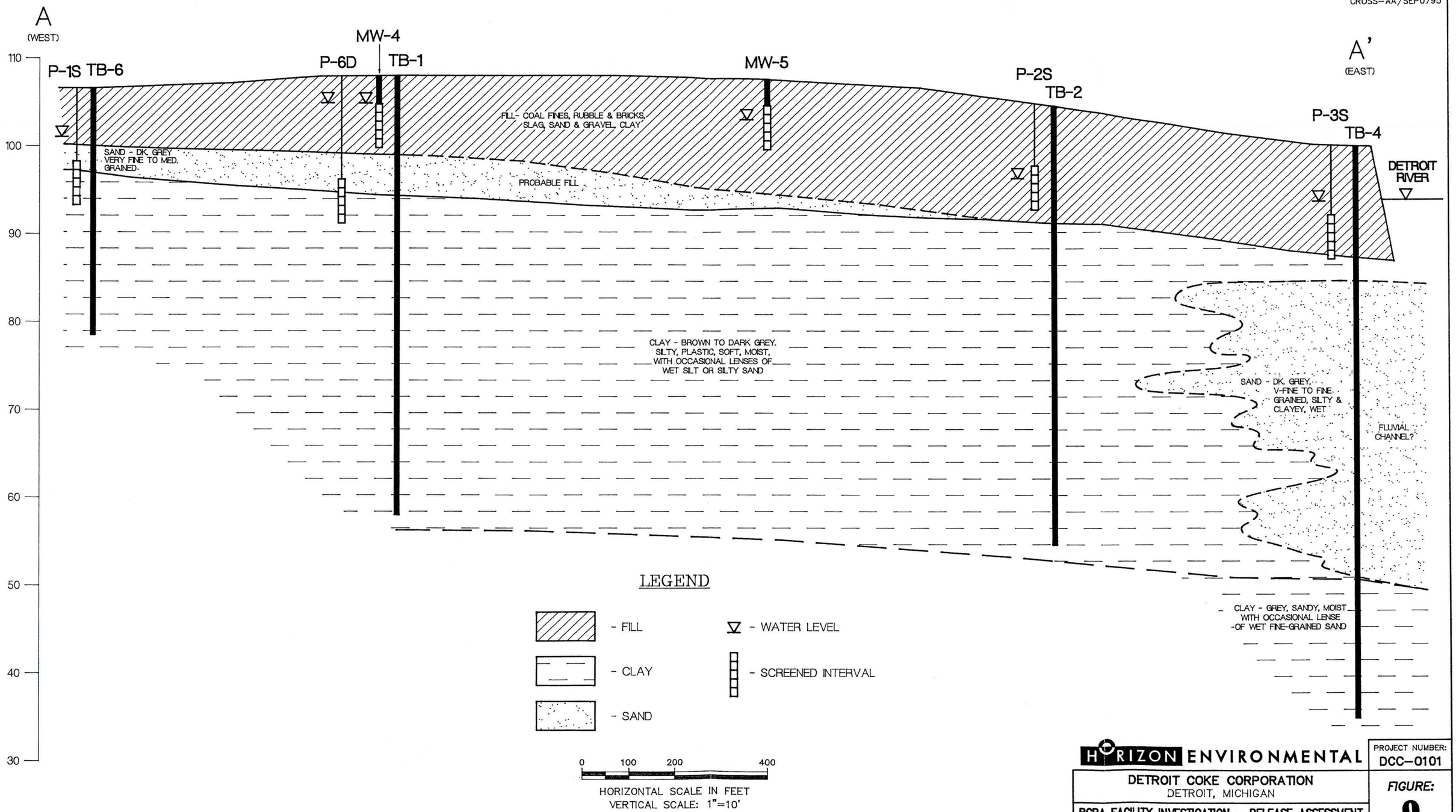
DETROIT COKE CORPORATION
DETROIT, MICHIGAN

RCRA FACILITY INVESTIGATION – RELEASE ASSESSMENT
RELATIVE ELEVATION CONTOURS ON
SHALLOW WATER TABLE

FIGURE: 8

SEPTEMBER, 1995

CROSS-AA/SEP0795



HORIZON ENVIRONMENTAL

PROJECT NUMBER: DCC-0101

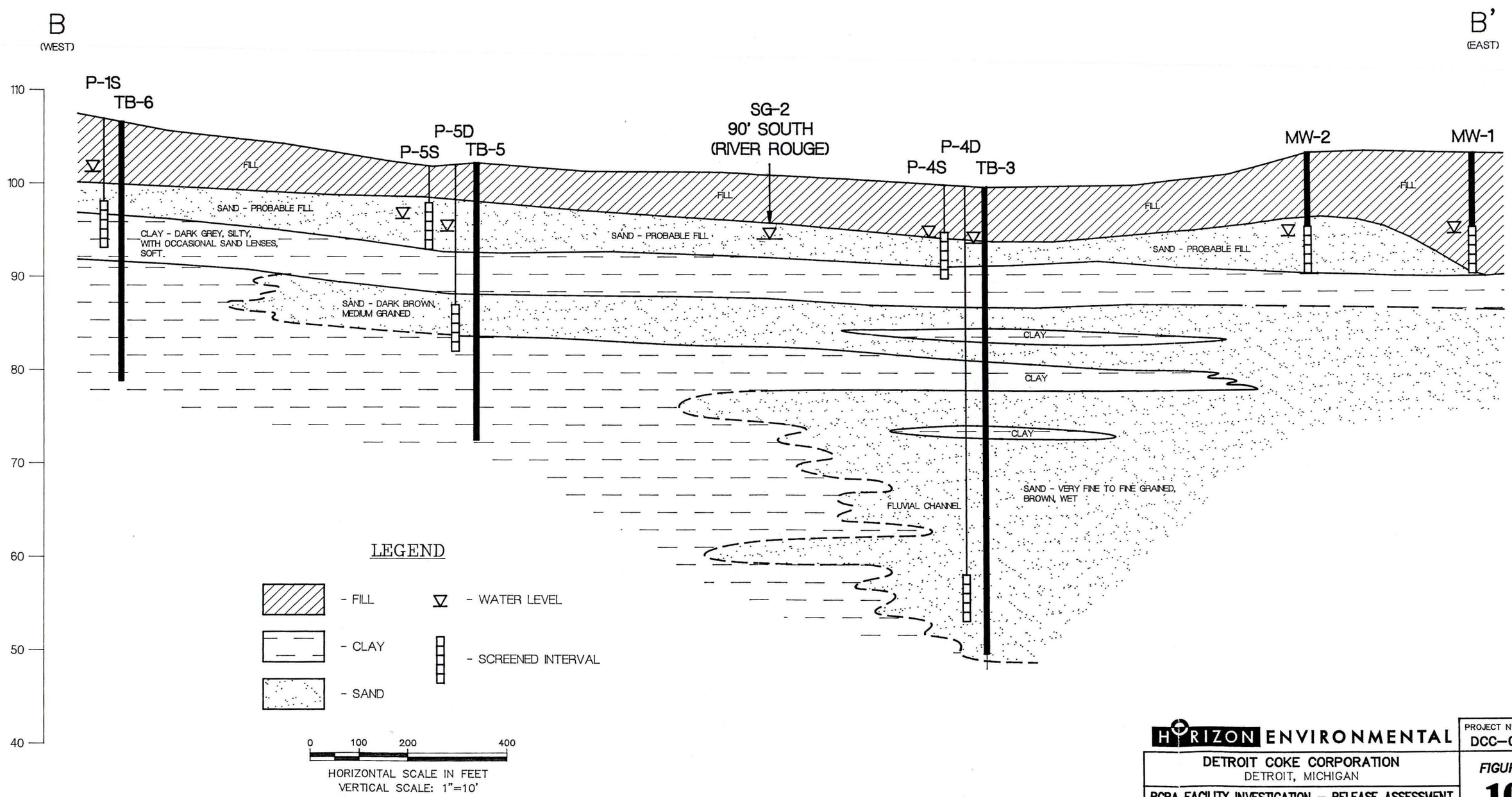
DETROIT COKE CORPORATION
DETROIT, MICHIGAN

RCRA FACILITY INVESTIGATION - RELEASE ASSESSMENT
CROSS SECTION
A - A'

FIGURE: 9

SEPTEMBER, 1995

CROSS-BB/SEP0795



HORIZON ENVIRONMENTAL

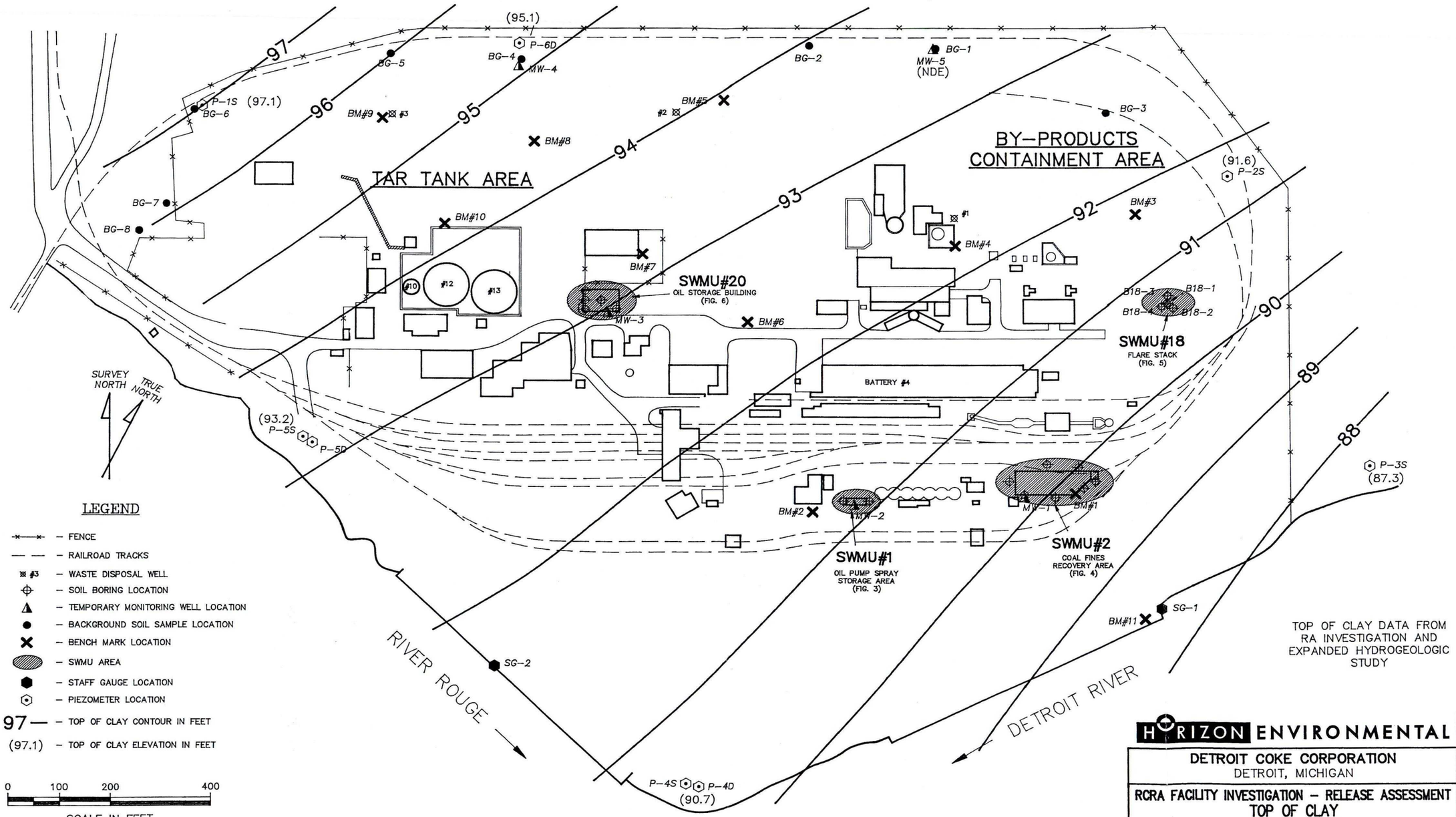
PROJECT NUMBER: DCC-0101

DETROIT COKE CORPORATION
DETROIT, MICHIGAN

RCRA FACILITY INVESTIGATION - RELEASE ASSESSMENT
CROSS SECTION
B - B'

FIGURE: 10

SEPTEMBER, 1995



TOP OF CLAY DATA FROM RA INVESTIGATION AND EXPANDED HYDROGEOLOGIC STUDY

HORIZON ENVIRONMENTAL

PROJECT NUMBER: DCC-0101

DETROIT COKE CORPORATION
DETROIT, MICHIGAN

RCRA FACILITY INVESTIGATION – RELEASE ASSESSMENT
TOP OF CLAY
RELATIVE ELEVATION

FIGURE: 11

SEPTEMBER, 1995

IF FOUND PLEASE RETURN TO:

NAME _____

COMPANY _____

STREET _____

CITY _____ STATE ____ ZIP ____

PHONE _____

JOB BOOK

FROM PENINSULAR PUBLISHING

PROJECT NAME Detroit Col.

PROJECT NUMBER DET0101

CREW Culver / Wahlberg / McGue

DATE _____ BOOK # ____ OF ____

WEATHER _____

FIELD BOOK
16 PAGE
8 LEAVES
50% RAG

CURVE FORMULAS

$T = R \tan \frac{1}{2} I$

$T = \frac{50 \tan \frac{1}{2} I}{\text{Sin.} \frac{1}{2} D}$

$\text{Sin.} \frac{1}{2} D = \frac{50}{R}$

$\text{Sin.} \frac{1}{2} D = \frac{50 \tan \frac{1}{2} I}{T}$

$R = T \cot. \frac{1}{2} I$

$R = \frac{50}{\text{Sin.} \frac{1}{2} D}$

$E = R \text{ ex. sec } \frac{1}{2} I$

$E = T \tan \frac{1}{4} I$

$\text{Chord def.} = \frac{\text{chord}^2}{R}$

$\text{No. chords} = \frac{I}{D}$

$\text{Tan. def.} = \frac{1}{2} \text{ chord def.}$

The square of any distance, divided by twice the radius, will equal the distance from tangent to curve, very nearly.

To find angle for a given distance and deflection.

Rule 1. Multiply the given distance by .01745 (def. for 1° for 1 ft.) and divide given deflection by the product.

Rule 2. Multiply given deflection by 57.3, and divide the product by the given distance.

To find deflection for a given angle and distance. Multiply the angle by .01745, and the product by the distance.

GENERAL DATA

RIGHT ANGLE TRIANGLES. Square the altitude, divide by twice the base. Add quotient to base for hypotenuse.

Given Base 100, Alt. $10.10^2 \div 200 = .5$. $100 + .5 = 100.5$ hyp.

Given Hyp. 100, Alt. $25.25^2 \div 200 = 3.125$; $100 - 3.125 = 96.875 =$ Base.

Error in first example, .002; in last, .045.

To find Tons of Rail in one mile of track: multiply weight per yard by 11, and divide by 7.

LEVELING. The correction for curvature and refraction, in feet and decimals of feet is equal to $0.574 d^2$, where d is the distance in miles. The correction for curvature alone is closely, $\frac{2}{3} d^2$. The combined correction is negative.

PROBABLE ERROR. If d_1, d_2, d_3, etc. are the discrepancies of various results from the mean, and if Σd^2 = the sum of the squares of these differences and n = the number of observations, then the probable error of the mean = $\pm 0.6745 \sqrt{\frac{\Sigma d^2}{n(n-1)}}$

MINUTES IN DECIMALS OF A DEGREE

1′	.0167	11′	.1833	21′	.3500	31′	.5167	41′	.6833	51′	.8500
2	.0333	12	.2000	22	.3667	32	.5333	42	.7000	52	.8667
3	.0500	13	.2167	23	.3833	33	.5500	43	.7167	53	.8833
4	.0667	14	.2333	24	.4000	34	.5667	44	.7333	54	.9000
5	.0833	15	.2500	25	.4167	35	.5833	45	.7500	55	.9167
6	.1000	16	.2667	26	.4333	36	.6000	46	.7667	56	.9333
7	.1167	17	.2833	27	.4500	37	.6167	47	.7833	57	.9500
8	.1333	18	.3000	28	.4667	38	.6333	48	.8000	58	.9667
9	.1500	19	.3167	29	.4833	39	.6500	49	.8167	59	.9833
10	.1667	20	.3333	30	.5000	40	.6667	50	.8333	60	1.0000

INCHES IN DECIMALS OF A FOOT

1-16	3-32	⅛	3-16	¼	5-16	⅜	½	⅝	¾	⅞
.0052	.0078	.0104	.0156	.0208	.0260	.0313	.0417	.0521	.0625	.0729
1	2	3	4	5	6	7	8	9	10	11
.0833	.1667	.2500	.3333	.4167	.5000	.5833	.6667	.7500	.8333	.9167

May 31, 1995

Site Visit Charles McGee / Craig VanderBerge

met Paul Choinski - Detroit Coke

SWMU #20

staked SB20-1 thru SB20-10

SB-1 & SB-2 next to sumps

SB-3 & SB-4 - ~~Sample pos~~ if next to sumps.

SWMU 18

4 borings not staked due to presence of rubble

Paul will have moved by Tues June 6.

Paul Choinski will locate for field crew when rubble is moved.

SWMU-2

SB2-1 thru SB2-8

#1 or 2 as well

need sketch

SWMU-1

SB1-1 thru SB1-4 on each of the four sides - outside of the containment (3-foot thick tie down pad in place inside containment).

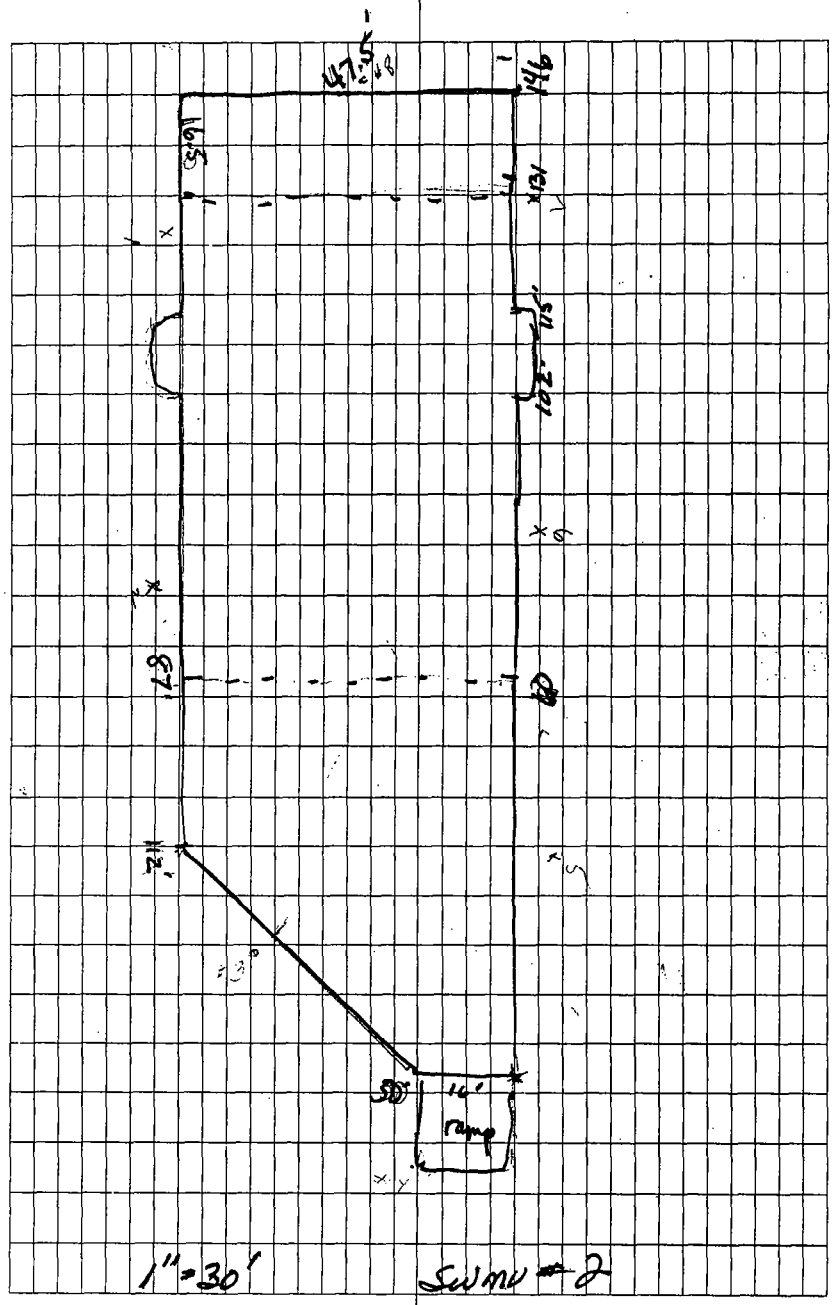
P-4D-95

(1) PH 6.68 @ 16.1°
(2) PH 6.71 @ 14.5°
(1) TDS 19.92 > 16.4°
(2) TDS 19.91
(1) CND 1.00 ms/cm > 16.4°
(2) 1.00 " "

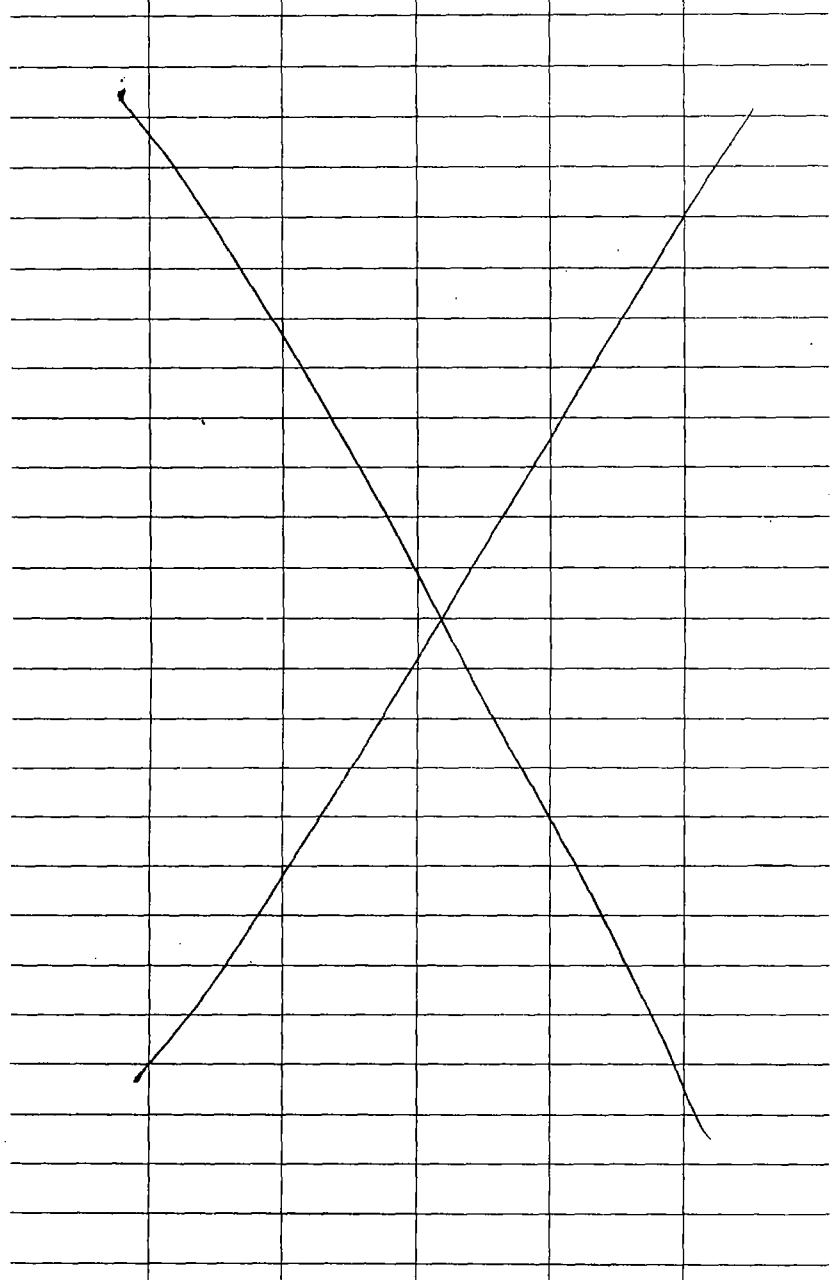
(This info entered 6/20/95 Transferred to book #3 ELC)

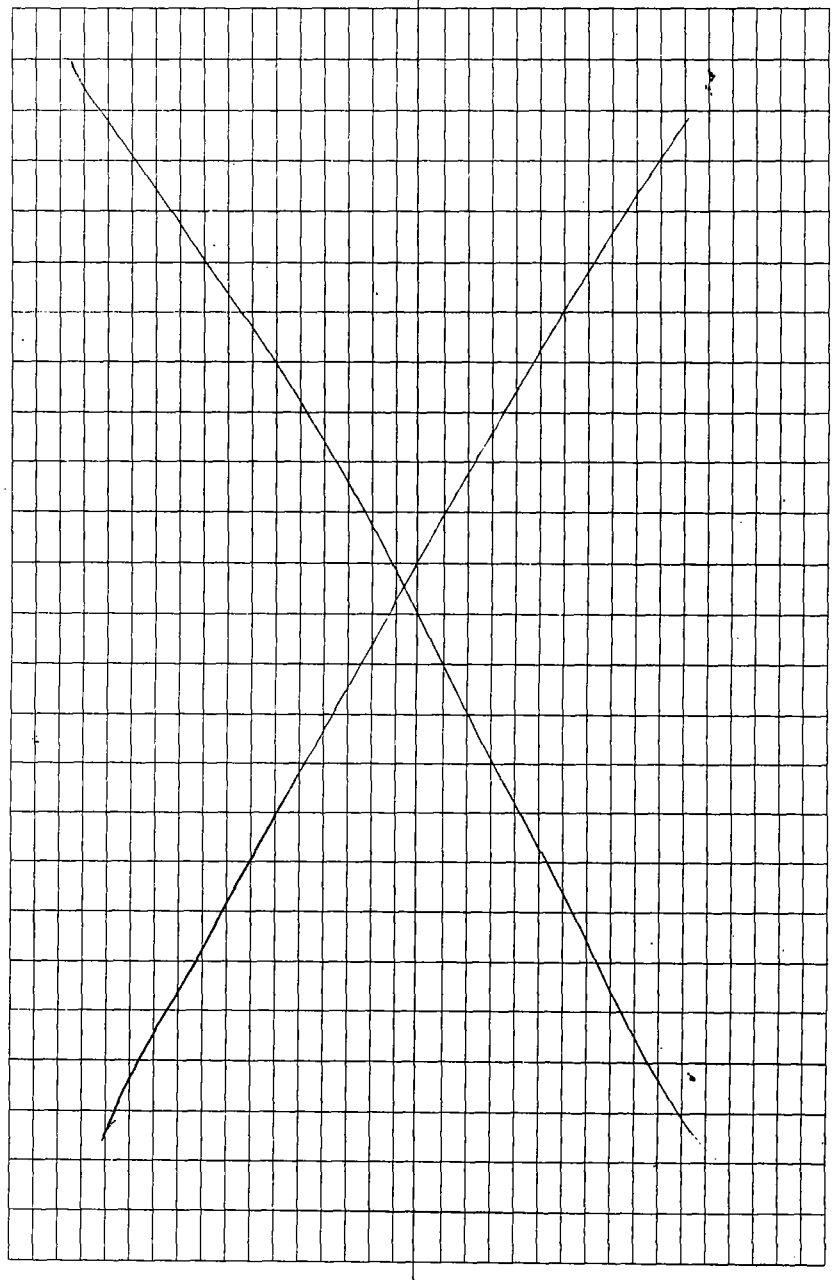
P-4S-95

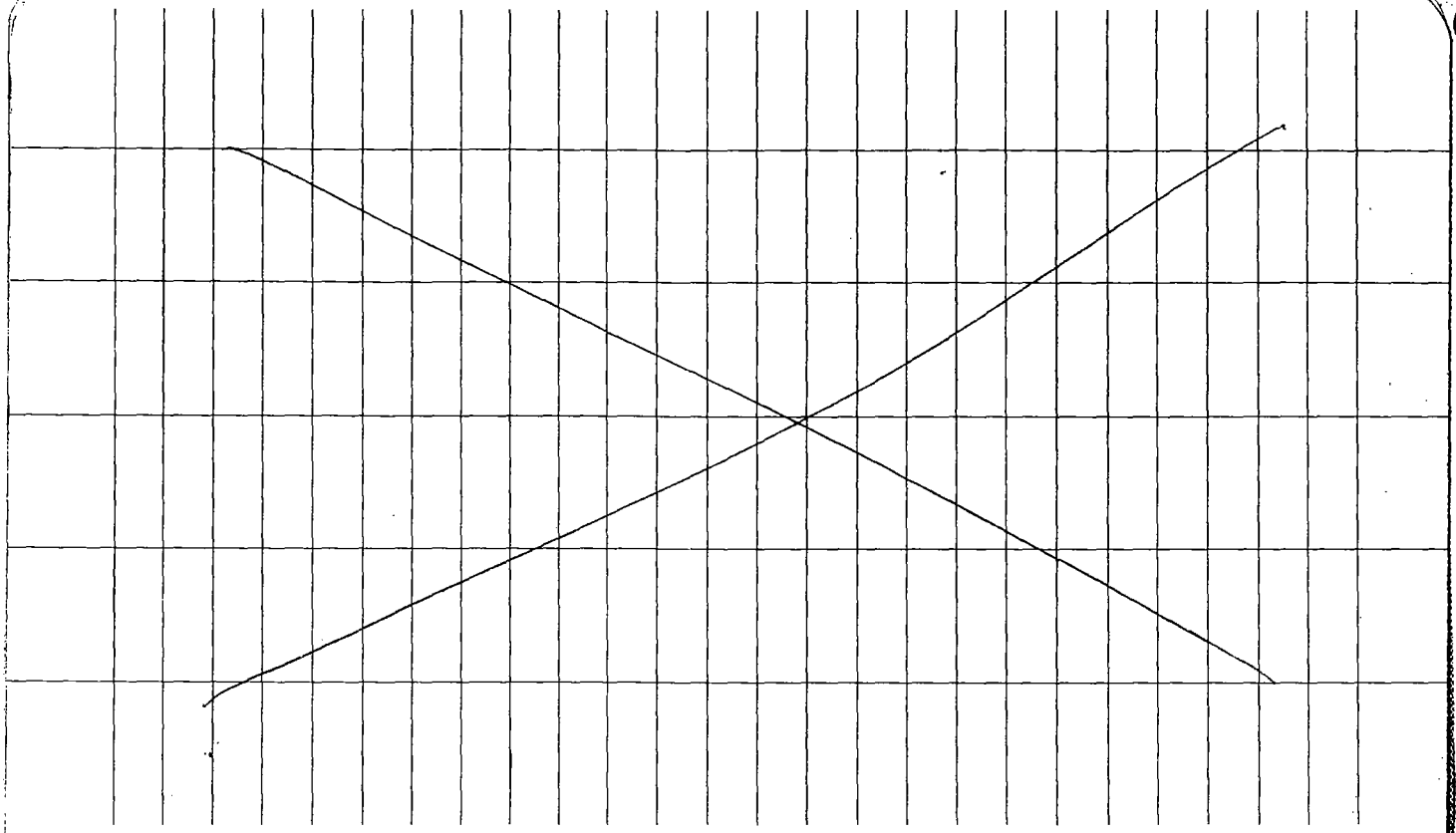
(1) PH - 10.17 @ 15.6°
(2) PH - 10.21 @ 14.3
(1) TDS 1.56
(2) TDS
(1) CND 2.83 > 19.4°
(2) CND

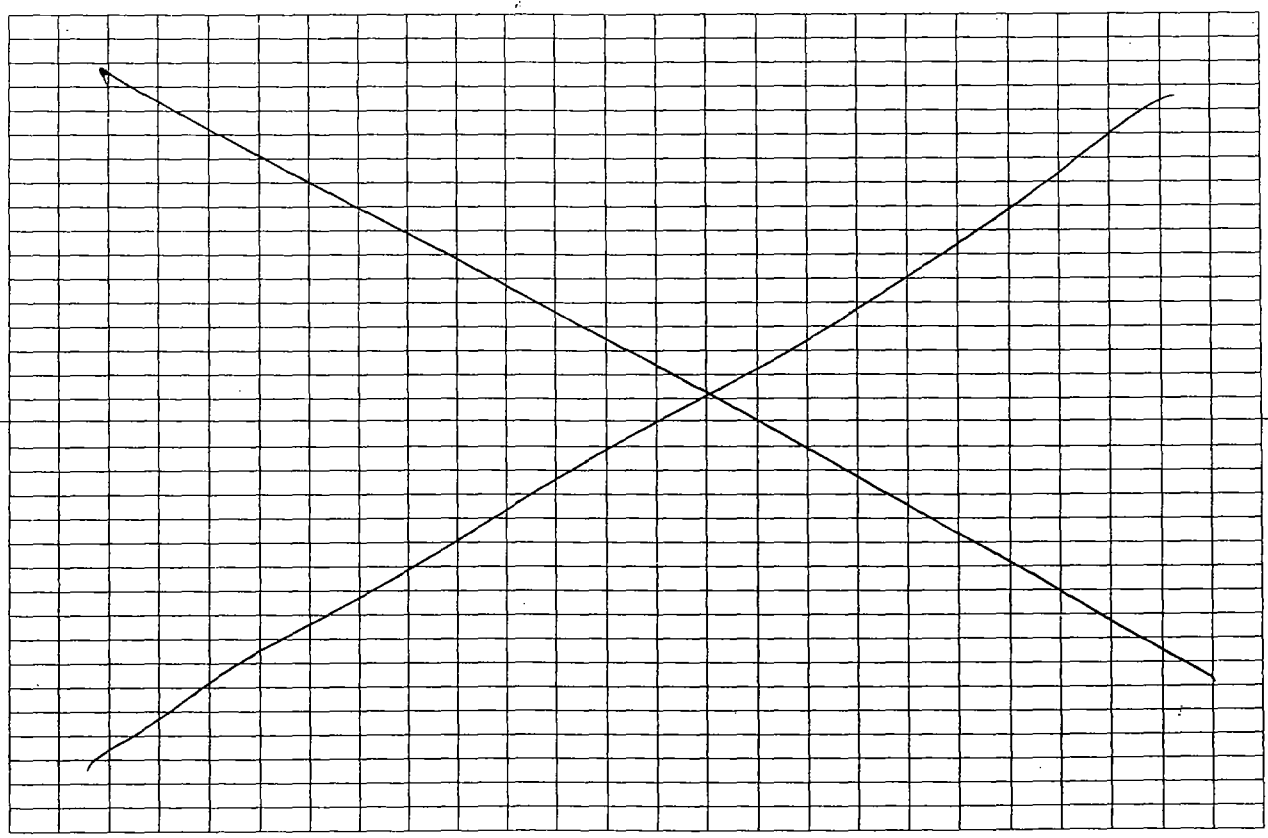


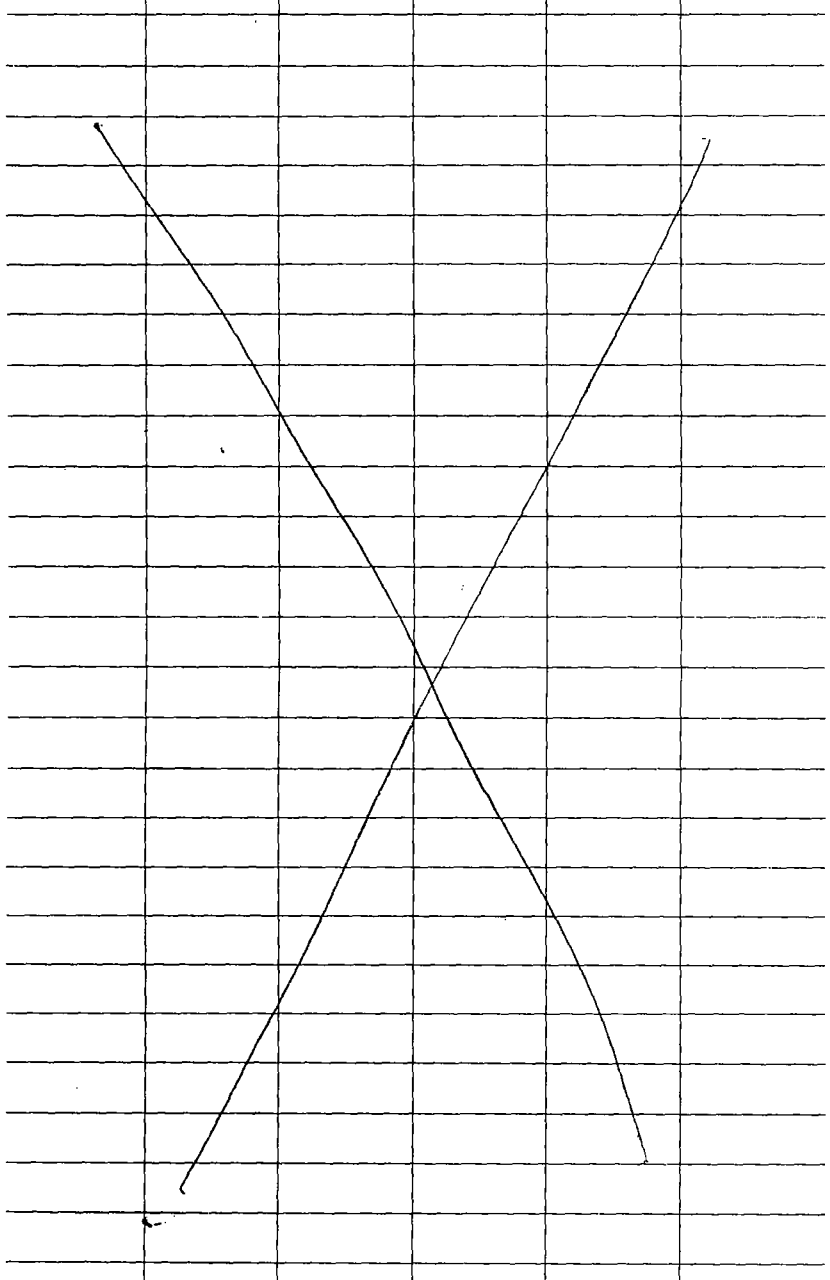
47.5
146
16.5
131
115
102
87
60
112
50
16'
ramp
1" = 30'
SWMU #2

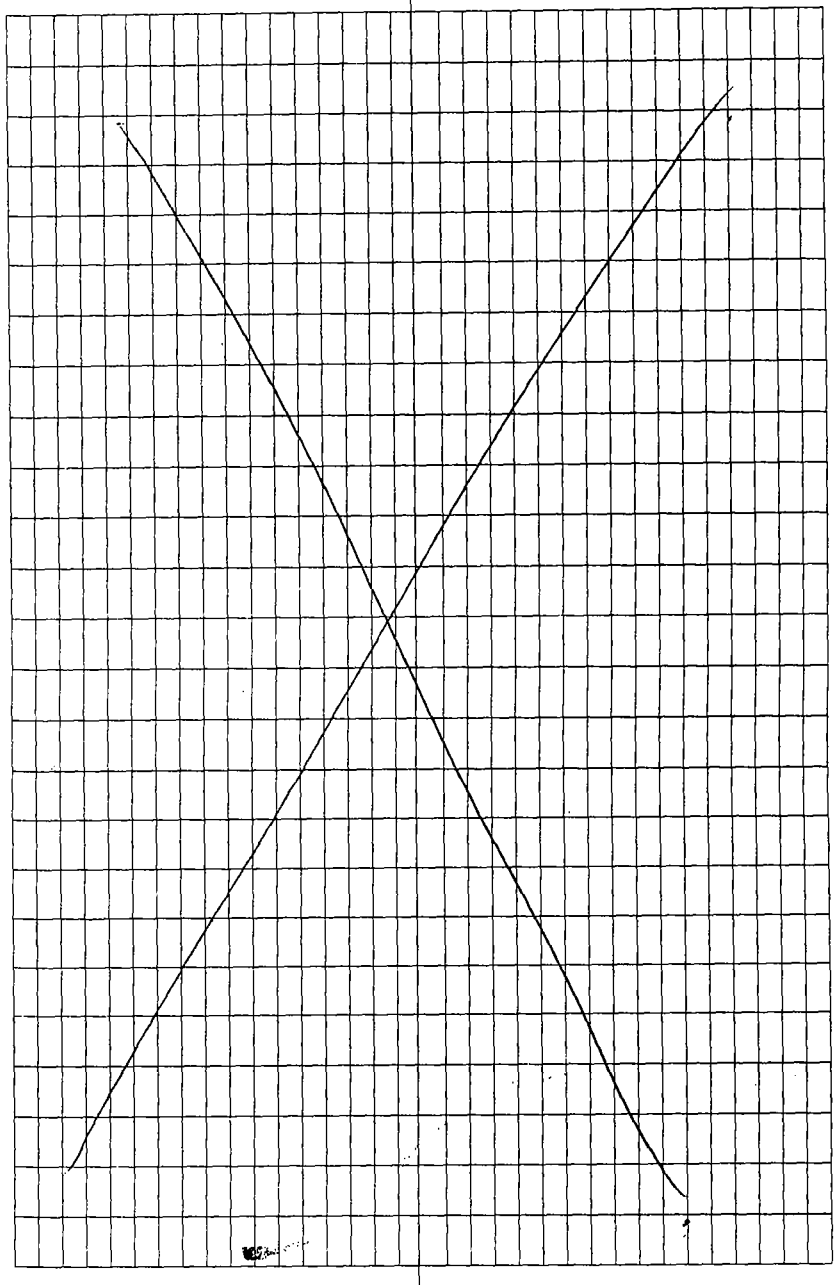


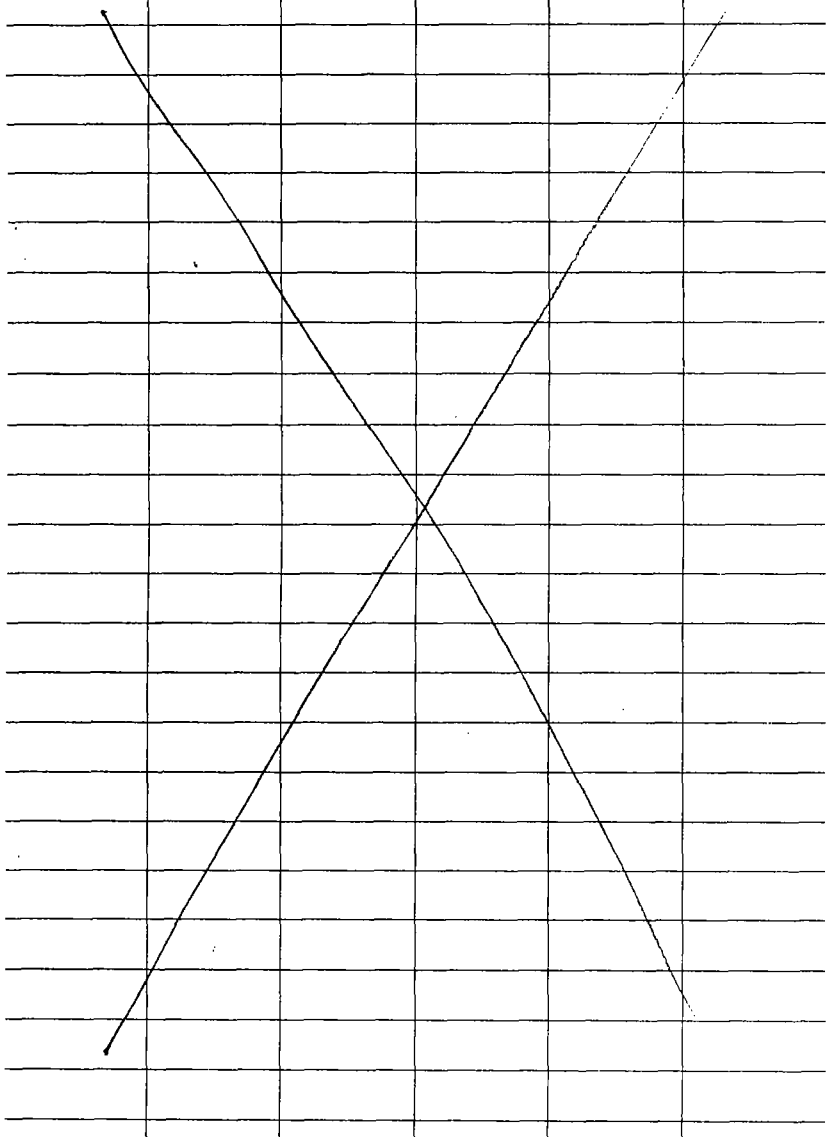


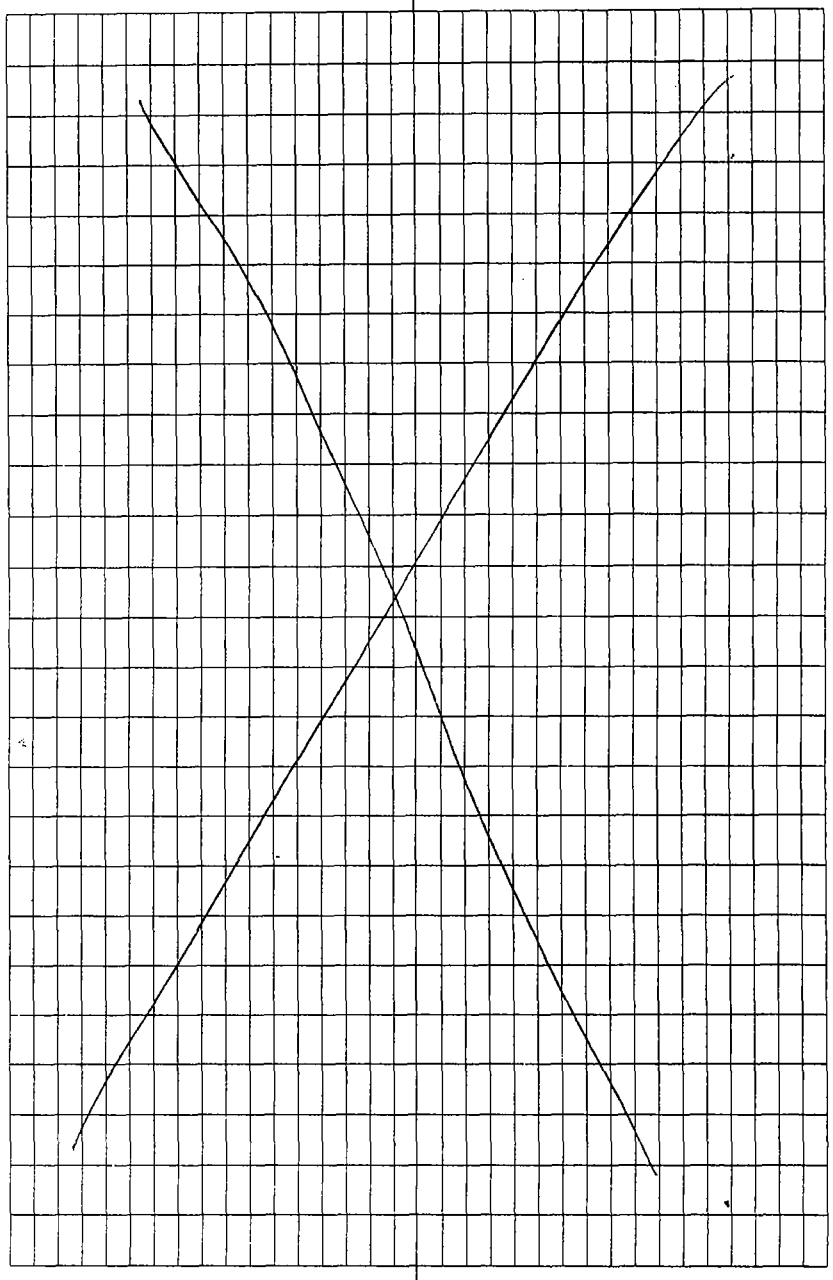


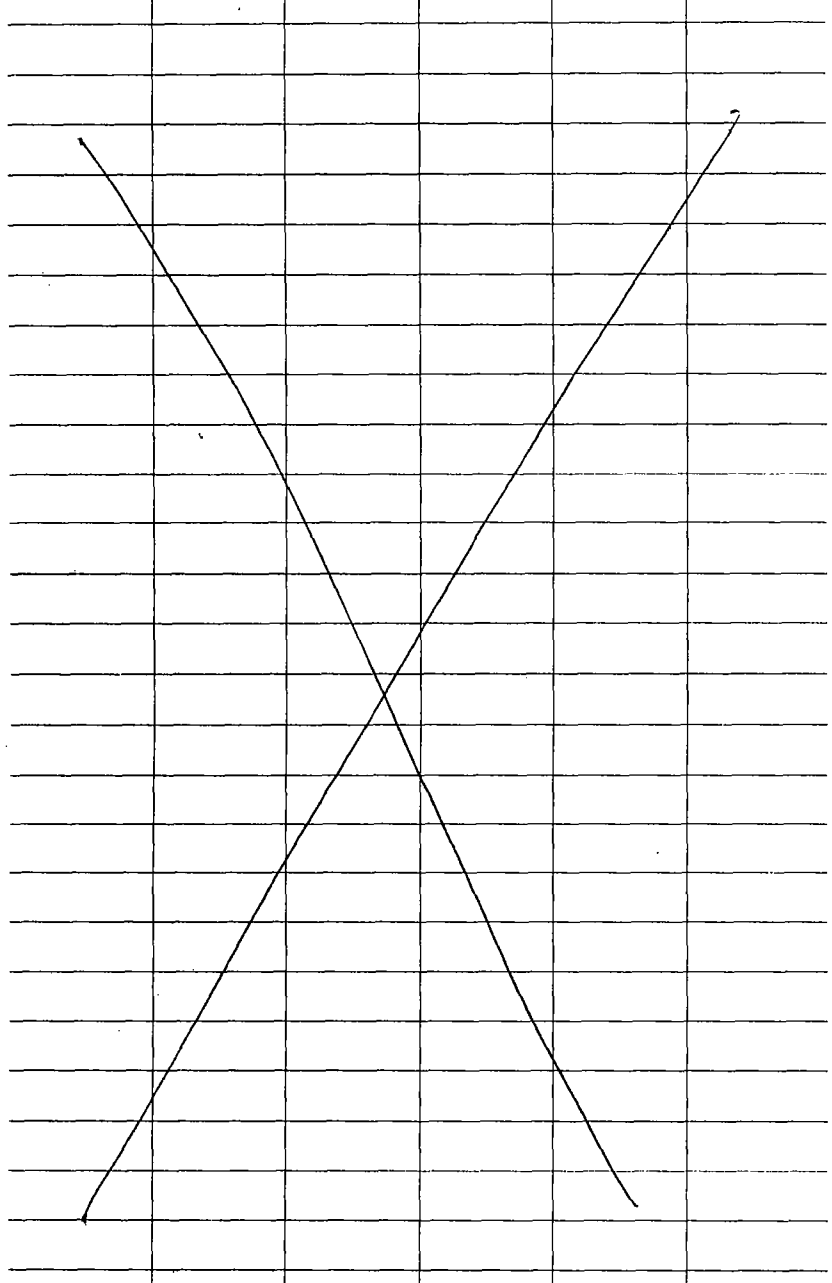


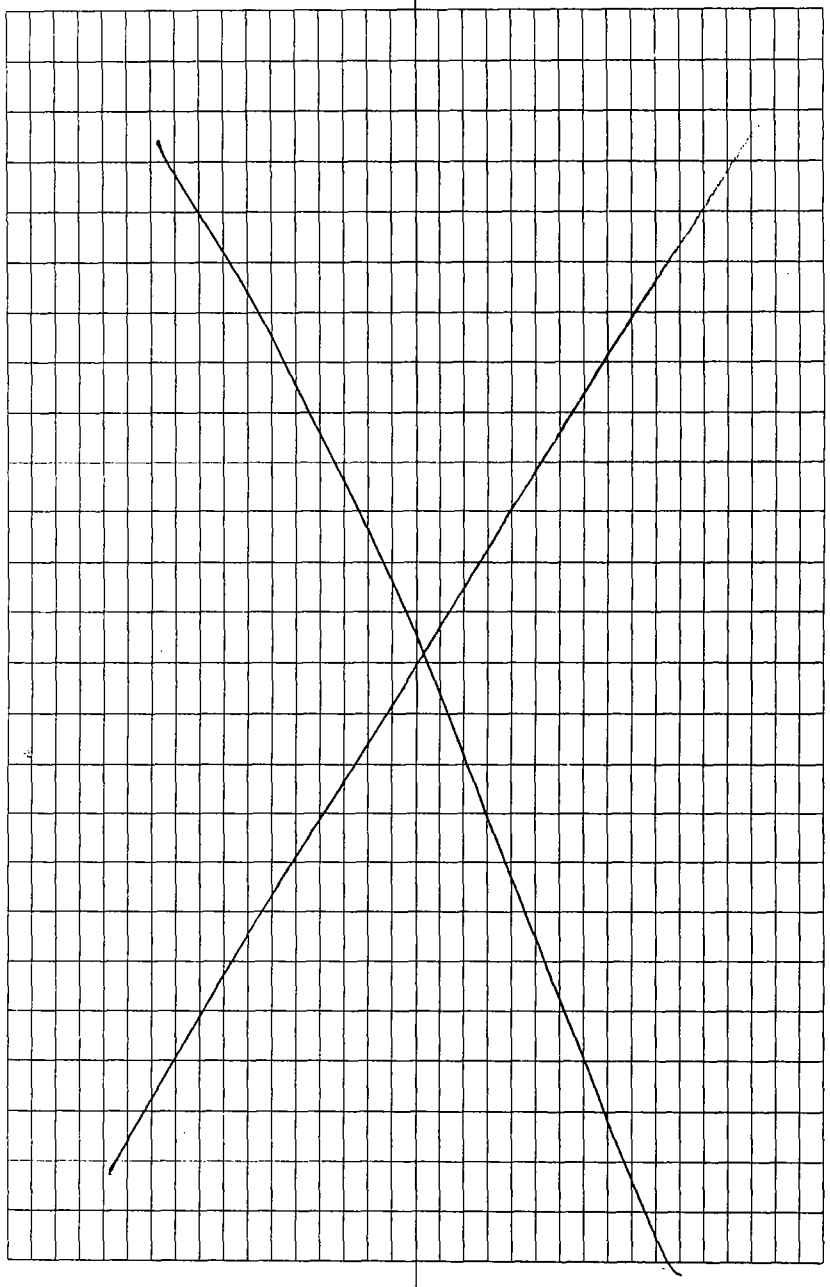












Client:

Allied Signal - Tim Metcalf

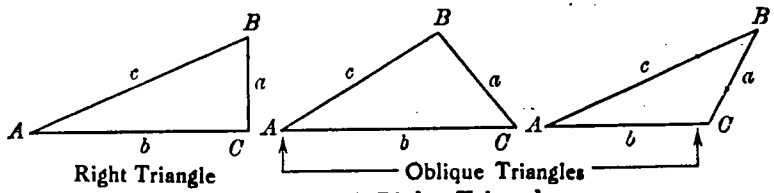
Detroit Coke - Paul Choinski

Detroit Coke Facility

7819 West Jefferson

Detroit Mi

TRIGONOMETRIC FORMULAS



Solution of Right Triangles

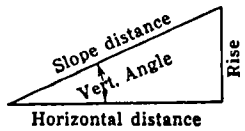
For Angle A. $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\operatorname{cosec} = \frac{c}{a}$

Given	Required	
a, b	A, B, c	$\tan A = \frac{a}{b} = \cot B,\ c = \sqrt{a^2+b^2} = a\sqrt{1+\frac{b^2}{a^2}}$
a, c	A, B, b	$\sin A = \frac{a}{c} = \cos B,\ b = \sqrt{(c+a)(c-a)} = c\sqrt{1-\frac{a^2}{c^2}}$
A, a	B, b, c	$B = 90° - A,\ b = a \cot A,\ c = \frac{a}{\sin A}$
A, b	B, a, c	$B = 90° - A,\ a = b \tan A,\ c = \frac{b}{\cos A}$
A, c	B, a, b	$B = 90° - A,\ a = c \sin A,\ b = c \cos A$

Solution of Oblique Triangles

Given	Required	
A, B, a	b, c, C	$b = \frac{a \sin B}{\sin A},\ C = 180° - (A+B),\ c = \frac{a \sin C}{\sin A}$
A, a, b	B, c, C	$\sin B = \frac{b \sin A}{a},\ C = 180° - (A+B),\ c = \frac{a \sin C}{\sin A}$
a, b, C	A, B, c	$A + B = 180° - C,\ \tan \frac{1}{2}(A-B) = \frac{(a-b)\tan\frac{1}{2}(A+B)}{a+b},\ c = \frac{a \sin C}{\sin A}$.
a, b, c	A, B, C	$s = \frac{a+b+c}{2},\ \sin\frac{1}{2}A = \sqrt{\frac{(s-b)(s-c)}{bc}},\ \sin\frac{1}{2}B = \sqrt{\frac{(s-a)(s-c)}{ac}},\ C = 180° - (A+B)$
a, b, c	Area	$s = \frac{a+b+c}{2}$, area $= \sqrt{s(s-a)(s-b)(s-c)}$
A, b, c	Area	area $= \frac{bc \sin A}{2}$
A, B, C, a	Area	area $= \frac{a^2 \sin B \sin C}{2 \sin A}$

REDUCTION TO HORIZONTAL



Horizontal distance = Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance = 319.4 ft. Vert. angle = 5° 10′. Since cos 5° 10′ = .9959, horizontal distance = 319.4 × .9959 = 318.09 ft.

Horizontal distance also = Slope distance minus slope distance times (1 − cosine of vertical angle). With the same figures as in the preceding example, the following result is obtained. Cosine 5° 10′ = .9959. 1 − .9959 = .0041. 319.4 × .0041 = 1.31. 319.4 − 1.31 = 318.09 ft.

When the rise is known, the horizontal distance is approximately the slope distance less the square of the rise divided by twice the slope distance. Thus: rise = 14 ft., slope distance = 302.6 ft. Horizontal distance $= 302.6 - \frac{14 \times 14}{2 \times 302.6} = 302.6 - 0.32 = 302.28$ ft.

IF FOUND PLEASE RETURN TO:

NAME _____

COMPANY _____

STREET _____

CITY _____ STATE ____ ZIP ____

PHONE _____

JOB BOOK

FROM PENINSULAR PUBLISHING

PROJECT NAME Detroit [illegible]

PROJECT NUMBER _____

CREW E. Culver & Eric [illegible]

Start

DATE June 5 95 BOOK # [illegible]

WEATHER _____

FIELD BOOK
16 PAGE
8 LEAVES
50% RAG

CURVE FORMULAS

$T = R \tan \frac{1}{2} I$

$T = \frac{50 \tan \frac{1}{2} I}{\text{Sin.} \frac{1}{2} D}$

$\text{Sin.} \frac{1}{2} D = \frac{50}{R}$

$\text{Sin.} \frac{1}{2} D = \frac{50 \tan \frac{1}{2} I}{T}$

$R = T \cot. \frac{1}{2} I$

$R = \frac{50}{\text{Sin.} \frac{1}{2} D}$

$E = R \text{ ex. sec } \frac{1}{2} I$

$E = T \tan \frac{1}{4} I$

$\text{Chord def.} = \frac{\text{chord}^2}{R}$

$\text{No. chords} = \frac{I}{D}$

$\text{Tan. def.} = \frac{1}{2} \text{ chord def.}$

The square of any distance, divided by twice the radius, will equal the distance from tangent to curve, very nearly.

To find angle for a given distance and deflection.

Rule 1. Multiply the given distance by .01745 (def. for 1° for 1 ft.) and divide given deflection by the product.

Rule 2. Multiply given deflection by 57.3, and divide the product by the given distance.

To find deflection for a given angle and distance. Multiply the angle by .01745, and the product by the distance.

GENERAL DATA

RIGHT ANGLE TRIANGLES. Square the altitude, divide by twice the base. Add quotient to base for hypotenuse.

Given Base 100, Alt. $10.10^2 \div 200 = .5$. $100 + .5 = 100.5$ hyp.

Given Hyp. 100, Alt. $25.25^2 \div 200 = 3.125$; $100 - 3.125 = 96.875 =$ Base.

Error in first example, .002; in last, .045.

To find Tons of Rail in one mile of track: multiply weight per yard by 11, and divide by 7.

LEVELING. The correction for curvature and refraction, in feet and decimals of feet is equal to $0.574\,d^2$, where d is the distance in miles. The correction for curvature alone is closely, $\frac{2}{3}d^2$. The combined correction is negative.

PROBABLE ERROR. If d_1, d_2, d_3, etc. are the discrepancies of various results from the mean, and if Σd^2 = the sum of the squares of these differences and n = the number of observations, then the probable error of the mean $= \pm 0.6745\sqrt{\frac{\Sigma d^2}{n(n-1)}}$

MINUTES IN DECIMALS OF A DEGREE

1′	.0167	11′	.1833	21′	.3500	31′	.5167	41′	.6833	51′	.8500
2	.0333	12	.2000	22	.3667	32	.5333	42	.7000	52	.8667
3	.0500	13	.2167	23	.3833	33	.5500	43	.7167	53	.8833
4	.0667	14	.2333	24	.4000	34	.5667	44	.7333	54	.9000
5	.0833	15	.2500	25	.4167	35	.5833	45	.7500	55	.9167
6	.1000	16	.2667	26	.4333	36	.6000	46	.7667	56	.9333
7	.1167	17	.2833	27	.4500	37	.6167	47	.7833	57	.9500
8	.1333	18	.3000	28	.4667	38	.6333	48	.8000	58	.9667
9	.1500	19	.3167	29	.4833	39	.6500	49	.8167	59	.9833
10	.1667	20	.3333	30	.5000	40	.6667	50	.8333	60	1.0000

INCHES IN DECIMALS OF A FOOT

1-16	3-32	⅛	3-16	¼	5-16	⅜	½	⅝	¾	⅞
.0052	.0078	.0104	.0156	.0208	.0260	.0313	.0417	.0521	.0625	.0729

1	2	3	4	5	6	7	8	9	10	11
.0833	.1667	.2500	.3333	.4167	.5000	.5833	.6667	.7500	.8333	.9167

(1)

June 5 1995

Detroit Coke
RA Investigation
1140 hrs arrived on site and met with BOB and Tim Metcalf
We discussed a meeting time with Craig VandenBerge and Charlene McGee, tentatively around 12 noon
1150 hr Eric Wahlberg & I drove site to review SWMU's where samples will be collected. We elected to run an E/W base line (Grid Line) along the North edge of property adjacent to fence line.
1240 Eric & I met with Craig & Charlene at Detroit Coke Security office at which time we met Paul Chomski
USEPA rep's were on site but were leaving for lunch during our meeting.

Craig Charlene Eric & I reviewed SWMU's # 1, 2, 18 & 20 and staked sample locations

②

June 5 1995

1320 hrs Craig & Charlene left site and Erio and I left site for lunch.

1410 hrs Erio and I back on site and began layout of Grid.

Completed Base Line E & W (not true) and ran two line N & S with assigns coordinated tomorrow

1730 hr Erio & I left site

Ed Carter

③

June 6 95

Detroit Coke
RA Investigation
0745 hrs arrived on site after equip pickup and continued work of grid extentions
1000 hrs Talked with Paul C regarding start of sampling at Background locations.
Paul expressed concern that the locations staked by Charlene & Craig were acceptable with USEPA Rep's and suggested we wait until they were back on site around 1130 hrs.
Note: Dozer working at moving debri from Flare Stake Loca. SWMU # 18.
1020 hrs left site to pick up DI water's
1100 hrs Back on site and began sampling at SWMU # 2
with first sample at the SE cor of ramp Drive DC-SS01-9502-01 @
1146 hrs PID shows 0.0 PPM
1205 hr USEPA Rep on site Greg
Second sample at Eastern most

④

Loca along N side of SWMU#2 ID
DC-SS02-9502-02 2'-3' PID 0.0 ppm
1230-1310 Lunch and pickup ice

1330 Sample at Loca West of Previous
Loca. DC-SS03-9502-03
2'-3' PID Shows 0.0 ppm

1350 hrs Moved to Background Sampling
at Eastern most Loca

WT First Background Sample Loca is
West of Eastern most Loca.
ID DC-BG01-9502-04 PID 0.0 ppm

WT Second Background Sample BC-BG02-9502
-05 PID 0.0 ppm

WT 2.0 Third Background DC-BG03-9502-06
PID 0.0 ppm (Had zero Air too High
Falut But move Towards river & recalb
PID)

⑤

Work for T&N SWMU#1 2@10' 1 well
SWMU#2 4@18' 1 well
SWMU#18 —
SWMU#20 4-6' 1 well

WT 3.0 Fourth Background Sample
DC-BG04-9502-07 @ 1650
PID 0.0 ppm

WT 3.0 Fifth Background Sample at 1735 hrs
DC-BG05-9502-08 PID reading
@ 0.0 ppm
Sixth Background Sample at 1800 hrs
WT 2.8 DC-BG06-9502-09 PID 0.0 ppm
Seventh BKgd DC-BG07-9502-10
NO WT and 10-Dup PID: 0.0 ppm @
1830 hrs

1900 hrs Exit & 1 Left Site

Ed [signature]

(6)

June 7 1995

0730 hrs on site and set up to sample Background #08

DC-BG08-9502-11 @ 0750 hrs

wt 3.0 PID @ 0.0 ppm

0800 DC-BG08-9502-11 EB
(1 1 Liter Amber & 2 VOC)

0840 hr retake of BG03

DC-BG09-9502-12 PID 0.0 ppm

0900 Start on BM Survey

Starting Point Eastern most Tie for Truck Ferry at rivers edge river side of pylon

Elev. 100.00
+ 8.44

108.440 HI
- 2.705
105.735 BM#1 SWMU#2

108.440
- 2.63
105.81 BM#2
Lite Pole W of SWMU#20

108.440
2.04
106.400 BM#3

Reset 106.400
+ 2.92
109.32 HI
- 2.30
107.02 RP on Metal Tower

109.32
- 3.87
105.45 corrected

105.735
+ 3.87
109.605 HI
- 3.72
105.885 BM#2 recheck

(7)

100.00
+ 9.61
109.61 HI
- 3.83
105.78 BM#1 SWMU#2

109.61
- 2.28
107.330 RP Metal Tower
+ 2.325
109.655 HI
- 109.550
000.005 closure

109.61
3.73
105.88 BM#2 Power Pole W of SWMU# UST

107.330
+ 3.420
110.75 HI
+ 4.14
106.61 BM#3 RP N & W of SWMU#18
+ 4.00
110.61 HI
- 3.65
104.96 RP near SWMU#18

Survey Data Transferred To Survey Sheets

Ed Cashier

106.61 BM#5
+ 1.20
107.81 HI
- .34
107.47 BM#4 SE cor Disposal well

107.81
- 1.04
106.77 RP Steam Tie pier N & W of disposal well
+ 0.99
107.76 HI 107.76
- .26
107.50
.94
106.56 closure

106.77 RP
+ 6.09
112.86 HI
- 1.09
111.77 BM#5
+ .67
112.44 HI
- 5.77
106.67 closure

106.77 RP
+ 1.80
108.57 HI
- 1.84
106.73 BM#6 Light Pole SE cor yellow Bldg @ SWMU#20

106.99
+ 1.71
108.70 HI
- 1.98
106.72 BM#6

108.70
1.98
106.72
closure

108.57
- 1.58
106.99 BM#7 Power Pole Between SWMU#1 & #

(8)

111.77
+ .61
112.38 HI
-3.39
108.99 BM #8 yellow [illegible] Nom of Tank [illegible]
+3.15
112.14 HI
.38
111.76 closure BM #5

109.99 BM #8
+1.58
111.57
-2.92
108.65 BM #9 Concrete floor for disposal well

111.57
-4.98
107.09 BM #10 Power pole just N of Tank [illegible]
+4.59
111.68 HI
-3.07
108.61 BM #9

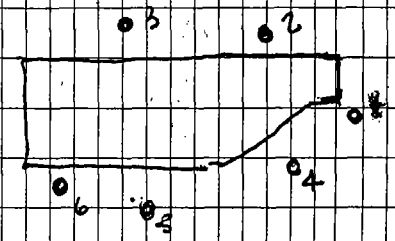
111.68
1.70
109.98 BM #8 Closure

107.09 BM #10
+1.74
108.83
-5.72
103.11 Turn
5.90
109.01
1.12
107.89
105.81
2.08

1340 hr Completion of BM placement and ready for sample collection at SWMU #2 sample labeled as DC-SS04-9502-13 PID 0.0 ppm (cinders)

(9)

1403 DC-SS05-9502-14 PID 7.2 ppm
cinders



1420 DC-SS06-9502-15
3.2 ppm (rubble brick at 3 [illegible])

1500 hrs moved to SWMU #18 first sample center of stack as staked by Paul
DC-SS07-9502-16 @ 1525 PID @ 72 ppm
unable to retain sufficient sample with one drive due to concrete rubble voids
Two drives necessary
DC-SS08-9502-17 @ 1550 hrs
PID @ 42 ppm
(no water table encountered)

center of flare
07
15'
08

(10) Move to SWMU #20

Sample DC-SS09-9502-18 @ 1636 B20-1
PID 25 ppm wt at 2.8'

Sample DC-SS10-9502-19 @ 1655 B20-2
PID @ 23 ppm wt at 2.9

1715 hrs End #1 Left Site

Ed Cabry

(11)

June 8 1995

Detroit Coke
0730 hrs on Site and met with T&T crew.
0750 hrs Begin work at SWMU #2
first sample at 3.5-6.0'
DC-SS11-9502-20 @ 0810 PID 12.0 ppm
B2-1 3'-4'
DC-SS12-9502-21 @ 0812 PID 30 ppm
B2-1 6'-8' (Saturated soil 8-10 30 ppm
well constructed at B2-1 screened 7'-12' ± with filter pack & Bentonite Seal.

0915 hrs move to SWMU #1 with first sample @ B1-1 labeled as DC-SS13-9502-22 B1-1 2-3 @ 0920 PID 0.0 ppm End of UST
Next sample DC-SS14-9502-23 B1-1 5'-6 @ 0930 PID 0.0 ppm
Saturated sample @ 3.5 ppm PID
well installation screened 6-11'
Equip Decon Steam Cleaned

Next Sample DC-SS15-9502-24 B1-2 2'-3 and Drop
PID 0.0 ppm @ 1105

(12)

Sample DC-SS16 9502 25
B1-2 4.5-6.5 @ 1110 PID 0.0 ppm

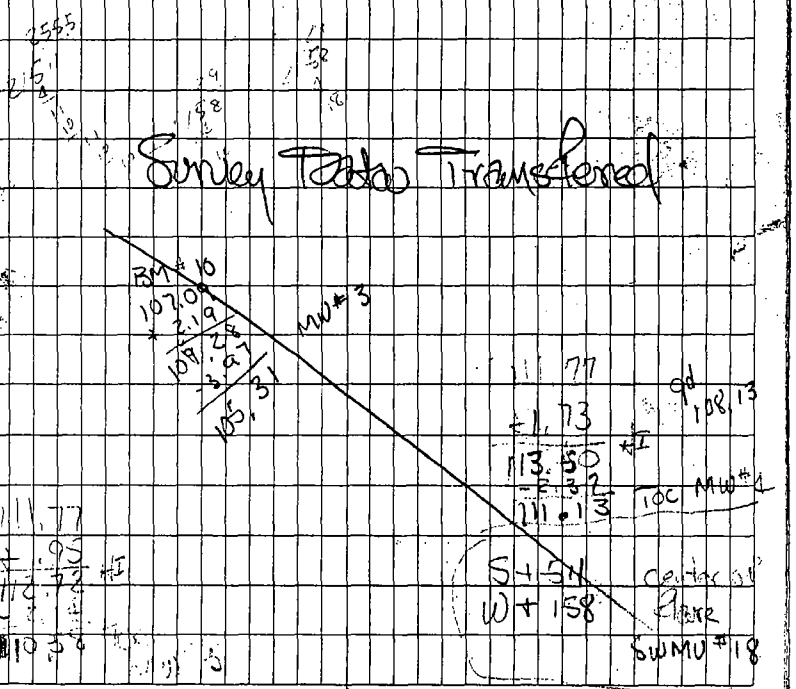
Sample 8-10' wet & strong Diesel odor and sheen. (no sample collection)
Obvious contamination of gd. water.
move well to river side of SWMU #1
Screened at 7'-12' below gd surface
Equip Steam cleaned and rinse
blank collected
DC SS17 9502-26-EB representes decon quality prior to collecting next soil sample

Sample DC-SS17-9502-26-B209-2-3
@ PID 0.0
Sample DC-SS18-9502-27 B207-4'-6'
@ PID 0.0
~~[illegible]~~ Ground water at 6' strong odor no sample (soil) collected
Move to SWMU #18
Sample DC-SS19-9502-28 B18-3-2'-3'
@ 1355 PID 39 ppm
Sample DC SS20 9502-29 B18-4-2'-3'
@ 1410 PID 80 ppm

(13)

Move to SWMU #20
~~[illegible]~~
First Sample DC-SS21-9502-30 B20-3
1'-2' ~~2'-3'~~ EB also TOJP
Second Sample DC-SS22-9502-31 B20-2
1'-2' ~~2'-3'~~ EB Sample saturated with sheen and odor no sample collected

Well Set and Screened 0'-5'
DC-MW3-9502-3 B-20
Soils are cinders & slag with rubble at 4'-5'



(14)

~~TOC 1.2~~

105.88 BM#2
+2.19
108.07
-3.55
104.52 TOC MW#2
gd 103.32

261 W
225 S

105.78 BM#1
+2.94
108.72
3.54

49 S of S-9 = S+949
28 E W8 = W+772

105.78
+2.94
108.72
-3.54
105.18 MW#1 TOC

gd 103.18

Ed Carlson

(15)

June 9 1995

Detroit Coke
0730 on site and begin MW
Purge & Sampling
MW#1 SWL 10.88' TOC
TD 14.6 TOC
6 volumes removed before Sampling
@ 0830 hrs

MW#2 SWL 9.88 TOC
TD 14.0 TOC
noticable sheen on Purge of first
volume sample @ 0930

MW#3 SWL 3.03 TOC
TD 7.0 TOC
Sample @ 1010

Pumped well dry
MW#4 SWL 5.61 TOC
TD 11.2 TOC 1200 hrs

SWL 7.36 TOC
MW#5 TD 11.0 TOC
Sample @ 1140 hrs

Greg
Rudloff USEPA

(16)

SWMW #20 June 9

Move to area B 20

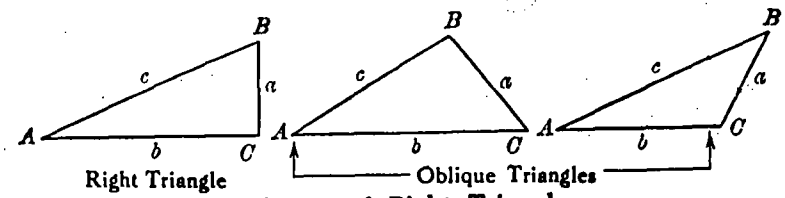
Sample DC-SS 22 9502 31

@ 1240 B20-5 1'-2'

Sample DCSS 23 ---- 32

@ 1300 B 20-6 - 1'-2'

TRIGONOMETRIC FORMULAS



Solution of Right Triangles

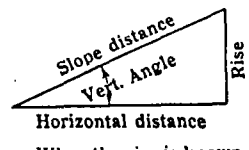
For Angle A. $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\operatorname{cosec} = \frac{c}{a}$

Given	Required	
a, b	A, B, c	$\tan A = \frac{a}{b} = \cot B,\ c = \sqrt{a^2+b^2} = a\sqrt{1+\frac{b^2}{a^2}}$
a, c	A, B, b	$\sin A = \frac{a}{c} = \cos B,\ b = \sqrt{(c+a)(c-a)} = c\sqrt{1-\frac{a^2}{c^2}}$
A, a	B, b, c	$B = 90° - A,\ b = a \cot A,\ c = \frac{a}{\sin A}$
A, b	B, a, c	$B = 90° - A,\ a = b \tan A,\ c = \frac{b}{\cos A}$
A, c	B, a, b	$B = 90° - A,\ a = c \sin A,\ b = c \cos A$

Solution of Oblique Triangles

Given	Required	
A, B, a	b, c, C	$b = \frac{a \sin B}{\sin A},\ C = 180° - (A+B),\ c = \frac{a \sin C}{\sin A}$
A, a, b	B, c, C	$\sin B = \frac{b \sin A}{a},\ C = 180° - (A+B),\ c = \frac{a \sin C}{\sin A}$
a, b, C	A, B, c	$A+B = 180° - C,\ \tan \frac{1}{2}(A-B) = \frac{(a-b)\tan\frac{1}{2}(A+B)}{a+b},\ c = \frac{a \sin C}{\sin A}$.
a, b, c	A, B, C	$s = \frac{a+b+c}{2},\ \sin\frac{1}{2}A = \sqrt{\frac{(s-b)(s-c)}{bc}},\ \sin\frac{1}{2}B = \sqrt{\frac{(s-a)(s-c)}{ac}},\ C = 180° - (A+B)$
a, b, c	Area	$s = \frac{a+b+c}{2}$, area $= \sqrt{s(s-a)(s-b)(s-c)}$
A, b, c	Area	area $= \frac{bc \sin A}{2}$
A, B, C, a	Area	area $= \frac{a^2 \sin B \sin C}{2 \sin A}$

REDUCTION TO HORIZONTAL



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Horizontal distance also = Slope distance minus slope distance times (1 − cosine of vertical angle). With the same figures as in the preceding example, the following result is obtained. Cosine 5° 10′ = .9959. 1 − .9959 = .0041. 319.4 × .0041 = 1.31. 319.4 − 1.31 = 318.09 ft.

When the rise is known, the horizontal distance is approximately the slope distance less the square of the rise divided by twice the slope distance. Thus: rise = 14 ft., slope distance = 302.6 ft. Horizontal distance $= 302.6 - \frac{14 \times 14}{2 \times 302.6} = 302.6 - 0.32 = 302.28$ ft.

Horizon Environmental

Page: 1 of 1
Boring No.:
Completed Well No.: MW-1-95
Client: Detroit Coke
Project No.: DCC-0101
Date: Started: 6/8/95 Finished: 6/8/95
Time: Started: 0810 Finished: 0830

Well/Boring Log Sheet

State	County	City	Fraction	Section	T	R
MI	Wayne	City of Detroit			2S	11E

Contractor: T & T Drilling
Address: 4400 Grand River
Webberville, MI
Equipment: Mobile B-57
Crew Chief: Bob
Horizon Supervisor: E. Culver

Drilling Method(s)	Depth
8" HSA 4 1/4" ID	13.0'

Ground Surface Elevation (feet): 103.18
TOC Elevation (feet) 105.18
Datum (feet) BM#11
Static Water Level: 10.88
Reference: TOC

Location:

Grouting/Seal Depth/To	Material/Method
0-1.0'	Concrete Cap
1.0-5.0	Bentonite Holeplug

Description: Grid Coordinates: S 936 W448

Sketch: SWMU #2

Construction: X Abandonment: ___ Additional Field Notes: Log Book ___ Computer File ___

Thickness (feet)	Depth to Base (feet)	USCS *	Lithologic Description	Sample Depth	Blow Counts 6"	12"	18"	24"	Headspace	Background
5.0	5.0		Coal fines, slag, brick, rubble, black							
0.3	5.3	CL	Clay, dark gray, very sandy, moist	3.5-5.5	7	11	7	6	0.0	0.1
2.7	8.0		Cinders, slag, pebbles, black	5.5-7.5	5	6	11	16	12.0	0.1
5.0	13.0		Cinders, slag, pebbles, black, wet, odor	8.0-10.0	2	3	3	4	30.0	0.1

* = The USCS symbol assigned is based on visual and manual observations and not on tests performed in the laboratory.

HORIZON ENVIRONMENTAL

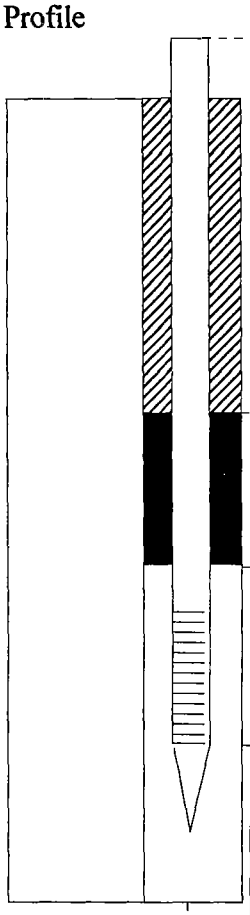
Project Name: Detroit Coke

Project Number: DCC-0101

Log of Well Installation

Well Number: MW-1-95

Generalized Subsurface Profile



2.0' — Length of Casing Above Ground Surface

1.0' — Depth to Top of Grout or Backfill

Material (Grout or Backfill) Bentonite Holeplug

5.0' — Depth to Top of Bentonite Pellets

7.0' — Depth to Top of Filter Pack

Type: Silica Sand

12.6' — Depth to Bottom of Well Screen

Natural Cave-in — Borehole Backfill Material

13.0' — Total Depth of Borehole

Top of Casing Elevation (feet): 105.18

Water Level Data

Date	Time	Water Level	Elevation
6/9/95	0830	10.88 TOC	94.30
6/22/95		10.90 TOC	94.28

Development: Peristalic Pump

Survey Reference: BM# 11 @ 100.00

12 gallons

Well Casing

Diameter: 2"

Total Length: 7.6'

Material: Galvanized

Cap Type: J Plug

Well Screen

Diameter: 2"

Length: 60"

Slot/Type: 7 slot

Material: Stainless Steel

Protective Well Casing

Material: Steel Dia. 4" sq.

Height Above Ground: 2.0'

Lock Type: Master #3212

General Notes:

Horizon Environmental

Page: 1 of 1
Boring No.:
Completed Well No.: MW-2-95
Client: Detroit Coke
Project No.: DCC-0101
Date: Started: 6/8/95 Finished: 6/8/95
Time: Started: 1150 Finished: 1210

Well/Boring Log Sheet

State	County	City	Fraction	Section	T	R
MI	Wayne	City of Detroit			2S	11E

Contractor: T & T Drilling
Address: 4400 Grand River
Webberville, MI
Equipment: Mobile B-57
Crew Chief: Bob
Horizon Supervisor: E. Culver

Drilling Method(s)	Depth
8" HSA 4 1/4" ID	13.0'

Ground Surface Elevation (feet): 103.32
TOC Elevation (feet) 104.52
Datum (feet) BM#11
Static Water Level: 9.88
Reference: TOC

Location:
Description: Grid Coordinates: S 950 W770
Sketch: SWMU #1

Grouting/Seal

Depth/To	Material/Method
0-1.0'	Concrete
1.0-5.7	Bentonite

Construction: X Abandonment: ___ Additional Field Notes: Log Book ___ Computer File ___

Thickness (feet)	Depth to Base (feet)	USCS *	Lithologic Description	Sample Depth	Blow Counts 6"	12"	18"	24"	Headspace	Background
2.5	2.5		Coal fines and cinders	No						
2.5	5.0	SP	Sand, medium, brown to black, some rubble	Sample						
2.0	7.0		Cinders	Collected						
6.0	13.0	SW	Sand, coarse, fine gravel, black, wet, strong odor							
			Well screened 7-12' below ground surface							

* = The USCS symbol assigned is based on visual and manual observations and not on tests performed in the laboratory.

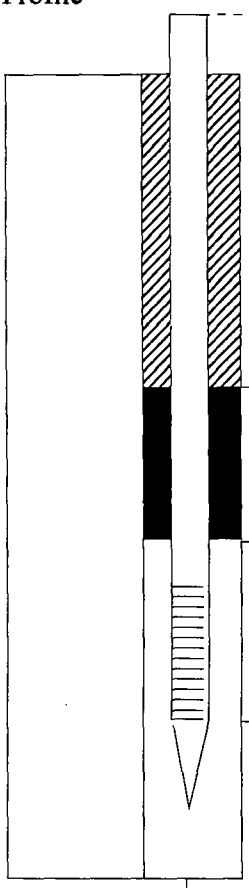
HORIZON ENVIRONMENTAL

Project Name: Detroit Coke
Project Number: DCC-0101

Log of Well Installation

Well Number: MW-2-95

Generalized Subsurface Profile



1.33' — Length of Casing Above Ground Surface

Depth to Top of Grout or Backfill

Material (Grout or Backfill) Concrete

1.0' — Depth to Top of Bentonite Pellets

5.7' — Depth to Top of Filter Pack
Type: #3 Silica Sand

12.7' — Depth to Bottom of Well Screen

Natural Cave-in — Borehole Backfill Material

13.0' — Total Depth of Borehole

Top of Casing Elevation (feet): 104.52

Water Level Data

Date	Time	Water Level	Elevation
6/9/95	0930	9.88 TOC	94.64
6/22/95	1400	10.0 TOC	94.52

Development: Peristalic Pump
10 gallons

Survey Reference: BM# 11 @ 100.00

Well Casing
Diameter: 2"
Total Length: 7.03'
Material: Galvanized
Cap Type: J Plug

Well Screen
Diameter: 2"
Length: 60"
Slot/Type: 7 slot
Material: Stainless Steel

Protective Well Casing
Material: Steel Dia. 4" sq.
Height Above Ground: 2.0'
Lock Type: Master #3212

General Notes:

Horizon Environmental

Page: 1 of 1
Boring No.:
Completed Well No.: MW-3-95
Client: Detroit Coke
Project No.: DCC-0101
Date: Started: 6/8/95 Finished: 6/8/95
Time: Started: 1220 Finished: 1250

Well/Boring Log Sheet

State	County	City	Fraction	Section	T	R
MI	Wayne	City of Detroit			2S	11E

Contractor: T & T Drilling
Address: 4400 Grand River
Webberville, MI
Equipment: Mobile B-57
Crew Chief: Bob
Horizon Supervisor: E. Culver

Drilling Method(s)	Depth
8" HSA 4 1/4" ID	5.5'

Ground Surface Elevation (feet): 102.60
TOC Elevation (feet) 104.31
Datum (feet) BM#11
Static Water Level: 3.03
Reference: TOC

Location:

Grouting/Seal Depth/To	Material/Method
0-0.5'	Bentonite Holeplug

Description: Grid Coordinates: S 544 W1266
Sketch: SWMU #20

Construction: X Abandonment: ___ Additional Field Notes: Log Book ___ Computer File ___

Thickness (feet)	Depth to Base (feet)	USCS *	Lithologic Description	Sample Depth	Blow Counts 6"	12"	18"	24"	Headspace	Background
1.5	1.5	SW	Sand & Gravel	No						
4.0	5.5	SP	Sand, medium, dark brown, odor, wet	Sample						
				Collected						

* = The USCS symbol assigned is based on visual and manual observations and not on tests performed in the laboratory.

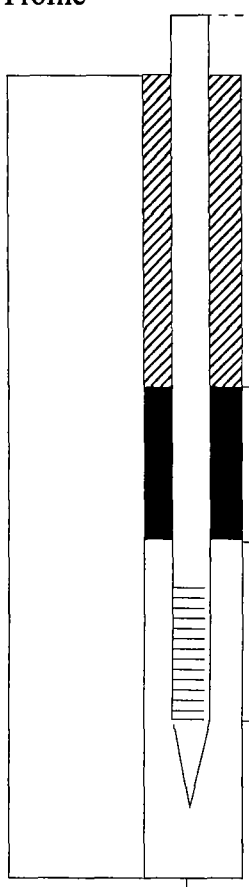
HORIZON ENVIRONMENTAL

Project Name: Detroit Coke
Project Number: DCC-0101

Log of Well Installation

Well Number: MW-3-95

Generalized Subsurface Profile



1.7'	Length of Casing Above Ground Surface
N/A	Depth to Top of Grout or Backfill
	Material (Grout or Backfill) N/A
0.0'	Depth to Top of Bentonite Pellets
0.5'	Depth to Top of Filter Pack Type: Silica Sand
5.2'	Depth to Bottom of Well Screen
Natural Cave-in	Borehole Backfill Material
5.5'	Total Depth of Borehole

Top of Casing Elevation (feet): 104.31

Water Level Data

Date	Time	Water Level	Elevation
6/9/95	1010	3.03 TOC	101.28
6/22/95		3.55 TOC	100.76

Development: Peristalic Pump
6 gallons

Survey Reference: BM# 11 @ 100.00

Well Casing
- Diameter: 2"
- Total Length: 1.5'
- Material: Galvanized
- Cap Type: J Plug

Well Screen
- Diameter: 2"
- Length: 60"
- Slot/Type: 10 slot
- Material: Stainless Steel

Protective Well Casing
- Material: Steel Dia. 4" sq.
- Height Above Ground: 1.7'
- Lock Type: Master #3212

General Notes:

Horizon Environmental

Page: 1 of 1
Boring No.:
Completed Well No.: MW-4-95
Client: Detroit Coke
Project No.: DCC-0101
Date: Started: 6/8/95 Finished: 6/8/95
Time: Started: 1330 Finished: 1420

Well/Boring Log Sheet

State	County	City	Fraction	Section	T	R
MI	Wayne	City of Detroit			2S	11E

Contractor: T & T Drilling
Address: 4400 Grand River
Webberville, MI
Equipment: Mobile B-57
Crew Chief: Bob
Horizon Supervisor: E. Culver

Drilling Method(s)	Depth
8" HSA 4 1/4" ID	9.5'

Ground Surface Elevation (feet): 108.13
TOC Elevation (feet) 111.13
Datum (feet) BM#11
Static Water Level: 5.61
Reference: TOC

Location:

Grouting/Seal

Depth/To	Material/Method
0-1.0'	Concrete
1.0-3.0'	Bentonite Holeplug

Description: Grid Coordinates: S 034 W1426

Sketch: North perimeter of property

Construction: X Abandonment: ___ Additional Field Notes: Log Book ___ Computer File ___

Thickness (feet)	Depth to Base (feet)	USCS *	Lithologic Description	Sample Depth	Blow Counts 6"	12"	18"	24"	Headspace	Background
3.5	3.5		Coal fines and rubble	No						
3.5	7.0	SW	Sand and gravel, black, brick, rubble	Sample						
1.5	9.5	SP	Sand, medium, black, occasional gravel stone, wet	Collected						

* = The USCS symbol assigned is based on visual and manual observations and not on tests performed in the laboratory.

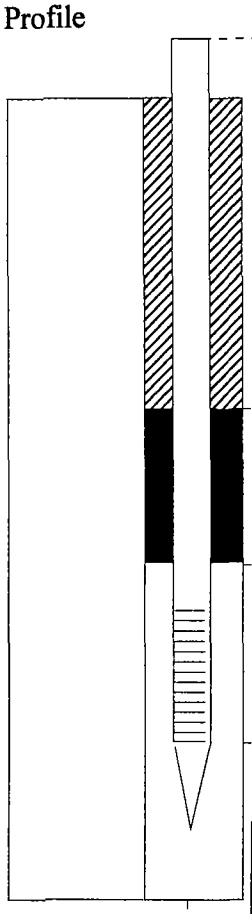
HORIZON ENVIRONMENTAL

Project Name: Detroit Coke
Project Number: DCC-0101

Log of Well Installation

Well Number: MW-4-95

Generalized Subsurface Profile



3.13' — Length of Casing Above Ground Surface

1.0 — Depth to Top of Grout or Backfill

Material (Grout or Backfill) Bentonite Holeplug

1.0' — Depth to Top of Bentonite Pellets

3.0' — Depth to Top of Filter Pack
Type: Silica Sand

8.0' — Depth to Bottom of Well Screen

Natural Cave-in — Borehole Backfill Material

9.5' — Total Depth of Borehole

Top of Casing Elevation (feet): 111.13

Water Level Data

Date	Time	Water Level	Elevation
6/9/95	1200	5.61 TOC	105.52
6/22/95		5.89 TOC	105.24

Development: Peristalic Pump
9 gallons

Survey Reference: BM# 11 @ 100.00

Well Casing
Diameter: 2"
Total Length: 6.0'
Material: Galvanized
Cap Type: J Plug

Well Screen
Diameter: 2"
Length: 60"
Slot/Type: 10 slot
Material: Stainless Steel

Protective Well Casing
Material: Steel Dia. 4" sq.
Height Above Ground: 3.2'
Lock Type: Master #3212

General Notes:

Horizon Environmental

Page: 1 of 1
Boring No.:
Completed Well No.: MW-5-95
Client: Detroit Coke
Project No.: DCC-0101
Date: Started: 6/8/95 Finished: 6/8/95
Time: Started: 1800 Finished: 1830

Well/Boring Log Sheet

State	County	City	Fraction	Section	T	R
MI	Wayne	City of Detroit			2S	11E

Contractor: T & T Drilling
Address: 4400 Grand River
Webberville, MI
Equipment: Mobile B-57
Crew Chief: Bob
Horizon Supervisor: E. Culver

Drilling Method(s)	Depth
8" HSA 4 1/4" ID	8.0'

Ground Surface Elevation (feet): 107.58
TOC Elevation (feet) 110.58
Datum (feet) BM#11
Static Water Level: 7.36
Reference: TOC

Location:

Grouting/Seal Depth/To	Material/Method
0-1.0'	Concrete Cap
1.0-2.0'	Bentonite

Description: Grid Coordinates: S 000 W606

Sketch: North perimeter of property

Construction: X Abandonment: ___ Additional Field Notes: Log Book ___ Computer File ___

Thickness (feet)	Depth to Base (feet)	USCS *	Lithologic Description	Sample Depth	Blow Counts 6"	12"	18"	24"	Headspace	Background
2.0	2.0		Coal fines, black	No						
3.0	5.0	SW	Sand & gravel, railway ballast, dark brown	Sample						
3.0	8.0		Coal fines, black, some rubble, wet	Collected						

* = The USCS symbol assigned is based on visual and manual observations and not on tests performed in the laboratory.

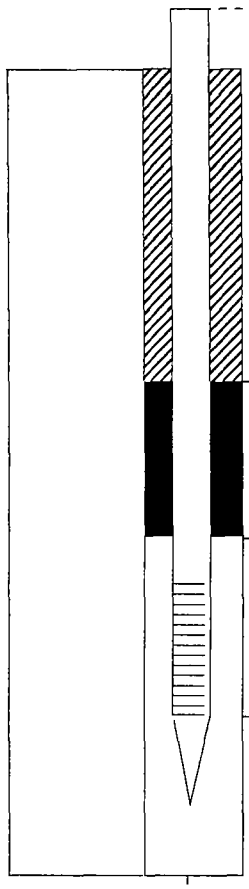
HORIZON ENVIRONMENTAL

Project Name: Detroit Coke
Project Number: DCC-0101

Log of Well Installation

Well Number: MW-5-95

Generalized Subsurface Profile



3.0'	Length of Casing Above Ground Surface
N/A	Depth to Top of Grout or Backfill
	Material (Grout or Backfill) N/A
1.0'	Depth to Top of Bentonite Pellets
2.5'	Depth to Top of Filter Pack Type: Silica Sand
8.0'	Depth to Bottom of Well Screen
N/A	Borehole Backfill Material
8.0'	Total Depth of Borehole

Top of Casing Elevation (feet): 110.58

Water Level Data

Date	Time	Water Level	Elevation
6/9/95	1140	7.36 TOC	103.22
6/22/95		7.89 TOC	102.69

Development: Peristalic Pump
7 gallons

Survey Reference: BM# 11 @ 100.00

Well Casing
Diameter: 2"
Total Length: 6.0'
Material: Galvanized
Cap Type: J Plug

Well Screen
Diameter: 2"
Length: 60"
Slot/Type: 10 slot
Material: Stainless Steel

Protective Well Casing
Material: Steel Dia. 4" sq.
Height Above Ground: 3.0'
Lock Type: Master #3212

General Notes:

32826- 3

STATEMENT OF DATA QUALIFICATIONS

All analyses have been validated and comply with our Quality Control Program. No qualifications required.

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STATEMENT OF DATA QUALIFICATIONS

Analysis: **Benzene**
Volatiles Purge & Trap-GC/MS
SOIL USEPA-8240

Qualification:

Analysis performed beyond established USEPA maximum allowable parameter hold time. Result must be considered estimated.

Explanation for Sample(s) listed below:

Sample has to be re-run out of hold on 6-23-95 for dilution.

Sample(s) Qualified: 120213 DC-SS-B1-2 9502-24 2-3'

Analysis: **Project Specific Organics**
Volatiles Purge & Trap-GC/MS
SOIL USEPA-8240

Qualification:

Surrogate spike result(s) for this sample and analysis had a recovery of > 10%, but are below the lower control limit for this method and matrix. All positive results must be considered estimated. All < or non-dectectable results must be considered approximate.

Sample(s) Qualified: 120201 DC-SSB20-1 9502-18 1-2

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32826- 2

STATEMENT OF DATA QUALIFICATIONS

Analysis: **Project Specific Organics**
Semi-Volatiles GC/MS
SOIL USEPA-8270

Qualification:

The reporting limit for this sample and the corresponding analysis is elevated due to an analytical interference which was a direct result of the sample matrix.

Explanation for Sample(s) listed below:

Due to a high boiling hydrocarbon matrix

Sample(s) Qualified:	120201	DC-SSB20-1	9502-18	1-2

Explanation for Sample(s) listed below:

Due to a high boiling hydrocarbon matrix.

Sample(s) Qualified:	120202	DC-SSB20-2	9502-19	1-2'
	120204	DC-SSB20-6	9502-32	1-2'

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32826- 2

STATEMENT OF DATA QUALIFICATIONS

Analysis: **Project Specific Organics**
Semi-Volatiles GC/MS
SOIL USEPA-8270

Qualification:

Surrogate results are unavailable due to positive results in the sample extract resulting in a dilution of greater than 1:5 of the sample extract.

Sample(s) Qualified:

120200	DC-SSB20-3	9502-30	DUP-2-3'
120205	DC-SSB2-1	9502-20	3-4'
120210	DC-SSB18-1	9502-16	2-3'
120211	DC-SSB18-4	9502-29	2-3'
120207	DC-SSB2-5	9502-14	2-3'
120201	DC-SSB20-1	9502-18	1-2
120202	DC-SSB20-2	9502-19	1-2'
120203	DC-SSB20-5	9502-31	1-2'
120204	DC-SSB20-6	9502-32	1-2'

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32826- 2

STATEMENT OF DATA QUALIFICATIONS

Analysis: **Semi-Volatile Organics**
Semi-Volatiles GC/MS
SOIL USEPA-8270

Qualification:

The reporting limit for this sample and the corresponding analysis is elevated due to an analytical interference which was a direct result of the sample matrix.

Explanation for Sample(s) listed below:

Due to a high boiling hydrocarbon matrix.

Sample(s) Qualified:	120214	DC-SSB1-2	9502-24	DUP-2-3'

Qualification:

Surrogate results are unavailable due to positive results in the sample extract resulting in a dilution of greater than 1:5 of the sample extract.

Sample(s) Qualified:	120213	DC-SS-B1-2	9502-24	2-3'
	120214	DC-SSB1-2	9502-24	DUP-2-3'
	120216	DC-BG02-	9502-05	2-3'
	120217	DC-BG04	9502-07	2-3'
	120218	DC-BG05	9502-08	2-3'
	120220	DC-BG07	9502-10	2-3'
	120221	DC-BG07	9502-10	DUP

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SEMI-VOLATILE ORGANICS
P/N/A SCAN

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB1-1
9502-23
5-6'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 09:30
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/03/95
Lab Sample No: 120212
Batch No: 87335

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<0.33		0.33
208-96-8	Acenaphthylene	<0.33		0.33
120-12-7	Anthracene	<0.33		0.33
56-55-3	Benzo (a) Anthracene	**0.87**		0.33
-----	Benzo (b&k) Fluoranthene	**2.3**		0.33
50-32-8	Benzo (a) Pyrene	**1.1**		0.33
191-24-2	Benzo (g,h,i,) Perylene	**1.2**		0.33
591-78-6	Chrysene	**1.1**		0.33
53-70-3	Dibenzo (a,h) Anthracene	<0.33		0.33
206-44-0	Fluoranthene	**1.1**		0.33
86-73-7	Fluorene	<0.33		0.33
193-39-5	Indeno (1,2,3-cd) Pyrene	**1.0**		0.33
91-20-3	Naphthalene	<0.33		0.33
85-01-8	Phenanthrene	**0.63**		0.33
129-00-0	Pyrene	**1.1**		0.33

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB1-1
9502-23
5-6'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 09:30
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/16/95
Lab Sample No: 120212
Batch No: 86559

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
71-43-2	Benzene	**0.021**		0.010
100-41-4	Ethylbenzene	<0.010		0.010
108-88-3	Toluene	<0.010		0.010
1330-20-7	Xylene, Total	<0.030		0.030

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-SSB1-1 9502-23 5-6'	Data C	Qualifiers Q	M	Units
Lab Sample No:	120212				
----- Percent Solids	79				%

Sampled by: Ed Culver
Date Sampled: 06/08/95
Time Sampled: 09:30
Date Received: 06/13/95
Time Received: 11:10

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SEMI-VOLATILE ORGANICS
P/N/A SCAN

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SS-B1-2
9502-24
2-3'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 11:05
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/27/95
Lab Sample No: 120213
Batch No: 87118

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<6.6		6.6
208-96-8	Acenaphthylene	<6.6		6.6
120-12-7	Anthracene	<6.6		6.6
56-55-3	Benzo (a) Anthracene	**12**		6.6
-----	Benzo (b&k) Fluoranthene	**25**		6.6
50-32-8	Benzo (a) Pyrene	**14**		6.6
191-24-2	Benzo (g,h,i,) Perylene	**11**		6.6
591-78-6	Chrysene	**13**		6.6
53-70-3	Dibenzo (a,h) Anthracene	<6.6		6.6
206-44-0	Fluoranthene	**20**		6.6
86-73-7	Fluorene	<6.6		6.6
193-39-5	Indeno (1,2,3-cd) Pyrene	**9.9**		6.6
91-20-3	Naphthalene	<6.6		6.6
85-01-8	Phenanthrene	**12**		6.6
129-00-0	Pyrene	**16**		6.6

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SS-B1-2
9502-24
2-3'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 11:05
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/22/95
Lab Sample No: 120213
Batch No: 86835

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
71-43-2	Benzene	* **40**		0.58
100-41-4	Ethylbenzene	**1.7**		0.29
108-88-3	Toluene	**8.8**		0.29
1330-20-7	Xylene, Total	**7.8**		0.87

* See attached Statement of Data Qualifications.

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-SS-B1-2 9502-24 2-3'	Data C	Qualifiers Q	M	Units
Lab Sample No:	120213				
----- Percent Solids	86				%

Sampled by: Ed Culver
Date Sampled: 06/08/95
Time Sampled: 11:05
Date Received: 06/13/95
Time Received: 11:10

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SEMI-VOLATILE ORGANICS
P/N/A SCAN

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB1-2
9502-24
DUP-2-3'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 11:05
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/27/95
Lab Sample No: 120214
Batch No: 87118

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<6.6		6.6
208-96-8	Acenaphthylene	<6.6		6.6
120-12-7	Anthracene	<6.6		6.6
56-55-3	Benzo (a) Anthracene	<6.6		6.6
-----	Benzo (b&k) Fluoranthene	**9.0**		6.6
50-32-8	Benzo (a) Pyrene	<6.6		6.6
191-24-2	Benzo (g,h,i,) Perylene	<6.6		6.6
591-78-6	Chrysene	<6.6		6.6
53-70-3	Dibenzo (a,h) Anthracene	<6.6		6.6
206-44-0	Fluoranthene	<6.6		6.6
86-73-7	Fluorene	<6.6		6.6
193-39-5	Indeno (1,2,3-cd) Pyrene	<6.6		6.6
91-20-3	Naphthalene	<6.6		6.6
85-01-8	Phenanthrene	<6.6		6.6
129-00-0	Pyrene	<6.6		6.6

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB1-2
9502-24
DUP-2-3'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 11:05
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/22/95
Lab Sample No: 120214
Batch No: 86835

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
71-43-2	Benzene	**20**		0.31
100-41-4	Ethylbenzene	**2.0**		0.31
108-88-3	Toluene	**12**		0.31
1330-20-7	Xylene, Total	**9.0**		0.93

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-SSB1-2 9502-24 DUP-2-3'	Data C	Qualifiers Q	M	Units
Lab Sample No:	120214				
----- Percent Solids	80				%

Sampled by: Ed Culver
Date Sampled: 06/08/95
Time Sampled: 11:05
Date Received: 06/13/95
Time Received: 11:10

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB2-1
9502-20
3-4'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 08:10
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/03/95
Lab Sample No: 120205
Batch No: 87335

*** See Note on last page of this sample analyses report**

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<3.3		3.3
208-96-8	Acenaphthylene	<3.3		3.3
120-12-7	Anthracene	<3.3		3.3
56-55-3	Benzo (a) Anthracene	**9.1**		3.3
50-32-8	Benzo (a) Pyrene	**16**		3.3
-----	Benzo (b&k) Fluoranthene	**24**		3.3
191-24-2	Benzo (g,h,i,) Perylene	**15**		3.3
65-85-0	Benzoic Acid	<33		33
100-51-6	Benzyl Alcohol	<13		13
111-91-1	Bis (2-Chloroethoxy)-Methane	<3.3		3.3
92-49-9	Bis (2-Chloroethyl) Ether	<3.3		3.3
-----	Bis (2-Chloroisopropyl)-Ether	<3.3		3.3
117-81-7	Bis (2-ethylhexyl)-Phthalate	<3.3		3.3
101-55-3	4-Bromophenyl Phenylether	<3.3		3.3
85-68-7	Butyl Benzyl Phthalate	<3.3		3.3
59-50-7	4-Chloro-3-Methylphenol	<3.3		3.3
106-47-8	4-Chloroaniline	<13		13
91-58-7	2-Chloronaphthalene	<3.3		3.3
95-57-8	2-Chlorophenol	<3.3		3.3
7005-72-3	4-Chlorophenylphenyl-Ether	<3.3		3.3
591-78-6	Chrysene	**10**		3.3
84-74-2	Di-n-Butylphthalate	<3.3		3.3
117-84-0	Di-n-Octylphthalate	<3.3		3.3
53-70-3	Dibenzo (a,h) Anthracene	<3.3		3.3
132-64-9	Dibenzofuran	<3.3		3.3
95-50-1	1,2-Dichlorobenzene	<3.3		3.3
541-73-1	1,3-Dichlorobenzene	<3.3		3.3
106-46-7	1,4-Dichlorobenzene	<3.3		3.3
91-94-1	3,3'-Dichlorobenzidine	<20		20
120-83-2	2,4-Dichlorophenol	<3.3		3.3
84-66-2	Diethylphthalate	<3.3		3.3

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB2-1
9502-20
3-4'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 08:10
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/03/95
Lab Sample No: 120205
Batch No: 87335

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
131-11-3	Dimethylphthalate	<3.3		3.3
105-67-9	2,4-Dimethylphenol	<3.3		3.3
534-52-1	4,6-Dinitro-2-Methylphenol	<17		17
51-28-5	2,4-Dinitrophenol	<17		17
121-14-2	2,4-Dinitrotoluene	<3.3		3.3
606-20-2	2,6-Dinitrotoluene	<3.3		3.3
206-44-0	Fluoranthene	**10**		3.3
86-73-7	Fluorene	<3.3		3.3
118-74-1	Hexachlorobenzene	<3.3		3.3
87-68-3	Hexachlorobutadiene	<3.3		3.3
77-47-4	Hexachlorocyclopentadiene	<3.3		3.3
67-72-1	Hexachloroethane	<3.3		3.3
193-39-5	Indeno (1,2,3-cd) Pyrene	**12**		3.3
78-59-1	Isophorone	<3.3		3.3
91-57-6	2-Methylnaphthalene	<3.3		3.3
95-48-7	2-Methylphenol	<3.3		3.3
106-44-5	4-Methylphenol	<3.3		3.3
-----	N-Nitrosodi-n-Propylamine	<3.3		3.3
156-10-5	N-Nitroso-di-Phenylamine	<3.3		3.3
91-20-3	Naphthalene	<3.3		3.3
88-74-4	2-Nitroaniline	<17		17
99-09-2	3-Nitroaniline	<17		17
100-01-6	4-Nitroaniline	<17		17
98-95-3	Nitrobenzene	<3.3		3.3
88-75-5	2-Nitrophenol	<3.3		3.3
100-02-7	4-Nitrophenol	<17		17
87-86-5	Pentachlorophenol	<17		17
85-01-8	Phenanthrene	**5.4**		3.3
108-95-2	Phenol	<3.3		3.3
129-00-0	Pyrene	**10**		3.3
120-82-1	1,2,4-Trichlorobenzene	<3.3		3.3
95-95-4	2,4,5-Trichlorophenol	<17		17
88-06-2	2,4,6-Trichlorophenol	<3.3		3.3
110-86-1	Pyridine	<3.3		3.3

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB2-1
9502-20
3-4'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 08:10
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/22/95
Lab Sample No: 120205
Batch No: 86835

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
71-43-2	Benzene	3.3		0.30
100-41-4	Ethylbenzene	1.3		0.30
108-88-3	Toluene	5.3		0.30
1330-20-7	Xylene, Total	6.1		0.90

DC-SSB2-1-9502-20
The sample taken from location B2-1 for the 3 to 4 foot interval was mislabelled in the field. It is actually from location B2-6. Soil boring B2-1 was not sampled below a depth of 2 to 3 feet. The mislabelling was also carried through the laboratory analysis so that the results for B2-6 from the 3 to 4 interval was erroneously presented as the results for B2-1 for that depth.

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-SSB2-1 9502-20 3-4'	Data C	Qualifiers Q	Qualifiers M	Units
Lab Sample No:	120205				
----- Percent Solids	84				%

Sampled by: Ed Culver
Date Sampled: 06/08/95
Time Sampled: 08:10
Date Received: 06/13/95
Time Received: 11:10

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB2-1
9502-21
6-8'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 08:12
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/03/95
Lab Sample No: 120206
Batch No: 87335

*** See Note on last page of this sample analyses report**

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<0.66		0.66
208-96-8	Acenaphthylene	<0.66		0.66
120-12-7	Anthracene	**0.73**		0.66
56-55-3	Benzo (a) Anthracene	**4.1**		0.66
50-32-8	Benzo (a) Pyrene	**6.2**		0.66
-----	Benzo (b&k) Fluoranthene	**5.7**		0.66
191-24-2	Benzo (g,h,i,) Perylene	**5.9**		0.66
65-85-0	Benzoic Acid	<6.6		6.6
100-51-6	Benzyl Alcohol	<2.6		2.6
111-91-1	Bis (2-Chloroethoxy)-Methane	<0.66		0.66
92-49-9	Bis (2-Chloroethyl) Ether	<0.66		0.66
-----	Bis (2-Chloroisopropyl)-Ether	<0.66		0.66
117-81-7	Bis (2-ethylhexyl)-Phthalate	<0.66		0.66
101-55-3	4-Bromophenyl Phenylether	<0.66		0.66
85-68-7	Butyl Benzyl Phthalate	<0.66		0.66
59-50-7	4-Chloro-3-Methylphenol	<0.66		0.66
106-47-8	4-Chloroaniline	<2.6		2.6
91-58-7	2-Chloronaphthalene	<0.66		0.66
95-57-8	2-Chlorophenol	<0.66		0.66
7005-72-3	4-Chlorophenylphenyl-Ether	<0.66		0.66
591-78-6	Chrysene	**4.3**		0.66
84-74-2	Di-n-Butylphthalate	<0.66		0.66
117-84-0	Di-n-Octylphthalate	<0.66		0.66
53-70-3	Dibenzo (a,h) Anthracene	**1.1**		0.66
132-64-9	Dibenzofuran	<0.66		0.66
95-50-1	1,2-Dichlorobenzene	<0.66		0.66
541-73-1	1,3-Dichlorobenzene	<0.66		0.66
106-46-7	1,4-Dichlorobenzene	<0.66		0.66
91-94-1	3,3'-Dichlorobenzidine	<4.0		4.0
120-83-2	2,4-Dichlorophenol	<0.66		0.66
84-66-2	Diethylphthalate	<0.66		0.66

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB2-1
9502-21
6-8'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 08:12
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/03/95
Lab Sample No: 120206
Batch No: 87335

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
131-11-3	Dimethylphthalate	<0.66		0.66
105-67-9	2,4-Dimethylphenol	<0.66		0.66
534-52-1	4,6-Dinitro-2-Methylphenol	<3.4		3.4
51-28-5	2,4-Dinitrophenol	<3.4		3.4
121-14-2	2,4-Dinitrotoluene	<0.66		0.66
606-20-2	2,6-Dinitrotoluene	<0.66		0.66
206-44-0	Fluoranthene	**5.0**		0.66
86-73-7	Fluorene	<0.66		0.66
118-74-1	Hexachlorobenzene	<0.66		0.66
87-68-3	Hexachlorobutadiene	<0.66		0.66
77-47-4	Hexachlorocyclopentadiene	<0.66		0.66
67-72-1	Hexachloroethane	<0.66		0.66
193-39-5	Indeno (1,2,3-cd) Pyrene	**5.1**		0.66
78-59-1	Isophorone	<0.66		0.66
91-57-6	2-Methylnaphthalene	**1.2**		0.66
95-48-7	2-Methylphenol	<0.66		0.66
106-44-5	4-Methylphenol	<0.66		0.66
-----	N-Nitrosodi-n-Propylamine	<0.66		0.66
156-10-5	N-Nitroso-di-Phenylamine	<0.66		0.66
91-20-3	Naphthalene	**2.7**		0.66
88-74-4	2-Nitroaniline	<3.4		3.4
99-09-2	3-Nitroaniline	<3.4		3.4
100-01-6	4-Nitroaniline	<3.4		3.4
98-95-3	Nitrobenzene	<0.66		0.66
88-75-5	2-Nitrophenol	<0.66		0.66
100-02-7	4-Nitrophenol	<3.4		3.4
87-86-5	Pentachlorophenol	<3.4		3.4
85-01-8	Phenanthrene	**3.2**		0.66
108-95-2	Phenol	<0.66		0.66
129-00-0	Pyrene	**4.5**		0.66
120-82-1	1,2,4-Trichlorobenzene	<0.66		0.66
95-95-4	2,4,5-Trichlorophenol	<3.4		3.4
88-06-2	2,4,6-Trichlorophenol	<0.66		0.66
110-86-1	Pyridine	<0.66		0.66

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB2-1
9502-21
6-8'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 08:12
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/16/95
Lab Sample No: 120206
Batch No: 86559

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
71-43-2	Benzene	<0.010		0.010
100-41-4	Ethylbenzene	<0.010		0.010
108-88-3	Toluene	<0.010		0.010
1330-20-7	Xylene, Total	<0.030		0.030

DC-SSSB2-1-9502-21

The samples taken from location B2-1 for the 6 to 8 foot interval was mislabelled in the field. It is actually from location B2-6. Soil boring B2-1 was not sampled below a depth of 2 to 3 feet. The mislabelling was also carried through the laboratory analysis so that the results for B2-6 from the 6 to 8 foot interval was erroneously presented as the results for B2-1 for that depth.

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-SSB2-1 9502-21 6-8'	Data C	Qualifiers Q	M	Units
Lab Sample No:	120206				
----- Percent Solids	82				%

Sampled by: Ed Culver
Date Sampled: 06/08/95
Time Sampled: 08:12
Date Received: 06/13/95
Time Received: 11:10

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB2-5
9502-14
2-3'

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 14:03
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/29/95
Lab Sample No: 120207
Batch No: 87140

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<33		33
208-96-8	Acenaphthylene	<33		33
120-12-7	Anthracene	**68**		33
56-55-3	Benzo (a) Anthracene	**83**		33
50-32-8	Benzo (a) Pyrene	**56**		33
-----	Benzo (b&k) Fluoranthene	**130**		33
191-24-2	Benzo (g,h,i,) Perylene	**36**		33
65-85-0	Benzoic Acid	<330		330
100-51-6	Benzyl Alcohol	<130		130
111-91-1	Bis (2-Chloroethoxy)-Methane	<33		33
92-49-9	Bis (2-Chloroethyl) Ether	<33		33
-----	Bis (2-Chloroisopropyl)-Ether	<33		33
117-81-7	Bis (2-ethylhexyl)-Phthalate	<33		33
101-55-3	4-Bromophenyl Phenylether	<33		33
85-68-7	Butyl Benzyl Phthalate	<33		33
59-50-7	4-Chloro-3-Methylphenol	<33		33
106-47-8	4-Chloroaniline	<130		130
91-58-7	2-Chloronaphthalene	<33		33
95-57-8	2-Chlorophenol	<33		33
7005-72-3	4-Chlorophenylphenyl-Ether	<33		33
591-78-6	Chrysene	**75**		33
84-74-2	Di-n-Butylphthalate	<33		33
117-84-0	Di-n-Octylphthalate	<33		33
53-70-3	Dibenzo (a,h) Anthracene	<33		33
132-64-9	Dibenzofuran	<33		33
95-50-1	1,2-Dichlorobenzene	<33		33
541-73-1	1,3-Dichlorobenzene	<33		33
106-46-7	1,4-Dichlorobenzene	<33		33
91-94-1	3,3'-Dichlorobenzidine	<200		200
120-83-2	2,4-Dichlorophenol	<33		33
84-66-2	Diethylphthalate	<33		33

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB2-5
9502-14
2-3'

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 14:03
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/29/95
Lab Sample No: 120207
Batch No: 87140

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
131-11-3	Dimethylphthalate	<33		33
105-67-9	2,4-Dimethylphenol	<33		33
534-52-1	4,6-Dinitro-2-Methylphenol	<170		170
51-28-5	2,4-Dinitrophenol	<170		170
121-14-2	2,4-Dinitrotoluene	<33		33
606-20-2	2,6-Dinitrotoluene	<33		33
206-44-0	Fluoranthene	**170**		33
86-73-7	Fluorene	**43**		33
118-74-1	Hexachlorobenzene	<33		33
87-68-3	Hexachlorobutadiene	<33		33
77-47-4	Hexachlorocyclopentadiene	<33		33
67-72-1	Hexachloroethane	<33		33
193-39-5	Indeno (1,2,3-cd) Pyrene	<33		33
78-59-1	Isophorone	<33		33
91-57-6	2-Methylnaphthalene	<33		33
95-48-7	2-Methylphenol	<33		33
106-44-5	4-Methylphenol	<33		33
-----	N-Nitrosodi-n-Propylamine	<33		33
156-10-5	N-Nitroso-di-Phenylamine	<33		33
91-20-3	Naphthalene	**51**		33
88-74-4	2-Nitroaniline	<170		170
99-09-2	3-Nitroaniline	<170		170
100-01-6	4-Nitroaniline	<170		170
98-95-3	Nitrobenzene	<33		33
88-75-5	2-Nitrophenol	<33		33
100-02-7	4-Nitrophenol	<170		170
87-86-5	Pentachlorophenol	<170		170
85-01-8	Phenanthrene	**220**		33
108-95-2	Phenol	<33		33
129-00-0	Pyrene	**140**		33
120-82-1	1,2,4-Trichlorobenzene	<33		33
95-95-4	2,4,5-Trichlorophenol	<170		170
88-06-2	2,4,6-Trichlorophenol	<33		33
110-86-1	Pyridine	<33		33

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB2-5
9502-14
2-3'

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 14:03
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/16/95
Lab Sample No: 120207
Batch No: 86559

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
71-43-2	Benzene	<0.010		0.010
100-41-4	Ethylbenzene	<0.010		0.010
108-88-3	Toluene	<0.010		0.010
1330-20-7	Xylene, Total	<0.030		0.030

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-SSB2-5 9502-14 2-3'	Data C	Qualifiers Q	M	Units
Lab Sample No:	120207				
----- Percent Solids	85				%

Sampled by: Ed Culver
Date Sampled: 06/07/95
Time Sampled: 14:03
Date Received: 06/13/95
Time Received: 11:10

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB2-6
9502-15
2-3'

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 14:20
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/03/95
Lab Sample No: 120208
Batch No: 87335

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<0.66		0.66
208-96-8	Acenaphthylene	<0.66		0.66
120-12-7	Anthracene	**1.3**		0.66
56-55-3	Benzo (a) Anthracene	**2.8**		0.66
50-32-8	Benzo (a) Pyrene	**3.6**		0.66
-----	Benzo (b&k) Fluoranthene	**6.7**		0.66
191-24-2	Benzo (g,h,i,) Perylene	**3.2**		0.66
65-85-0	Benzoic Acid	<6.6		6.6
100-51-6	Benzyl Alcohol	<2.6		2.6
111-91-1	Bis (2-Chloroethoxy)-Methane	<0.66		0.66
92-49-9	Bis (2-Chloroethyl) Ether	<0.66		0.66
-----	Bis (2-Chloroisopropyl)-Ether	<0.66		0.66
117-81-7	Bis (2-ethylhexyl)-Phthalate	<0.66		0.66
101-55-3	4-Bromophenyl Phenylether	<0.66		0.66
85-68-7	Butyl Benzyl Phthalate	<0.66		0.66
59-50-7	4-Chloro-3-Methylphenol	<0.66		0.66
106-47-8	4-Chloroaniline	<2.6		2.6
91-58-7	2-Chloronaphthalene	<0.66		0.66
95-57-8	2-Chlorophenol	<0.66		0.66
7005-72-3	4-Chlorophenylphenyl-Ether	<0.66		0.66
591-78-6	Chrysene	**3.5**		0.66
84-74-2	Di-n-Butylphthalate	<0.66		0.66
117-84-0	Di-n-Octylphthalate	<0.66		0.66
53-70-3	Dibenzo (a,h) Anthracene	<0.66		0.66
132-64-9	Dibenzofuran	**0.82**		0.66
95-50-1	1,2-Dichlorobenzene	<0.66		0.66
541-73-1	1,3-Dichlorobenzene	<0.66		0.66
106-46-7	1,4-Dichlorobenzene	<0.66		0.66
91-94-1	3,3'-Dichlorobenzidine	<4.0		4.0
120-83-2	2,4-Dichlorophenol	<0.66		0.66
84-66-2	Diethylphthalate	<0.66		0.66

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB2-6
9502-15
2-3'

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 14:20
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/03/95
Lab Sample No: 120208
Batch No: 87335

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
131-11-3	Dimethylphthalate	<0.66		0.66
105-67-9	2,4-Dimethylphenol	<0.66		0.66
534-52-1	4,6-Dinitro-2-Methylphenol	<3.4		3.4
51-28-5	2,4-Dinitrophenol	<3.4		3.4
121-14-2	2,4-Dinitrotoluene	<0.66		0.66
606-20-2	2,6-Dinitrotoluene	<0.66		0.66
206-44-0	Fluoranthene	**4.7**		0.66
86-73-7	Fluorene	<0.66		0.66
118-74-1	Hexachlorobenzene	<0.66		0.66
87-68-3	Hexachlorobutadiene	<0.66		0.66
77-47-4	Hexachlorocyclopentadiene	<0.66		0.66
67-72-1	Hexachloroethane	<0.66		0.66
193-39-5	Indeno (1,2,3-cd) Pyrene	**2.8**		0.66
78-59-1	Isophorone	<0.66		0.66
91-57-6	2-Methylnaphthalene	**0.69**		0.66
95-48-7	2-Methylphenol	<0.66		0.66
106-44-5	4-Methylphenol	<0.66		0.66
-----	N-Nitrosodi-n-Propylamine	<0.66		0.66
156-10-5	N-Nitroso-di-Phenylamine	<0.66		0.66
91-20-3	Naphthalene	**2.5**		0.66
88-74-4	2-Nitroaniline	<3.4		3.4
99-09-2	3-Nitroaniline	<3.4		3.4
100-01-6	4-Nitroaniline	<3.4		3.4
98-95-3	Nitrobenzene	<0.66		0.66
88-75-5	2-Nitrophenol	<0.66		0.66
100-02-7	4-Nitrophenol	<3.4		3.4
87-86-5	Pentachlorophenol	<3.4		3.4
85-01-8	Phenanthrene	**4.4**		0.66
108-95-2	Phenol	<0.66		0.66
129-00-0	Pyrene	**4.6**		0.66
120-82-1	1,2,4-Trichlorobenzene	<0.66		0.66
95-95-4	2,4,5-Trichlorophenol	<3.4		3.4
88-06-2	2,4,6-Trichlorophenol	<0.66		0.66
110-86-1	Pyridine	<0.66		0.66

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB2-6
9502-15
2-3'

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 14:20
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/16/95
Lab Sample No: 120208
Batch No: 86559

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
71-43-2	Benzene	<0.010		0.010
100-41-4	Ethylbenzene	<0.010		0.010
108-88-3	Toluene	<0.010		0.010
1330-20-7	Xylene, Total	<0.030		0.030

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-SSB2-6 9502-15 2-3'	Data C	Qualifiers Q	Qualifiers M	Units
Lab Sample No:	120208				
----- Percent Solids	91				%

Sampled by: Ed Culver
Date Sampled: 06/07/95
Time Sampled: 14:20
Date Received: 06/13/95
Time Received: 11:10

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB2-7
9502-27
3-4'

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 13:40
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/05/95
Lab Sample No: 120209
Batch No: 87334

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<1.7		1.7
208-96-8	Acenaphthylene	<1.7		1.7
120-12-7	Anthracene	<1.7		1.7
56-55-3	Benzo (a) Anthracene	**2.0**		1.7
50-32-8	Benzo (a) Pyrene	**2.4**		1.7
-----	Benzo (b&k) Fluoranthene	**4.6**		1.7
191-24-2	Benzo (g,h,i,) Perylene	**2.0**		1.7
65-85-0	Benzoic Acid	<17		17
100-51-6	Benzyl Alcohol	<6.5		6.5
111-91-1	Bis (2-Chloroethoxy)-Methane	<1.7		1.7
92-49-9	Bis (2-Chloroethyl) Ether	<1.7		1.7
-----	Bis (2-Chloroisopropyl)-Ether	<1.7		1.7
117-81-7	Bis (2-ethylhexyl)-Phthalate	<1.7		1.7
101-55-3	4-Bromophenyl Phenylether	<1.7		1.7
85-68-7	Butyl Benzyl Phthalate	<1.7		1.7
59-50-7	4-Chloro-3-Methylphenol	<1.7		1.7
106-47-8	4-Chloroaniline	<6.5		6.5
91-58-7	2-Chloronaphthalene	<1.7		1.7
95-57-8	2-Chlorophenol	<1.7		1.7
7005-72-3	4-Chlorophenylphenyl-Ether	<1.7		1.7
591-78-6	Chrysene	**2.2**		1.7
84-74-2	Di-n-Butylphthalate	<1.7		1.7
117-84-0	Di-n-Octylphthalate	<1.7		1.7
53-70-3	Dibenzo (a,h) Anthracene	<1.7		1.7
132-64-9	Dibenzofuran	<1.7		1.7
95-50-1	1,2-Dichlorobenzene	<1.7		1.7
541-73-1	1,3-Dichlorobenzene	<1.7		1.7
106-46-7	1,4-Dichlorobenzene	<1.7		1.7
91-94-1	3,3'-Dichlorobenzidine	<10		10
120-83-2	2,4-Dichlorophenol	<1.7		1.7
84-66-2	Diethylphthalate	<1.7		1.7

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB2-7
9502-27
3-4'

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 13:40
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/05/95
Lab Sample No: 120209
Batch No: 87334

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
131-11-3	Dimethylphthalate	<1.7		1.7
105-67-9	2,4-Dimethylphenol	<1.7		1.7
534-52-1	4,6-Dinitro-2-Methylphenol	<8.5		8.5
51-28-5	2,4-Dinitrophenol	<8.5		8.5
121-14-2	2,4-Dinitrotoluene	<1.7		1.7
606-20-2	2,6-Dinitrotoluene	<1.7		1.7
206-44-0	Fluoranthene	**2.6**		1.7
86-73-7	Fluorene	<1.7		1.7
118-74-1	Hexachlorobenzene	<1.7		1.7
87-68-3	Hexachlorobutadiene	<1.7		1.7
77-47-4	Hexachlorocyclopentadiene	<1.7		1.7
67-72-1	Hexachloroethane	<1.7		1.7
193-39-5	Indeno (1,2,3-cd) Pyrene	**1.7**		1.7
78-59-1	Isophorone	<1.7		1.7
91-57-6	2-Methylnaphthalene	<1.7		1.7
95-48-7	2-Methylphenol	<1.7		1.7
106-44-5	4-Methylphenol	<1.7		1.7
-----	N-Nitrosodi-n-Propylamine	<1.7		1.7
156-10-5	N-Nitroso-di-Phenylamine	<1.7		1.7
91-20-3	Naphthalene	<1.7		1.7
88-74-4	2-Nitroaniline	<8.5		8.5
99-09-2	3-Nitroaniline	<8.5		8.5
100-01-6	4-Nitroaniline	<8.5		8.5
98-95-3	Nitrobenzene	<1.7		1.7
88-75-5	2-Nitrophenol	<1.7		1.7
100-02-7	4-Nitrophenol	<8.5		8.5
87-86-5	Pentachlorophenol	<8.5		8.5
85-01-8	Phenanthrene	**2.0**		1.7
108-95-2	Phenol	<1.7		1.7
129-00-0	Pyrene	**2.3**		1.7
120-82-1	1,2,4-Trichlorobenzene	<1.7		1.7
95-95-4	2,4,5-Trichlorophenol	<8.5		8.5
88-06-2	2,4,6-Trichlorophenol	<1.7		1.7
110-86-1	Pyridine	<1.7		1.7

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB2-7
9502-27
3-4'

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 13:40
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/15/95
Lab Sample No: 120209
Batch No: 86369

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
71-43-2	Benzene	<0.010		0.010
100-41-4	Ethylbenzene	<0.010		0.010
108-88-3	Toluene	<0.010		0.010
1330-20-7	Xylene, Total	<0.030		0.030

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-SSB2-7 9502-27 3-4'	Data C	Qualifiers Q	Qualifiers M	Units
Lab Sample No:	120209				
----- Percent Solids	79				%

Sampled by:	Ed Culver
Date Sampled:	06/07/95
Time Sampled:	13:40
Date Received:	06/13/95
Time Received:	11:10

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB18-1
9502-16
2-3'

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 15:25
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/03/95
Lab Sample No: 120210
Batch No: 87335

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<3.3		3.3
208-96-8	Acenaphthylene	<3.3		3.3
120-12-7	Anthracene	<3.3		3.3
56-55-3	Benzo (a) Anthracene	**3.7**		3.3
50-32-8	Benzo (a) Pyrene	**4.5**		3.3
-----	Benzo (b&k) Fluoranthene	**8.8**		3.3
191-24-2	Benzo (g,h,i,) Perylene	<3.3		3.3
65-85-0	Benzoic Acid	<33		33
100-51-6	Benzyl Alcohol	<13		13
111-91-1	Bis (2-Chloroethoxy)-Methane	<3.3		3.3
92-49-9	Bis (2-Chloroethyl) Ether	<3.3		3.3
-----	Bis (2-Chloroisopropyl)-Ether	<3.3		3.3
117-81-7	Bis (2-ethylhexyl)-Phthalate	<3.3		3.3
101-55-3	4-Bromophenyl Phenylether	<3.3		3.3
85-68-7	Butyl Benzyl Phthalate	<3.3		3.3
59-50-7	4-Chloro-3-Methylphenol	<3.3		3.3
106-47-8	4-Chloroaniline	<13		13
91-58-7	2-Chloronaphthalene	<3.3		3.3
95-57-8	2-Chlorophenol	<3.3		3.3
7005-72-3	4-Chlorophenylphenyl-Ether	<3.3		3.3
591-78-6	Chrysene	**5.7**		3.3
84-74-2	Di-n-Butylphthalate	<3.3		3.3
117-84-0	Di-n-Octylphthalate	<3.3		3.3
53-70-3	Dibenzo (a,h) Anthracene	<3.3		3.3
132-64-9	Dibenzofuran	<3.3		3.3
95-50-1	1,2-Dichlorobenzene	<3.3		3.3
541-73-1	1,3-Dichlorobenzene	<3.3		3.3
106-46-7	1,4-Dichlorobenzene	<3.3		3.3
91-94-1	3,3'-Dichlorobenzidine	<20		20
120-83-2	2,4-Dichlorophenol	<3.3		3.3
84-66-2	Diethylphthalate	<3.3		3.3

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB18-1
9502-16
2-3'

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 15:25
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/03/95
Lab Sample No: 120210
Batch No: 87335

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
131-11-3	Dimethylphthalate	<3.3		3.3
105-67-9	2,4-Dimethylphenol	<3.3		3.3
534-52-1	4,6-Dinitro-2-Methylphenol	<17		17
51-28-5	2,4-Dinitrophenol	<17		17
121-14-2	2,4-Dinitrotoluene	<3.3		3.3
606-20-2	2,6-Dinitrotoluene	<3.3		3.3
206-44-0	Fluoranthene	**6.9**		3.3
86-73-7	Fluorene	<3.3		3.3
118-74-1	Hexachlorobenzene	<3.3		3.3
87-68-3	Hexachlorobutadiene	<3.3		3.3
77-47-4	Hexachlorocyclopentadiene	<3.3		3.3
67-72-1	Hexachloroethane	<3.3		3.3
193-39-5	Indeno (1,2,3-cd) Pyrene	<3.3		3.3
78-59-1	Isophorone	<3.3		3.3
91-57-6	2-Methylnaphthalene	**4.2**		3.3
95-48-7	2-Methylphenol	<3.3		3.3
106-44-5	4-Methylphenol	<3.3		3.3
-----	N-Nitrosodi-n-Propylamine	<3.3		3.3
156-10-5	N-Nitroso-di-Phenylamine	<3.3		3.3
91-20-3	Naphthalene	**51**		3.3
88-74-4	2-Nitroaniline	<17		17
99-09-2	3-Nitroaniline	<17		17
100-01-6	4-Nitroaniline	<17		17
98-95-3	Nitrobenzene	<3.3		3.3
88-75-5	2-Nitrophenol	<3.3		3.3
100-02-7	4-Nitrophenol	<17		17
87-86-5	Pentachlorophenol	<17		17
85-01-8	Phenanthrene	**3.8**		3.3
108-95-2	Phenol	<3.3		3.3
129-00-0	Pyrene	**5.7**		3.3
120-82-1	1,2,4-Trichlorobenzene	<3.3		3.3
95-95-4	2,4,5-Trichlorophenol	<17		17
88-06-2	2,4,6-Trichlorophenol	<3.3		3.3
110-86-1	Pyridine	<3.3		3.3

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB18-1
9502-16
2-3'

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 15:25
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/15/95
Lab Sample No: 120210
Batch No: 86369

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
71-43-2	Benzene	**0.056**		0.010
100-41-4	Ethylbenzene	<0.010		0.010
108-88-3	Toluene	<0.010		0.010
1330-20-7	Xylene, Total	<0.030		0.030

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-SSB18-1 9502-16 2-3'	Data C	Qualifiers Q	M	Units
Lab Sample No:	120210				
----- Percent Solids	85				%

Sampled by:	Ed Culver
Date Sampled:	06/07/95
Time Sampled:	15:25
Date Received:	06/13/95
Time Received:	11:10

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB18-4
9502-29
2-3'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 14:10
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/03/95
Lab Sample No: 120211
Batch No: 87335

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<3.3		3.3
208-96-8	Acenaphthylene	<3.3		3.3
120-12-7	Anthracene	<3.3		3.3
56-55-3	Benzo (a) Anthracene	<3.3		3.3
50-32-8	Benzo (a) Pyrene	<3.3		3.3
-----	Benzo (b&k) Fluoranthene	**4.2**		3.3
191-24-2	Benzo (g,h,i,) Perylene	<3.3		3.3
65-85-0	Benzoic Acid	<33		33
100-51-6	Benzyl Alcohol	<13		13
111-91-1	Bis (2-Chloroethoxy)-Methane	<3.3		3.3
92-49-9	Bis (2-Chloroethyl) Ether	<3.3		3.3
-----	Bis (2-Chloroisopropyl)-Ether	<3.3		3.3
117-81-7	Bis (2-ethylhexyl)-Phthalate	<3.3		3.3
101-55-3	4-Bromophenyl Phenylether	<3.3		3.3
85-68-7	Butyl Benzyl Phthalate	<3.3		3.3
59-50-7	4-Chloro-3-Methylphenol	<3.3		3.3
106-47-8	4-Chloroaniline	<13		13
91-58-7	2-Chloronaphthalene	<3.3		3.3
95-57-8	2-Chlorophenol	<3.3		3.3
7005-72-3	4-Chlorophenylphenyl-Ether	<3.3		3.3
591-78-6	Chrysene	<3.3		3.3
84-74-2	Di-n-Butylphthalate	<3.3		3.3
117-84-0	Di-n-Octylphthalate	<3.3		3.3
53-70-3	Dibenzo (a,h) Anthracene	<3.3		3.3
132-64-9	Dibenzofuran	<3.3		3.3
95-50-1	1,2-Dichlorobenzene	<3.3		3.3
541-73-1	1,3-Dichlorobenzene	<3.3		3.3
106-46-7	1,4-Dichlorobenzene	<3.3		3.3
91-94-1	3,3'-Dichlorobenzidine	<20		20
120-83-2	2,4-Dichlorophenol	<3.3		3.3
84-66-2	Diethylphthalate	<3.3		3.3

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB18-4
9502-29
2-3'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 14:10
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/03/95
Lab Sample No: 120211
Batch No: 87335

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
131-11-3	Dimethylphthalate	<3.3		3.3
105-67-9	2,4-Dimethylphenol	<3.3		3.3
534-52-1	4,6-Dinitro-2-Methylphenol	<17		17
51-28-5	2,4-Dinitrophenol	<17		17
121-14-2	2,4-Dinitrotoluene	<3.3		3.3
606-20-2	2,6-Dinitrotoluene	<3.3		3.3
206-44-0	Fluoranthene	**4.8**		3.3
86-73-7	Fluorene	<3.3		3.3
118-74-1	Hexachlorobenzene	<3.3		3.3
87-68-3	Hexachlorobutadiene	<3.3		3.3
77-47-4	Hexachlorocyclopentadiene	<3.3		3.3
67-72-1	Hexachloroethane	<3.3		3.3
193-39-5	Indeno (1,2,3-cd) Pyrene	<3.3		3.3
78-59-1	Isophorone	<3.3		3.3
91-57-6	2-Methylnaphthalene	**4.6**		3.3
95-48-7	2-Methylphenol	<3.3		3.3
106-44-5	4-Methylphenol	<3.3		3.3
-----	N-Nitrosodi-n-Propylamine	<3.3		3.3
156-10-5	N-Nitroso-di-Phenylamine	<3.3		3.3
91-20-3	Naphthalene	**45**		3.3
88-74-4	2-Nitroaniline	<17		17
99-09-2	3-Nitroaniline	<17		17
100-01-6	4-Nitroaniline	<17		17
98-95-3	Nitrobenzene	<3.3		3.3
88-75-5	2-Nitrophenol	<3.3		3.3
100-02-7	4-Nitrophenol	<17		17
87-86-5	Pentachlorophenol	<17		17
85-01-8	Phenanthrene	**4.5**		3.3
108-95-2	Phenol	<3.3		3.3
129-00-0	Pyrene	<3.3		3.3
120-82-1	1,2,4-Trichlorobenzene	<3.3		3.3
95-95-4	2,4,5-Trichlorophenol	<17		17
88-06-2	2,4,6-Trichlorophenol	<3.3		3.3
110-86-1	Pyridine	<3.3		3.3

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB18-4
9502-29
2-3'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 14:10
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/15/95
Lab Sample No: 120211
Batch No: 86369

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
71-43-2	Benzene	**0.14**		0.010
100-41-4	Ethylbenzene	<0.010		0.010
108-88-3	Toluene	**0.056**		0.010
1330-20-7	Xylene, Total	**0.23**		0.030

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-SSB18-4 9502-29 2-3'	Data C	Qualifiers Q	M	Units
Lab Sample No:	120211				
----- Percent Solids	94				%

Sampled by: Ed Culver
Date Sampled: 06/08/95
Time Sampled: 14:10
Date Received: 06/13/95
Time Received: 11:10

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-1
9502-18
1-2

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 16:36
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/05/95
Lab Sample No: 120201
Batch No: 87334

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<17		17
208-96-8	Acenaphthylene	<17		17
120-12-7	Anthracene	<17		17
56-55-3	Benzo (a) Anthracene	<17		17
50-32-8	Benzo (a) Pyrene	<17		17
-----	Benzo (b&k) Fluoranthene	<17		17
191-24-2	Benzo (g,h,i,) Perylene	<17		17
65-85-0	Benzoic Acid	<170		170
100-51-6	Benzyl Alcohol	<65		65
111-91-1	Bis (2-Chloroethoxy)-Methane	<17		17
92-49-9	Bis (2-Chloroethyl) Ether	<17		17
-----	Bis (2-Chloroisopropyl)-Ether	<17		17
117-81-7	Bis (2-ethylhexyl)-Phthalate	<17		17
101-55-3	4-Bromophenyl Phenylether	<17		17
85-68-7	Butyl Benzyl Phthalate	<17		17
59-50-7	4-Chloro-3-Methylphenol	<17		17
106-47-8	4-Chloroaniline	<65		65
91-58-7	2-Chloronaphthalene	<17		17
95-57-8	2-Chlorophenol	<17		17
7005-72-3	4-Chlorophenylphenyl-Ether	<17		17
591-78-6	Chrysene	<17		17
84-74-2	Di-n-Butylphthalate	<17		17
117-84-0	Di-n-Octylphthalate	<17		17
53-70-3	Dibenzo (a,h) Anthracene	<17		17
132-64-9	Dibenzofuran	<17		17
95-50-1	1,2-Dichlorobenzene	<17		17
541-73-1	1,3-Dichlorobenzene	<17		17
106-46-7	1,4-Dichlorobenzene	<17		17
91-94-1	3,3'-Dichlorobenzidine	<100		100
120-83-2	2,4-Dichlorophenol	<17		17
84-66-2	Diethylphthalate	<17		17

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-1
9502-18
1-2

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 16:36
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/05/95
Lab Sample No: 120201
Batch No: 87334

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
131-11-3	Dimethylphthalate	<17		17
105-67-9	2,4-Dimethylphenol	<17		17
534-52-1	4,6-Dinitro-2-Methylphenol	<85		85
51-28-5	2,4-Dinitrophenol	<85		85
121-14-2	2,4-Dinitrotoluene	<17		17
606-20-2	2,6-Dinitrotoluene	<17		17
206-44-0	Fluoranthene	<17		17
86-73-7	Fluorene	<17		17
118-74-1	Hexachlorobenzene	<17		17
87-68-3	Hexachlorobutadiene	<17		17
77-47-4	Hexachlorocyclopentadiene	<17		17
67-72-1	Hexachloroethane	<17		17
193-39-5	Indeno (1,2,3-cd) Pyrene	<17		17
78-59-1	Isophorone	<17		17
91-57-6	2-Methylnaphthalene	<17		17
95-48-7	2-Methylphenol	<17		17
106-44-5	4-Methylphenol	<17		17
-----	N-Nitrosodi-n-Propylamine	<17		17
156-10-5	N-Nitroso-di-Phenylamine	<17		17
91-20-3	Naphthalene	<17		17
88-74-4	2-Nitroaniline	<85		85
99-09-2	3-Nitroaniline	<85		85
100-01-6	4-Nitroaniline	<85		85
98-95-3	Nitrobenzene	<17		17
88-75-5	2-Nitrophenol	<17		17
100-02-7	4-Nitrophenol	<85		85
87-86-5	Pentachlorophenol	<85		85
85-01-8	Phenanthrene	<17		17
108-95-2	Phenol	<17		17
129-00-0	Pyrene	<17		17
120-82-1	1,2,4-Trichlorobenzene	<17		17
95-95-4	2,4,5-Trichlorophenol	<85		85
88-06-2	2,4,6-Trichlorophenol	<17		17
110-86-1	Pyridine	<17		17

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-1
9502-18
1-2

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 16:36
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/14/95
Lab Sample No: 120201
Batch No: 86272

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
71-43-2	Benzene	**0.013**		0.010
100-41-4	Ethylbenzene	**0.019**		0.010
108-88-3	Toluene	**0.029**		0.010
1330-20-7	Xylene, Total	**0.39**		0.030

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-SSB20-1 9502-18 1-2	Data C	Qualifiers Q	Qualifiers M	Units
Lab Sample No:	120201				
----- Percent Solids	88				%

Sampled by: Ed Culver
Date Sampled: 06/07/95
Time Sampled: 16:36
Date Received: 06/13/95
Time Received: 11:10

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-2
9502-19
1-2'

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 16:55
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/05/95
Lab Sample No: 120202
Batch No: 87334

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<33		33
208-96-8	Acenaphthylene	<33		33
120-12-7	Anthracene	<33		33
56-55-3	Benzo (a) Anthracene	<33		33
50-32-8	Benzo (a) Pyrene	<33		33
-----	Benzo (b&k) Fluoranthene	<33		33
191-24-2	Benzo (g,h,i,) Perylene	<33		33
65-85-0	Benzoic Acid	<330		330
100-51-6	Benzyl Alcohol	<130		130
111-91-1	Bis (2-Chloroethoxy)-Methane	<33		33
92-49-9	Bis (2-Chloroethyl) Ether	<33		33
-----	Bis (2-Chloroisopropyl)-Ether	<33		33
117-81-7	Bis (2-ethylhexyl)-Phthalate	<33		33
101-55-3	4-Bromophenyl Phenylether	<33		33
85-68-7	Butyl Benzyl Phthalate	<33		33
59-50-7	4-Chloro-3-Methylphenol	<33		33
106-47-8	4-Chloroaniline	<130		130
91-58-7	2-Chloronaphthalene	<33		33
95-57-8	2-Chlorophenol	<33		33
7005-72-3	4-Chlorophenylphenyl-Ether	<33		33
591-78-6	Chrysene	<33		33
84-74-2	Di-n-Butylphthalate	<33		33
117-84-0	Di-n-Octylphthalate	<33		33
53-70-3	Dibenzo (a,h) Anthracene	<33		33
132-64-9	Dibenzofuran	<33		33
95-50-1	1,2-Dichlorobenzene	<33		33
541-73-1	1,3-Dichlorobenzene	<33		33
106-46-7	1,4-Dichlorobenzene	<33		33
91-94-1	3,3'-Dichlorobenzidine	<200		200
120-83-2	2,4-Dichlorophenol	<33		33
84-66-2	Diethylphthalate	<33		33

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-2
9502-19
1-2'

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 16:55
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/05/95
Lab Sample No: 120202
Batch No: 87334

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
131-11-3	Dimethylphthalate	<33		33
105-67-9	2,4-Dimethylphenol	<33		33
534-52-1	4,6-Dinitro-2-Methylphenol	<170		170
51-28-5	2,4-Dinitrophenol	<170		170
121-14-2	2,4-Dinitrotoluene	<33		33
606-20-2	2,6-Dinitrotoluene	<33		33
206-44-0	Fluoranthene	<33		33
86-73-7	Fluorene	<33		33
118-74-1	Hexachlorobenzene	<33		33
87-68-3	Hexachlorobutadiene	<33		33
77-47-4	Hexachlorocyclopentadiene	<33		33
67-72-1	Hexachloroethane	<33		33
193-39-5	Indeno (1,2,3-cd) Pyrene	<33		33
78-59-1	Isophorone	<33		33
91-57-6	2-Methylnaphthalene	<33		33
95-48-7	2-Methylphenol	<33		33
106-44-5	4-Methylphenol	<33		33
-----	N-Nitrosodi-n-Propylamine	<33		33
156-10-5	N-Nitroso-di-Phenylamine	<33		33
91-20-3	Naphthalene	<33		33
88-74-4	2-Nitroaniline	<170		170
99-09-2	3-Nitroaniline	<170		170
100-01-6	4-Nitroaniline	<170		170
98-95-3	Nitrobenzene	<33		33
88-75-5	2-Nitrophenol	<33		33
100-02-7	4-Nitrophenol	<170		170
87-86-5	Pentachlorophenol	<170		170
85-01-8	Phenanthrene	<33		33
108-95-2	Phenol	<33		33
129-00-0	Pyrene	<33		33
120-82-1	1,2,4-Trichlorobenzene	<33		33
95-95-4	2,4,5-Trichlorophenol	<170		170
88-06-2	2,4,6-Trichlorophenol	<33		33
110-86-1	Pyridine	<33		33

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-2
9502-19
1-2'

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 16:55
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/14/95
Lab Sample No: 120202
Batch No: 86272

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
71-43-2	Benzene	<0.010		0.010
100-41-4	Ethylbenzene	<0.010		0.010
108-88-3	Toluene	**0.012**		0.010
1330-20-7	Xylene, Total	<0.030		0.030

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-SSB20-2 9502-19 1-2'	Data C	Qualifiers Q	M	Units
Lab Sample No:	120202				
----- Percent Solids	90				%

Sampled by: Ed Culver
Date Sampled: 06/07/95
Time Sampled: 16:55
Date Received: 06/13/95
Time Received: 11:10

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-3
9502-30
1-2'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 14:45
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/27/95
Lab Sample No: 120199
Batch No: 86927

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<0.33		0.33
208-96-8	Acenaphthylene	<0.33		0.33
120-12-7	Anthracene	<0.33		0.33
56-55-3	Benzo (a) Anthracene	**0.66**		0.33
50-32-8	Benzo (a) Pyrene	**0.59**		0.33
-----	Benzo (b&k) Fluoranthene	**1.5**		0.33
191-24-2	Benzo (g,h,i,) Perylene	**0.54**		0.33
65-85-0	Benzoic Acid	<3.3		3.3
100-51-6	Benzyl Alcohol	<1.3		1.3
111-91-1	Bis (2-Chloroethoxy)-Methane	<0.33		0.33
92-49-9	Bis (2-Chloroethyl) Ether	<0.33		0.33
-----	Bis (2-Chloroisopropyl)-Ether	<0.33		0.33
117-81-7	Bis (2-ethylhexyl)-Phthalate	<0.33		0.33
101-55-3	4-Bromophenyl Phenylether	<0.33		0.33
85-68-7	Butyl Benzyl Phthalate	<0.33		0.33
59-50-7	4-Chloro-3-Methylphenol	<0.33		0.33
106-47-8	4-Chloroaniline	<1.3		1.3
91-58-7	2-Chloronaphthalene	<0.33		0.33
95-57-8	2-Chlorophenol	<0.33		0.33
7005-72-3	4-Chlorophenylphenyl-Ether	<0.33		0.33
591-78-6	Chrysene	**0.81**		0.33
84-74-2	Di-n-Butylphthalate	<0.33		0.33
117-84-0	Di-n-Octylphthalate	<0.33		0.33
53-70-3	Dibenzo (a,h) Anthracene	<0.33		0.33
132-64-9	Dibenzofuran	<0.33		0.33
95-50-1	1,2-Dichlorobenzene	<0.33		0.33
541-73-1	1,3-Dichlorobenzene	<0.33		0.33
106-46-7	1,4-Dichlorobenzene	<0.33		0.33
91-94-1	3,3'-Dichlorobenzidine	<2.0		2.0
120-83-2	2,4-Dichlorophenol	<0.33		0.33
84-66-2	Diethylphthalate	<0.33		0.33

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-3
9502-30
1-2'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 14:45
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/27/95
Lab Sample No: 120199
Batch No: 86927

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
131-11-3	Dimethylphthalate	<0.33		0.33
105-67-9	2,4-Dimethylphenol	<0.33		0.33
534-52-1	4,6-Dinitro-2-Methylphenol	<1.7		1.7
51-28-5	2,4-Dinitrophenol	<1.7		1.7
121-14-2	2,4-Dinitrotoluene	<0.33		0.33
606-20-2	2,6-Dinitrotoluene	<0.33		0.33
206-44-0	Fluoranthene	**0.75**		0.33
86-73-7	Fluorene	<0.33		0.33
118-74-1	Hexachlorobenzene	<0.33		0.33
87-68-3	Hexachlorobutadiene	<0.33		0.33
77-47-4	Hexachlorocyclopentadiene	<0.33		0.33
67-72-1	Hexachloroethane	<0.33		0.33
193-39-5	Indeno (1,2,3-cd) Pyrene	**0.48**		0.33
78-59-1	Isophorone	<0.33		0.33
91-57-6	2-Methylnaphthalene	<0.33		0.33
95-48-7	2-Methylphenol	<0.33		0.33
106-44-5	4-Methylphenol	<0.33		0.33
-----	N-Nitrosodi-n-Propylamine	<0.33		0.33
156-10-5	N-Nitroso-di-Phenylamine	<0.33		0.33
91-20-3	Naphthalene	<0.33		0.33
88-74-4	2-Nitroaniline	<1.7		1.7
99-09-2	3-Nitroaniline	<1.7		1.7
100-01-6	4-Nitroaniline	<1.7		1.7
98-95-3	Nitrobenzene	<0.33		0.33
88-75-5	2-Nitrophenol	<0.33		0.33
100-02-7	4-Nitrophenol	<1.7		1.7
87-86-5	Pentachlorophenol	<1.7		1.7
85-01-8	Phenanthrene	**0.40**		0.33
108-95-2	Phenol	<0.33		0.33
129-00-0	Pyrene	**0.59**		0.33
120-82-1	1,2,4-Trichlorobenzene	<0.33		0.33
95-95-4	2,4,5-Trichlorophenol	<1.7		1.7
88-06-2	2,4,6-Trichlorophenol	<0.33		0.33
110-86-1	Pyridine	<0.33		0.33

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-3
9502-30
1-2'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 14:45
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/14/95
Lab Sample No: 120199
Batch No: 86272

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
71-43-2	Benzene	<0.010		0.010
100-41-4	Ethylbenzene	<0.010		0.010
108-88-3	Toluene	<0.010		0.010
1330-20-7	Xylene, Total	<0.030		0.030

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-SSB20-3 9502-30 1-2'	Data C	Qualifiers Q	M	Units
Lab Sample No:	120199				
----- Percent Solids	83				%

Sampled by: Ed Culver
Date Sampled: 06/08/95
Time Sampled: 14:45
Date Received: 06/13/95
Time Received: 11:10

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-3
9502-30
DUP-2-3'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 14:45
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/03/95
Lab Sample No: 120200
Batch No: 87335

*** See Note on last page of this sample analyses report**

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<6.6		6.6
208-96-8	Acenaphthylene	<6.6		6.6
120-12-7	Anthracene	19		6.6
56-55-3	Benzo (a) Anthracene	23		6.6
50-32-8	Benzo (a) Pyrene	16		6.6
-----	Benzo (b&k) Fluoranthene	29		6.6
191-24-2	Benzo (g,h,i,) Perylene	9.1		6.6
65-85-0	Benzoic Acid	<66		66
100-51-6	Benzyl Alcohol	<26		26
111-91-1	Bis (2-Chloroethoxy)-Methane	<6.6		6.6
92-49-9	Bis (2-Chloroethyl) Ether	<6.6		6.6
-----	Bis (2-Chloroisopropyl)-Ether	<6.6		6.6
117-81-7	Bis (2-ethylhexyl)-Phthalate	<6.6		6.6
101-55-3	4-Bromophenyl Phenylether	<6.6		6.6
85-68-7	Butyl Benzyl Phthalate	<6.6		6.6
59-50-7	4-Chloro-3-Methylphenol	<6.6		6.6
106-47-8	4-Chloroaniline	<26		26
91-58-7	2-Chloronaphthalene	<6.6		6.6
95-57-8	2-Chlorophenol	<6.6		6.6
7005-72-3	4-Chlorophenylphenyl-Ether	<6.6		6.6
591-78-6	Chrysene	27		6.6
84-74-2	Di-n-Butylphthalate	<6.6		6.6
117-84-0	Di-n-Octylphthalate	<6.6		6.6
53-70-3	Dibenzo (a,h) Anthracene	<6.6		6.6
132-64-9	Dibenzofuran	8.6		6.6
95-50-1	1,2-Dichlorobenzene	<6.6		6.6
541-73-1	1,3-Dichlorobenzene	<6.6		6.6
106-46-7	1,4-Dichlorobenzene	<6.6		6.6
91-94-1	3,3'-Dichlorobenzidine	<40		40
120-83-2	2,4-Dichlorophenol	<6.6		6.6
84-66-2	Diethylphthalate	<6.6		6.6

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-3
9502-30
DUP-2-3'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 14:45
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/03/95
Lab Sample No: 120200
Batch No: 87335

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
131-11-3	Dimethylphthalate	<6.6		6.6
105-67-9	2,4-Dimethylphenol	<6.6		6.6
534-52-1	4,6-Dinitro-2-Methylphenol	<34		34
51-28-5	2,4-Dinitrophenol	<34		34
121-14-2	2,4-Dinitrotoluene	<6.6		6.6
606-20-2	2,6-Dinitrotoluene	<6.6		6.6
206-44-0	Fluoranthene	**55**		6.6
86-73-7	Fluorene	**19**		6.6
118-74-1	Hexachlorobenzene	<6.6		6.6
87-68-3	Hexachlorobutadiene	<6.6		6.6
77-47-4	Hexachlorocyclopentadiene	<6.6		6.6
67-72-1	Hexachloroethane	<6.6		6.6
193-39-5	Indeno (1,2,3-cd) Pyrene	**8.8**		6.6
78-59-1	Isophorone	<6.6		6.6
91-57-6	2-Methylnaphthalene	<6.6		6.6
95-48-7	2-Methylphenol	<6.6		6.6
106-44-5	4-Methylphenol	<6.6		6.6
-----	N-Nitrosodi-n-Propylamine	<6.6		6.6
156-10-5	N-Nitroso-di-Phenylamine	<6.6		6.6
91-20-3	Naphthalene	**10**		6.6
88-74-4	2-Nitroaniline	<34		34
99-09-2	3-Nitroaniline	<34		34
100-01-6	4-Nitroaniline	<34		34
98-95-3	Nitrobenzene	<6.6		6.6
88-75-5	2-Nitrophenol	<6.6		6.6
100-02-7	4-Nitrophenol	<34		34
87-86-5	Pentachlorophenol	<34		34
85-01-8	Phenanthrene	**72**		6.6
108-95-2	Phenol	<6.6		6.6
129-00-0	Pyrene	**40**		6.6
120-82-1	1,2,4-Trichlorobenzene	<6.6		6.6
95-95-4	2,4,5-Trichlorophenol	<34		34
88-06-2	2,4,6-Trichlorophenol	<6.6		6.6
110-86-1	Pyridine	<6.6		6.6

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-3
9502-30
DUP-2-3'

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 14:45
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/14/95
Lab Sample No: 120200
Batch No: 86272

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
71-43-2	Benzene	<0.010		0.010
100-41-4	Ethylbenzene	<0.010		0.010
108-88-3	Toluene	<0.010		0.010
1330-20-7	Xylene, Total	<0.030		0.030

DC-SSB20-3-9502-30

The duplicate from soil sample B20-3 from the 1 to 2 foot depth interval, was mislabelled on the Chain-of-Custody form as the 2 to 3 foot depth interval. The mislabelling was carried through the laboratory analysis and is reported in the laboratory results as the 2 to 3 foot interval instead of the 1 to 2 foot interval.

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-SSB20-3 9502-30 DUP-2-3'	Data C	Qualifiers Q	M	Units
Lab Sample No:	120200				
----- Percent Solids	82				%

Sampled by: Ed Culver
Date Sampled: 06/08/95
Time Sampled: 14:45
Date Received: 06/13/95
Time Received: 11:10

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-5
9502-31
1-2'

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 12:40
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/29/95
Lab Sample No: 120203
Batch No: 87140

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<3.3		3.3
208-96-8	Acenaphthylene	<3.3		3.3
120-12-7	Anthracene	**4.7**		3.3
56-55-3	Benzo (a) Anthracene	**6.9**		3.3
50-32-8	Benzo (a) Pyrene	**5.6**		3.3
-----	Benzo (b&k) Fluoranthene	**14**		3.3
191-24-2	Benzo (g,h,i,) Perylene	**3.5**		3.3
65-85-0	Benzoic Acid	<33		33
100-51-6	Benzyl Alcohol	<13		13
111-91-1	Bis (2-Chloroethoxy)-Methane	<3.3		3.3
92-49-9	Bis (2-Chloroethyl) Ether	<3.3		3.3
-----	Bis (2-Chloroisopropyl)-Ether	<3.3		3.3
117-81-7	Bis (2-ethylhexyl)-Phthalate	<3.3		3.3
101-55-3	4-Bromophenyl Phenylether	<3.3		3.3
85-68-7	Butyl Benzyl Phthalate	<3.3		3.3
59-50-7	4-Chloro-3-Methylphenol	<3.3		3.3
106-47-8	4-Chloroaniline	<13		13
91-58-7	2-Chloronaphthalene	<3.3		3.3
95-57-8	2-Chlorophenol	<3.3		3.3
7005-72-3	4-Chlorophenylphenyl-Ether	<3.3		3.3
591-78-6	Chrysene	**8.3**		3.3
84-74-2	Di-n-Butylphthalate	<3.3		3.3
117-84-0	Di-n-Octylphthalate	<3.3		3.3
53-70-3	Dibenzo (a,h) Anthracene	<3.3		3.3
132-64-9	Dibenzofuran	<3.3		3.3
95-50-1	1,2-Dichlorobenzene	<3.3		3.3
541-73-1	1,3-Dichlorobenzene	<3.3		3.3
106-46-7	1,4-Dichlorobenzene	<3.3		3.3
91-94-1	3,3'-Dichlorobenzidine	<20		20
120-83-2	2,4-Dichlorophenol	<3.3		3.3
84-66-2	Diethylphthalate	<3.3		3.3

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-5
9502-31
1-2'

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 12:40
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/29/95
Lab Sample No: 120203
Batch No: 87140

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
131-11-3	Dimethylphthalate	<3.3		3.3
105-67-9	2,4-Dimethylphenol	<3.3		3.3
534-52-1	4,6-Dinitro-2-Methylphenol	<17		17
51-28-5	2,4-Dinitrophenol	<17		17
121-14-2	2,4-Dinitrotoluene	<3.3		3.3
606-20-2	2,6-Dinitrotoluene	<3.3		3.3
206-44-0	Fluoranthene	**12**		3.3
86-73-7	Fluorene	<3.3		3.3
118-74-1	Hexachlorobenzene	<3.3		3.3
87-68-3	Hexachlorobutadiene	<3.3		3.3
77-47-4	Hexachlorocyclopentadiene	<3.3		3.3
67-72-1	Hexachloroethane	<3.3		3.3
193-39-5	Indeno (1,2,3-cd) Pyrene	<3.3		3.3
78-59-1	Isophorone	<3.3		3.3
91-57-6	2-Methylnaphthalene	<3.3		3.3
95-48-7	2-Methylphenol	<3.3		3.3
106-44-5	4-Methylphenol	<3.3		3.3
-----	N-Nitrosodi-n-Propylamine	<3.3		3.3
156-10-5	N-Nitroso-di-Phenylamine	<3.3		3.3
91-20-3	Naphthalene	<3.3		3.3
88-74-4	2-Nitroaniline	<17		17
99-09-2	3-Nitroaniline	<17		17
100-01-6	4-Nitroaniline	<17		17
98-95-3	Nitrobenzene	<3.3		3.3
88-75-5	2-Nitrophenol	<3.3		3.3
100-02-7	4-Nitrophenol	<17		17
87-86-5	Pentachlorophenol	<17		17
85-01-8	Phenanthrene	**8.2**		3.3
108-95-2	Phenol	<3.3		3.3
129-00-0	Pyrene	**8.8**		3.3
120-82-1	1,2,4-Trichlorobenzene	<3.3		3.3
95-95-4	2,4,5-Trichlorophenol	<17		17
88-06-2	2,4,6-Trichlorophenol	<3.3		3.3
110-86-1	Pyridine	<3.3		3.3

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-5
9502-31
1-2'

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 12:40
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/14/95
Lab Sample No: 120203
Batch No: 86272

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
71-43-2	Benzene	<0.010		0.010
100-41-4	Ethylbenzene	<0.010		0.010
108-88-3	Toluene	**0.017**		0.010
1330-20-7	Xylene, Total	<0.030		0.030

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-SSB20-5 9502-31 1-2'	Data C	Qualifiers Q	M	Units
Lab Sample No:	120203				
----- Percent Solids	88				%

Sampled by: Ed Culver
Date Sampled: 06/09/95
Time Sampled: 12:40
Date Received: 06/13/95
Time Received: 11:10

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-6
9502-32
1-2'

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 13:00
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/05/95
Lab Sample No: 120204
Batch No: 87334

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<17		17
208-96-8	Acenaphthylene	<17		17
120-12-7	Anthracene	<17		17
56-55-3	Benzo (a) Anthracene	<17		17
50-32-8	Benzo (a) Pyrene	<17		17
-----	Benzo (b&k) Fluoranthene	<17		17
191-24-2	Benzo (g,h,i,) Perylene	<17		17
65-85-0	Benzoic Acid	<170		170
100-51-6	Benzyl Alcohol	<65		65
111-91-1	Bis (2-Chloroethoxy)-Methane	<17		17
92-49-9	Bis (2-Chloroethyl) Ether	<17		17
-----	Bis (2-Chloroisopropyl)-Ether	<17		17
117-81-7	Bis (2-ethylhexyl)-Phthalate	<17		17
101-55-3	4-Bromophenyl Phenylether	<17		17
85-68-7	Butyl Benzyl Phthalate	<17		17
59-50-7	4-Chloro-3-Methylphenol	<17		17
106-47-8	4-Chloroaniline	<65		65
91-58-7	2-Chloronaphthalene	<17		17
95-57-8	2-Chlorophenol	<17		17
7005-72-3	4-Chlorophenylphenyl-Ether	<17		17
591-78-6	Chrysene	<17		17
84-74-2	Di-n-Butylphthalate	<17		17
117-84-0	Di-n-Octylphthalate	<17		17
53-70-3	Dibenzo (a,h) Anthracene	<17		17
132-64-9	Dibenzofuran	<17		17
95-50-1	1,2-Dichlorobenzene	<17		17
541-73-1	1,3-Dichlorobenzene	<17		17
106-46-7	1,4-Dichlorobenzene	<17		17
91-94-1	3,3'-Dichlorobenzidine	<100		100
120-83-2	2,4-Dichlorophenol	<17		17
84-66-2	Diethylphthalate	<17		17

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-6
9502-32
1-2'

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 13:00
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/05/95
Lab Sample No: 120204
Batch No: 87334

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
131-11-3	Dimethylphthalate	<17		17
105-67-9	2,4-Dimethylphenol	<17		17
534-52-1	4,6-Dinitro-2-Methylphenol	<85		85
51-28-5	2,4-Dinitrophenol	<85		85
121-14-2	2,4-Dinitrotoluene	<17		17
606-20-2	2,6-Dinitrotoluene	<17		17
206-44-0	Fluoranthene	<17		17
86-73-7	Fluorene	<17		17
118-74-1	Hexachlorobenzene	<17		17
87-68-3	Hexachlorobutadiene	<17		17
77-47-4	Hexachlorocyclopentadiene	<17		17
67-72-1	Hexachloroethane	<17		17
193-39-5	Indeno (1,2,3-cd) Pyrene	<17		17
78-59-1	Isophorone	<17		17
91-57-6	2-Methylnaphthalene	<17		17
95-48-7	2-Methylphenol	<17		17
106-44-5	4-Methylphenol	<17		17
-----	N-Nitrosodi-n-Propylamine	<17		17
156-10-5	N-Nitroso-di-Phenylamine	<17		17
91-20-3	Naphthalene	<17		17
88-74-4	2-Nitroaniline	<85		85
99-09-2	3-Nitroaniline	<85		85
100-01-6	4-Nitroaniline	<85		85
98-95-3	Nitrobenzene	<17		17
88-75-5	2-Nitrophenol	<17		17
100-02-7	4-Nitrophenol	<85		85
87-86-5	Pentachlorophenol	<85		85
85-01-8	Phenanthrene	<17		17
108-95-2	Phenol	<17		17
129-00-0	Pyrene	<17		17
120-82-1	1,2,4-Trichlorobenzene	<17		17
95-95-4	2,4,5-Trichlorophenol	<85		85
88-06-2	2,4,6-Trichlorophenol	<17		17
110-86-1	Pyridine	<17		17

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-6
9502-32
1-2'

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 13:00
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/14/95
Lab Sample No: 120204
Batch No: 86272

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
71-43-2	Benzene	<0.010		0.010
100-41-4	Ethylbenzene	<0.010		0.010
108-88-3	Toluene	<0.010		0.010
1330-20-7	Xylene, Total	<0.030		0.030

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-SSB20-6 9502-32 1-2'	Data C	Qualifiers Q	Qualifiers M	Units
Lab Sample No:	120204				
----- Percent Solids	89				%

Sampled by:	Ed Culver
Date Sampled:	06/09/95
Time Sampled:	13:00
Date Received:	06/13/95
Time Received:	11:10

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SEMI-VOLATILE ORGANICS
P/N/A SCAN

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-BG01-9502-04 2-3'

Submittal Number 32826- 2
Date Sampled: 06/06/95 Time: 13:50
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/04/95
Lab Sample No: 120215
Batch No: 87334

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<0.33		0.33
208-96-8	Acenaphthylene	<0.33		0.33
120-12-7	Anthracene	<0.33		0.33
56-55-3	Benzo (a) Anthracene	<0.33		0.33
-----	Benzo (b&k) Fluoranthene	<0.33		0.33
50-32-8	Benzo (a) Pyrene	**0.48**		0.33
191-24-2	Benzo (g,h,i,) Perylene	**0.44**		0.33
591-78-6	Chrysene	<0.33		0.33
53-70-3	Dibenzo (a,h) Anthracene	<0.33		0.33
206-44-0	Fluoranthene	**0.38**		0.33
86-73-7	Fluorene	<0.33		0.33
193-39-5	Indeno (1,2,3-cd) Pyrene	**0.37**		0.33
91-20-3	Naphthalene	<0.33		0.33
85-01-8	Phenanthrene	<0.33		0.33
129-00-0	Pyrene	**0.34**		0.33

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SEMI-VOLATILE ORGANICS
P/N/A SCAN

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-BG02-9502-05 2-3'

Submittal Number 32826- 2
Date Sampled: 06/06/95 Time: 00:00
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/27/95
Lab Sample No: 120216
Batch No: 87118

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<3.3		3.3
208-96-8	Acenaphthylene	<3.3		3.3
120-12-7	Anthracene	<3.3		3.3
56-55-3	Benzo (a) Anthracene	**7.2**		3.3
-----	Benzo (b&k) Fluoranthene	**16**		3.3
50-32-8	Benzo (a) Pyrene	**8.8**		3.3
191-24-2	Benzo (g,h,i,) Perylene	**6.8**		3.3
591-78-6	Chrysene	**8.3**		3.3
53-70-3	Dibenzo (a,h) Anthracene	<3.3		3.3
206-44-0	Fluoranthene	**9.4**		3.3
86-73-7	Fluorene	<3.3		3.3
193-39-5	Indeno (1,2,3-cd) Pyrene	**6.2**		3.3
91-20-3	Naphthalene	<3.3		3.3
85-01-8	Phenanthrene	**3.7**		3.3
129-00-0	Pyrene	**8.6**		3.3

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SEMI-VOLATILE ORGANICS
P/N/A SCAN

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-BG03
9502-12
2-3'

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 08:40
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/03/95
Lab Sample No: 120223
Batch No: 87335

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<0.66		0.66
208-96-8	Acenaphthylene	<0.66		0.66
120-12-7	Anthracene	<0.66		0.66
56-55-3	Benzo (a) Anthracene	**1.2**		0.66
-----	Benzo (b&k) Fluoranthene	**2.6**		0.66
50-32-8	Benzo (a) Pyrene	**1.5**		0.66
191-24-2	Benzo (g,h,i,) Perylene	**1.3**		0.66
591-78-6	Chrysene	**1.6**		0.66
53-70-3	Dibenzo (a,h) Anthracene	<0.66		0.66
206-44-0	Fluoranthene	**1.7**		0.66
86-73-7	Fluorene	<0.66		0.66
193-39-5	Indeno (1,2,3-cd) Pyrene	**1.1**		0.66
91-20-3	Naphthalene	<0.66		0.66
85-01-8	Phenanthrene	**2.2**		0.66
129-00-0	Pyrene	**1.7**		0.66

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SEMI-VOLATILE ORGANICS
P/N/A SCAN

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-BG04
9502-07
2-3'

Submittal Number 32826- 2
Date Sampled: 06/06/95 Time: 16:50
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/27/95
Lab Sample No: 120217
Batch No: 86927

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<66		66
208-96-8	Acenaphthylene	<66		66
120-12-7	Anthracene	<66		66
56-55-3	Benzo (a) Anthracene	**140**		66
-----	Benzo (b&k) Fluoranthene	**260**		66
50-32-8	Benzo (a) Pyrene	**150**		66
191-24-2	Benzo (g,h,i,) Perylene	**110**		66
591-78-6	Chrysene	**120**		66
53-70-3	Dibenzo (a,h) Anthracene	<66		66
206-44-0	Fluoranthene	**260**		66
86-73-7	Fluorene	<66		66
193-39-5	Indeno (1,2,3-cd) Pyrene	**97**		66
91-20-3	Naphthalene	<66		66
85-01-8	Phenanthrene	**110**		66
129-00-0	Pyrene	**200**		66

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SEMI-VOLATILE ORGANICS
P/N/A SCAN

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-BG05
9502-08
2-3'

Submittal Number 32826- 2
Date Sampled: 06/06/95 Time: 17:35
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/27/95
Lab Sample No: 120218
Batch No: 86927

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<6.6		6.6
208-96-8	Acenaphthylene	<6.6		6.6
120-12-7	Anthracene	<6.6		6.6
56-55-3	Benzo (a) Anthracene	**10**		6.6
-----	Benzo (b&k) Fluoranthene	**18**		6.6
50-32-8	Benzo (a) Pyrene	**9.8**		6.6
191-24-2	Benzo (g,h,i,) Perylene	**6.6**		6.6
591-78-6	Chrysene	**9.9**		6.6
53-70-3	Dibenzo (a,h) Anthracene	<6.6		6.6
206-44-0	Fluoranthene	**21**		6.6
86-73-7	Fluorene	<6.6		6.6
193-39-5	Indeno (1,2,3-cd) Pyrene	<6.6		6.6
91-20-3	Naphthalene	<6.6		6.6
85-01-8	Phenanthrene	**8.9**		6.6
129-00-0	Pyrene	**16**		6.6

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SEMI-VOLATILE ORGANICS
P/N/A SCAN

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-BG06
9502-09
2-3'

Submittal Number 32826- 2
Date Sampled: 06/06/95 Time: 18:00
Date Received: 06/13/95 Time: 11:10
Analysis Date: 07/05/95
Lab Sample No: 120219
Batch No: 87334

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<0.33		0.33
208-96-8	Acenaphthylene	<0.33		0.33
120-12-7	Anthracene	<0.33		0.33
56-55-3	Benzo (a) Anthracene	**0.57**		0.33
-----	Benzo (b&k) Fluoranthene	**1.5**		0.33
50-32-8	Benzo (a) Pyrene	**0.67**		0.33
191-24-2	Benzo (g,h,i,) Perylene	**0.59**		0.33
591-78-6	Chrysene	**0.64**		0.33
53-70-3	Dibenzo (a,h) Anthracene	<0.33		0.33
206-44-0	Fluoranthene	**0.83**		0.33
86-73-7	Fluorene	<0.33		0.33
193-39-5	Indeno (1,2,3-cd) Pyrene	**0.51**		0.33
91-20-3	Naphthalene	<0.33		0.33
85-01-8	Phenanthrene	**0.38**		0.33
129-00-0	Pyrene	**0.72**		0.33

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SEMI-VOLATILE ORGANICS
P/N/A SCAN

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-BG07
9502-10
2-3'

Submittal Number 32826- 2
Date Sampled: 06/06/95 Time: 18:30
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/27/95
Lab Sample No: 120220
Batch No: 86927

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<66		66
208-96-8	Acenaphthylene	<66		66
120-12-7	Anthracene	**70**		66
56-55-3	Benzo (a) Anthracene	**120**		66
-----	Benzo (b&k) Fluoranthene	**170**		66
50-32-8	Benzo (a) Pyrene	**80**		66
191-24-2	Benzo (g,h,i,) Perylene	<66		66
591-78-6	Chrysene	**120**		66
53-70-3	Dibenzo (a,h) Anthracene	<66		66
206-44-0	Fluoranthene	**320**		66
86-73-7	Fluorene	<66		66
193-39-5	Indeno (1,2,3-cd) Pyrene	<66		66
91-20-3	Naphthalene	<66		66
85-01-8	Phenanthrene	**160**		66
129-00-0	Pyrene	**270**		66

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SEMI-VOLATILE ORGANICS
P/N/A SCAN

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-BG07
9502-10
DUP

Submittal Number 32826- 2
Date Sampled: 06/06/95 Time: 18:30
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/29/95
Lab Sample No: 120221
Batch No: 87140

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<66		66
208-96-8	Acenaphthylene	<66		66
120-12-7	Anthracene	<66		66
56-55-3	Benzo (a) Anthracene	**160**		66
-----	Benzo (b&k) Fluoranthene	**260**		66
50-32-8	Benzo (a) Pyrene	**140**		66
191-24-2	Benzo (g,h,i,) Perylene	**95**		66
591-78-6	Chrysene	**160**		66
53-70-3	Dibenzo (a,h) Anthracene	<66		66
206-44-0	Fluoranthene	**390**		66
86-73-7	Fluorene	<66		66
193-39-5	Indeno (1,2,3-cd) Pyrene	**79**		66
91-20-3	Naphthalene	<66		66
85-01-8	Phenanthrene	**150**		66
129-00-0	Pyrene	**350**		66

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SEMI-VOLATILE ORGANICS
P/N/A SCAN

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-BG08
9502-11
2-3'

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 07:50
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/26/95
Lab Sample No: 120222
Batch No: 87119

CAS No.	Compound	Result mg/kg	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<0.66		0.66
208-96-8	Acenaphthylene	<0.66		0.66
120-12-7	Anthracene	<0.66		0.66
56-55-3	Benzo (a) Anthracene	**3.0**		0.66
-----	Benzo (b&k) Fluoranthene	**5.2**		0.66
50-32-8	Benzo (a) Pyrene	**2.9**		0.66
191-24-2	Benzo (g,h,i,) Perylene	**2.6**		0.66
591-78-6	Chrysene	**2.6**		0.66
53-70-3	Dibenzo (a,h) Anthracene	<0.66		0.66
206-44-0	Fluoranthene	**5.1**		0.66
86-73-7	Fluorene	<0.66		0.66
193-39-5	Indeno (1,2,3-cd) Pyrene	**2.2**		0.66
91-20-3	Naphthalene	<0.66		0.66
85-01-8	Phenanthrene	**2.1**		0.66
129-00-0	Pyrene	**4.8**		0.66

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-BG08	Data	Qualifiers	Units
	9502-11-EB	C |	Q |	M

Lab Sample No: 120234

Sampled by: Ed Culver
Date Sampled: 06/07/95
Time Sampled: 08:00
Date Received: 06/13/95
Time Received: 11:10

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SEMI-VOLATILE ORGANICS
P/N/A SCAN

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-BG08
9502-11-EB

Submittal Number 32826- 2
Date Sampled: 06/07/95 Time: 08:00
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/22/95
Lab Sample No: 120234
Batch No: 87199

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<5.0		5.0
208-96-8	Acenaphthylene	<5.0		5.0
120-12-7	Anthracene	<5.0		5.0
56-55-3	Benzo (a) Anthracene	<5.0		5.0
-----	Benzo (b&k) Fluoranthene	<5.0		5.0
50-32-8	Benzo (a) Pyrene	<5.0		5.0
191-24-2	Benzo (g,h,i,) Perylene	<5.0		5.0
591-78-6	Chrysene	<5.0		5.0
53-70-3	Dibenzo (a,h) Anthracene	<5.0		5.0
206-44-0	Fluoranthene	<5.0		5.0
86-73-7	Fluorene	<5.0		5.0
193-39-5	Indeno (1,2,3-cd) Pyrene	<5.0		5.0
91-20-3	Naphthalene	<5.0		5.0
85-01-8	Phenanthrene	<5.0		5.0
129-00-0	Pyrene	<5.0		5.0

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-BG01-9502-04 2-3'	Data C	Qualifiers Q	Qualifiers M	Units
Lab Sample No:	120215				
----- Percent Solids	89				%

Sampled by: Walberg
Date Sampled: 06/06/95
Time Sampled: 13:50
Date Received: 06/13/95
Time Received: 11:10

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-BG02-9502-05 2-3'	Data C	Qualifiers Q	Qualifiers M	Units
Lab Sample No:	120216				
----- Percent Solids	85				%

Sampled by: Walberg
Date Sampled: 06/06/95
Time Sampled: 00:00
Date Received: 06/13/95
Time Received: 11:10

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-BG03 9502-12 2-3'	Data C	Qualifiers Q	M	Units
Lab Sample No:	120223				
----- Percent Solids	83				%

Sampled by:	Walberg
Date Sampled:	06/07/95
Time Sampled:	08:40
Date Received:	06/13/95
Time Received:	11:10

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-BG04 9502-07 2-3'	Data C	Qualifiers Q	Qualifiers M	Units
Lab Sample No:	120217				
----- Percent Solids	91				%

Sampled by: Walberg
Date Sampled: 06/06/95
Time Sampled: 16:50
Date Received: 06/13/95
Time Received: 11:10

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-BG05 9502-08 2-3'	Data C	Qualifiers Q	M	Units
Lab Sample No:	120218				
----- Percent Solids	82				%

Sampled by: Walberg
Date Sampled: 06/06/95
Time Sampled: 17:35
Date Received: 06/13/95
Time Received: 11:10

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-BG06 9502-09 2-3'	Data C	Qualifiers Q	Qualifiers M	Units
Lab Sample No:	120219				
----- Percent Solids	85				%

Sampled by: Walberg
Date Sampled: 06/06/95
Time Sampled: 18:00
Date Received: 06/13/95
Time Received: 11:10

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-BG07 9502-10 2-3'	Data C	Qualifiers Q	M	Units
Lab Sample No:	120220				
----- Percent Solids	85				%

Sampled by: Walberg
Date Sampled: 06/06/95
Time Sampled: 18:30
Date Received: 06/13/95
Time Received: 11:10

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-BG07 9502-10 DUP	Data C	Qualifiers Q	M	Units
Lab Sample No:	120221				
----- Percent Solids	85				%

Sampled by:	Walberg
Date Sampled:	06/06/95
Time Sampled:	18:30
Date Received:	06/13/95
Time Received:	11:10

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-BG08 9502-11 2-3'	Data C	Qualifiers Q	M	Units
Lab Sample No:	120222				
----- Percent Solids	85				%

Sampled by: Walberg
Date Sampled: 06/07/95
Time Sampled: 07:50
Date Received: 06/13/95
Time Received: 11:10

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	Trip Blank Data	Qualifiers	Units
	C |	Q | M	

Lab Sample No: 120224

Sampled by: Walberg
Date Sampled: 06/13/95
Time Sampled: 11:10
Date Received: 06/13/95
Time Received: 11:10

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: Trip Blank

Submittal Number 32826- 2
Date Sampled: 06/13/95 Time: 11:10
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/19/95
Lab Sample No: 120224
Batch No: 86560

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
71-43-2	Benzene	<1.0		1.0
100-41-4	Ethylbenzene	<1.0		1.0
108-88-3	Toluene	<1.0		1.0
1330-20-7	Xylene, Total	<3.0		3.0

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	Trip Blank Data	Qualifiers	Units
	C |	Q | M	
Lab Sample No:	120225		

Sampled by:	Walberg
Date Sampled:	06/13/95
Time Sampled:	11:10
Date Received:	06/13/95
Time Received:	11:10

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: Trip Blank

Submittal Number 32826- 2
Date Sampled: 06/13/95 Time: 11:10
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/19/95
Lab Sample No: 120225
Batch No: 86560

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
71-43-2	Benzene	<1.0		1.0
100-41-4	Ethylbenzene	<1.0		1.0
108-88-3	Toluene	<1.0		1.0
1330-20-7	Xylene, Total	<3.0		3.0

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-SSB2-7- 9502-26-EB	Data C	Qualifiers Q	Units M
Lab Sample No:	120226			

Sampled by:	Ed Culver
Date Sampled:	06/08/95
Time Sampled:	12:40
Date Received:	06/13/95
Time Received:	11:10

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-SSB20-3 Data	Qualifiers	Units
	9502-30-EB C I	Q I M	

Lab Sample No: 120227

Sampled by: Ed Culver
Date Sampled: 06/08/95
Time Sampled: 15:30
Date Received: 06/13/95
Time Received: 11:10

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB2-7-9502-26-EB

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 12:40
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/22/95
Lab Sample No: 120226
Batch No: 87199

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<5.0		5.0
208-96-8	Acenaphthylene	<5.0		5.0
120-12-7	Anthracene	<5.0		5.0
56-55-3	Benzo (a) Anthracene	<5.0		5.0
50-32-8	Benzo (a) Pyrene	<5.0		5.0
-----	Benzo (b&k) Fluoranthene	<5.0		5.0
191-24-2	Benzo (g,h,i,) Perylene	<5.0		5.0
65-85-0	Benzoic Acid	<50		50
100-51-6	Benzyl Alcohol	<50		50
111-91-1	Bis (2-Chloroethoxy)-Methane	<5.0		5.0
92-49-9	Bis (2-Chloroethyl) Ether	<5.0		5.0
-----	Bis (2-Chloroisopropyl)-Ether	<5.0		5.0
117-81-7	Bis (2-ethylhexyl)-Phthalate	<5.0		5.0
101-55-3	4-Bromophenyl Phenylether	<5.0		5.0
85-68-7	Butyl Benzyl Phthalate	<5.0		5.0
59-50-7	4-Chloro-3-Methylphenol	<5.0		5.0
106-47-8	4-Chloroaniline	<20		20
91-58-7	2-Chloronaphthalene	<5.0		5.0
95-57-8	2-Chlorophenol	<5.0		5.0
7005-72-3	4-Chlorophenylphenyl-Ether	<5.0		5.0
591-78-6	Chrysene	<5.0		5.0
84-74-2	Di-n-Butylphthalate	<5.0		5.0
117-84-0	Di-n-Octylphthalate	<5.0		5.0
53-70-3	Dibenzo (a,h) Anthracene	<5.0		5.0
132-64-9	Dibenzofuran	<5.0		5.0
95-50-1	1,2-Dichlorobenzene	<5.0		5.0
541-73-1	1,3-Dichlorobenzene	<5.0		5.0
106-46-7	1,4-Dichlorobenzene	<5.0		5.0
91-94-1	3,3'-Dichlorobenzidine	<20		20
120-83-2	2,4-Dichlorophenol	<5.0		5.0
84-66-2	Diethylphthalate	<5.0		5.0

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB2-7-9502-26-EB

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 12:40
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/22/95
Lab Sample No: 120226
Batch No: 87199

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
131-11-3	Dimethylphthalate	<5.0		5.0
105-67-9	2,4-Dimethylphenol	<5.0		5.0
534-52-1	4,6-Dinitro-2-Methylphenol	<20		20
51-28-5	2,4-Dinitrophenol	<20		20
121-14-2	2,4-Dinitrotoluene	<5.0		5.0
606-20-2	2,6-Dinitrotoluene	<5.0		5.0
206-44-0	Fluoranthene	<5.0		5.0
86-73-7	Fluorene	<5.0		5.0
118-74-1	Hexachlorobenzene	<5.0		5.0
87-68-3	Hexachlorobutadiene	<5.0		5.0
77-47-4	Hexachlorocyclopentadiene	<5.0		5.0
67-72-1	Hexachloroethane	<5.0		5.0
193-39-5	Indeno (1,2,3-cd) Pyrene	<5.0		5.0
78-59-1	Isophorone	<5.0		5.0
91-57-6	2-Methylnaphthalene	<5.0		5.0
95-48-7	2-Methylphenol	<5.0		5.0
106-44-5	4-Methylphenol	<5.0		5.0
-----	N-Nitrosodi-n-Propylamine	<5.0		5.0
156-10-5	N-Nitroso-di-Phenylamine	<5.0		5.0
91-20-3	Naphthalene	<5.0		5.0
88-74-4	2-Nitroaniline	<20		20
99-09-2	3-Nitroaniline	<20		20
100-01-6	4-Nitroaniline	<20		20
98-95-3	Nitrobenzene	<5.0		5.0
88-75-5	2-Nitrophenol	<5.0		5.0
100-02-7	4-Nitrophenol	<20		20
87-86-5	Pentachlorophenol	<20		20
85-01-8	Phenanthrene	<5.0		5.0
108-95-2	Phenol	<5.0		5.0
129-00-0	Pyrene	<5.0		5.0
120-82-1	1,2,4-Trichlorobenzene	<5.0		5.0
95-95-4	2,4,5-Trichlorophenol	<50		50
88-06-2	2,4,6-Trichlorophenol	<5.0		5.0
110-86-1	Pyridine	<10		10

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB2-7-9502-26-EB

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 12:40
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/19/95
Lab Sample No: 120226
Batch No: 86560

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
71-43-2	Benzene	<1.0		1.0
100-41-4	Ethylbenzene	<1.0		1.0
108-88-3	Toluene	<1.0		1.0
1330-20-7	Xylene, Total	<3.0		3.0

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-3
9502-30-EB

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 15:30
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/22/95
Lab Sample No: 120227
Batch No: 87199

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<5.0		5.0
208-96-8	Acenaphthylene	<5.0		5.0
120-12-7	Anthracene	<5.0		5.0
56-55-3	Benzo (a) Anthracene	<5.0		5.0
50-32-8	Benzo (a) Pyrene	<5.0		5.0
-----	Benzo (b&k) Fluoranthene	<5.0		5.0
191-24-2	Benzo (g,h,i,) Perylene	<5.0		5.0
65-85-0	Benzoic Acid	<50		50
100-51-6	Benzyl Alcohol	<50		50
111-91-1	Bis (2-Chloroethoxy)-Methane	<5.0		5.0
92-49-9	Bis (2-Chloroethyl) Ether	<5.0		5.0
-----	Bis (2-Chloroisopropyl)-Ether	<5.0		5.0
117-81-7	Bis (2-ethylhexyl)-Phthalate	<5.0		5.0
101-55-3	4-Bromophenyl Phenylether	<5.0		5.0
85-68-7	Butyl Benzyl Phthalate	<5.0		5.0
59-50-7	4-Chloro-3-Methylphenol	<5.0		5.0
106-47-8	4-Chloroaniline	<20		20
91-58-7	2-Chloronaphthalene	<5.0		5.0
95-57-8	2-Chlorophenol	<5.0		5.0
7005-72-3	4-Chlorophenylphenyl-Ether	<5.0		5.0
591-78-6	Chrysene	<5.0		5.0
84-74-2	Di-n-Butylphthalate	<5.0		5.0
117-84-0	Di-n-Octylphthalate	<5.0		5.0
53-70-3	Dibenzo (a,h) Anthracene	<5.0		5.0
132-64-9	Dibenzofuran	<5.0		5.0
95-50-1	1,2-Dichlorobenzene	<5.0		5.0
541-73-1	1,3-Dichlorobenzene	<5.0		5.0
106-46-7	1,4-Dichlorobenzene	<5.0		5.0
91-94-1	3,3'-Dichlorobenzidine	<20		20
120-83-2	2,4-Dichlorophenol	<5.0		5.0
84-66-2	Diethylphthalate	<5.0		5.0

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-3
9502-30-EB

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 15:30
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/22/95
Lab Sample No: 120227
Batch No: 87199

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
131-11-3	Dimethylphthalate	<5.0		5.0
105-67-9	2,4-Dimethylphenol	<5.0		5.0
534-52-1	4,6-Dinitro-2-Methylphenol	<20		20
51-28-5	2,4-Dinitrophenol	<20		20
121-14-2	2,4-Dinitrotoluene	<5.0		5.0
606-20-2	2,6-Dinitrotoluene	<5.0		5.0
206-44-0	Fluoranthene	<5.0		5.0
86-73-7	Fluorene	<5.0		5.0
118-74-1	Hexachlorobenzene	<5.0		5.0
87-68-3	Hexachlorobutadiene	<5.0		5.0
77-47-4	Hexachlorocyclopentadiene	<5.0		5.0
67-72-1	Hexachloroethane	<5.0		5.0
193-39-5	Indeno (1,2,3-cd) Pyrene	<5.0		5.0
78-59-1	Isophorone	<5.0		5.0
91-57-6	2-Methylnaphthalene	<5.0		5.0
95-48-7	2-Methylphenol	<5.0		5.0
106-44-5	4-Methylphenol	<5.0		5.0
-----	N-Nitrosodi-n-Propylamine	<5.0		5.0
156-10-5	N-Nitroso-di-Phenylamine	<5.0		5.0
91-20-3	Naphthalene	<5.0		5.0
88-74-4	2-Nitroaniline	<20		20
99-09-2	3-Nitroaniline	<20		20
100-01-6	4-Nitroaniline	<20		20
98-95-3	Nitrobenzene	<5.0		5.0
88-75-5	2-Nitrophenol	<5.0		5.0
100-02-7	4-Nitrophenol	<20		20
87-86-5	Pentachlorophenol	<20		20
85-01-8	Phenanthrene	<5.0		5.0
108-95-2	Phenol	<5.0		5.0
129-00-0	Pyrene	<5.0		5.0
120-82-1	1,2,4-Trichlorobenzene	<5.0		5.0
95-95-4	2,4,5-Trichlorophenol	<50		50
88-06-2	2,4,6-Trichlorophenol	<5.0		5.0
110-86-1	Pyridine	<10		10

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-SSB20-3
9502-30-EB

Submittal Number 32826- 2
Date Sampled: 06/08/95 Time: 15:30
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/19/95
Lab Sample No: 120227
Batch No: 86598

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
71-43-2	Benzene	<1.0		1.0
100-41-4	Ethylbenzene	<1.0		1.0
108-88-3	Toluene	**1.0**		1.0
1330-20-7	Xylene, Total	<3.0		3.0

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-MW01 9502-01	Data C	Qualifiers Q	M	Units
Lab Sample No:	120228				

Sampled by:	Ed Culver
Date Sampled:	06/09/95
Time Sampled:	08:30
Date Received:	06/13/95
Time Received:	11:10

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-MW01
9502-01

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 08:30
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/22/95
Lab Sample No: 120228
Batch No: 87199

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	**6.0**		5.0
208-96-8	Acenaphthylene	<5.0		5.0
120-12-7	Anthracene	<5.0		5.0
56-55-3	Benzo (a) Anthracene	<5.0		5.0
50-32-8	Benzo (a) Pyrene	<5.0		5.0
-----	Benzo (b&k) Fluoranthene	<5.0		5.0
191-24-2	Benzo (g,h,i,) Perylene	<5.0		5.0
65-85-0	Benzoic Acid	<50		50
100-51-6	Benzyl Alcohol	<50		50
111-91-1	Bis (2-Chloroethoxy)-Methane	<5.0		5.0
92-49-9	Bis (2-Chloroethyl) Ether	<5.0		5.0
-----	Bis (2-Chloroisopropyl)-Ether	<5.0		5.0
117-81-7	Bis (2-ethylhexyl)-Phthalate	<5.0		5.0
101-55-3	4-Bromophenyl Phenylether	<5.0		5.0
85-68-7	Butyl Benzyl Phthalate	<5.0		5.0
59-50-7	4-Chloro-3-Methylphenol	<5.0		5.0
106-47-8	4-Chloroaniline	<20		20
91-58-7	2-Chloronaphthalene	<5.0		5.0
95-57-8	2-Chlorophenol	<5.0		5.0
7005-72-3	4-Chlorophenylphenyl-Ether	<5.0		5.0
591-78-6	Chrysene	<5.0		5.0
84-74-2	Di-n-Butylphthalate	<5.0		5.0
117-84-0	Di-n-Octylphthalate	<5.0		5.0
53-70-3	Dibenzo (a,h) Anthracene	<5.0		5.0
132-64-9	Dibenzofuran	<5.0		5.0
95-50-1	1,2-Dichlorobenzene	<5.0		5.0
541-73-1	1,3-Dichlorobenzene	<5.0		5.0
106-46-7	1,4-Dichlorobenzene	<5.0		5.0
91-94-1	3,3'-Dichlorobenzidine	<20		20
120-83-2	2,4-Dichlorophenol	<5.0		5.0
84-66-2	Diethylphthalate	<5.0		5.0

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-MW01
9502-01

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 08:30
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/22/95
Lab Sample No: 120228
Batch No: 87199

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
131-11-3	Dimethylphthalate	<5.0		5.0
105-67-9	2,4-Dimethylphenol	<5.0		5.0
534-52-1	4,6-Dinitro-2-Methylphenol	<20		20
51-28-5	2,4-Dinitrophenol	<20		20
121-14-2	2,4-Dinitrotoluene	<5.0		5.0
606-20-2	2,6-Dinitrotoluene	<5.0		5.0
206-44-0	Fluoranthene	<5.0		5.0
86-73-7	Fluorene	<5.0		5.0
118-74-1	Hexachlorobenzene	<5.0		5.0
87-68-3	Hexachlorobutadiene	<5.0		5.0
77-47-4	Hexachlorocyclopentadiene	<5.0		5.0
67-72-1	Hexachloroethane	<5.0		5.0
193-39-5	Indeno (1,2,3-cd) Pyrene	<5.0		5.0
78-59-1	Isophorone	<5.0		5.0
91-57-6	2-Methylnaphthalene	<5.0		5.0
95-48-7	2-Methylphenol	<5.0		5.0
106-44-5	4-Methylphenol	<5.0		5.0
-----	N-Nitrosodi-n-Propylamine	<5.0		5.0
156-10-5	N-Nitroso-di-Phenylamine	<5.0		5.0
91-20-3	Naphthalene	**8.0**		5.0
88-74-4	2-Nitroaniline	<20		20
99-09-2	3-Nitroaniline	<20		20
100-01-6	4-Nitroaniline	<20		20
98-95-3	Nitrobenzene	<5.0		5.0
88-75-5	2-Nitrophenol	<5.0		5.0
100-02-7	4-Nitrophenol	<20		20
87-86-5	Pentachlorophenol	<20		20
85-01-8	Phenanthrene	<5.0		5.0
108-95-2	Phenol	<5.0		5.0
129-00-0	Pyrene	<5.0		5.0
120-82-1	1,2,4-Trichlorobenzene	<5.0		5.0
95-95-4	2,4,5-Trichlorophenol	<50		50
88-06-2	2,4,6-Trichlorophenol	<5.0		5.0
110-86-1	Pyridine	<10		10

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-MW01
9502-01

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 08:30
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/19/95
Lab Sample No: 120228
Batch No: 86598

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
71-43-2	Benzene	**16**		1.0
100-41-4	Ethylbenzene	<1.0		1.0
108-88-3	Toluene	<1.0		1.0
1330-20-7	Xylene, Total	<3.0		3.0

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-MW02 9502-02	Data C	Qualifiers Q	Qualifiers M	Units
Lab Sample No:	120233				

Sampled by:	Ed Culver
Date Sampled:	06/09/95
Time Sampled:	09:30
Date Received:	06/13/95
Time Received:	11:10

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SEMI-VOLATILE ORGANICS
P/N/A SCAN

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-MW02
9502-02

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 09:30
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/22/95
Lab Sample No: 120233
Batch No: 87199

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<5.0		5.0
208-96-8	Acenaphthylene	<5.0		5.0
120-12-7	Anthracene	<5.0		5.0
56-55-3	Benzo (a) Anthracene	<5.0		5.0
-----	Benzo (b&k) Fluoranthene	<5.0		5.0
50-32-8	Benzo (a) Pyrene	<5.0		5.0
191-24-2	Benzo (g,h,i,) Perylene	<5.0		5.0
591-78-6	Chrysene	<5.0		5.0
53-70-3	Dibenzo (a,h) Anthracene	<5.0		5.0
206-44-0	Fluoranthene	<5.0		5.0
86-73-7	Fluorene	<5.0		5.0
193-39-5	Indeno (1,2,3-cd) Pyrene	<5.0		5.0
91-20-3	Naphthalene	<5.0		5.0
85-01-8	Phenanthrene	<5.0		5.0
129-00-0	Pyrene	<5.0		5.0

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-MW02
9502-02

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 09:30
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/19/95
Lab Sample No: 120233
Batch No: 86598

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
71-43-2	Benzene	**5.5**		1.0
100-41-4	Ethylbenzene	<1.0		1.0
108-88-3	Toluene	<1.0		1.0
1330-20-7	Xylene, Total	<3.0		3.0

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-MW03	Data	Qualifiers	Units
	9502-03	C |	Q | M	

Lab Sample No: 120231

Sampled by: Ed Culver
Date Sampled: 06/09/95
Time Sampled: 10:10
Date Received: 06/13/95
Time Received: 11:10

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SEMI-VOLATILE ORGANICS
P/N/A SCAN

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-MW03
9502-03

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 10:10
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/22/95
Lab Sample No: 120231
Batch No: 87199

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<5.0		5.0
208-96-8	Acenaphthylene	<5.0		5.0
120-12-7	Anthracene	<5.0		5.0
56-55-3	Benzo (a) Anthracene	<5.0		5.0
-----	Benzo (b&k) Fluoranthene	<5.0		5.0
50-32-8	Benzo (a) Pyrene	<5.0		5.0
191-24-2	Benzo (g,h,i,) Perylene	<5.0		5.0
591-78-6	Chrysene	<5.0		5.0
53-70-3	Dibenzo (a,h) Anthracene	<5.0		5.0
206-44-0	Fluoranthene	<5.0		5.0
86-73-7	Fluorene	**7.0**		5.0
193-39-5	Indeno (1,2,3-cd) Pyrene	<5.0		5.0
91-20-3	Naphthalene	**110**		5.0
85-01-8	Phenanthrene	**13**		5.0
129-00-0	Pyrene	<5.0		5.0

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-MW03
9502-03

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 10:10
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/19/95
Lab Sample No: 120231
Batch No: 86598

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
71-43-2	Benzene	**38**		1.0
100-41-4	Ethylbenzene	<1.0		1.0
108-88-3	Toluene	**1.7**		1.0
1330-20-7	Xylene, Total	**6.5**		3.0

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-MW03 9502-03-DUP	Data C |	Qualifiers Q | M	Units
Lab Sample No:	120232			

Sampled by:	Ed Culver
Date Sampled:	06/09/95
Time Sampled:	10:10
Date Received:	06/13/95
Time Received:	11:10

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SEMI-VOLATILE ORGANICS
P/N/A SCAN

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-MW03
9502-03-
DUP

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 10:10
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/22/95
Lab Sample No: 120232
Batch No: 87199

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<5.0		5.0
208-96-8	Acenaphthylene	<5.0		5.0
120-12-7	Anthracene	<5.0		5.0
56-55-3	Benzo (a) Anthracene	<5.0		5.0
-----	Benzo (b&k) Fluoranthene	<5.0		5.0
50-32-8	Benzo (a) Pyrene	<5.0		5.0
191-24-2	Benzo (g,h,i,) Perylene	<5.0		5.0
591-78-6	Chrysene	<5.0		5.0
53-70-3	Dibenzo (a,h) Anthracene	<5.0		5.0
206-44-0	Fluoranthene	<5.0		5.0
86-73-7	Fluorene	**7.0**		5.0
193-39-5	Indeno (1,2,3-cd) Pyrene	<5.0		5.0
91-20-3	Naphthalene	**85**		5.0
85-01-8	Phenanthrene	**12**		5.0
129-00-0	Pyrene	<5.0		5.0

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-MW03
9502-03-
DUP

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 10:10
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/19/95
Lab Sample No: 120232
Batch No: 86598

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
71-43-2	Benzene	**38**		1.0
100-41-4	Ethylbenzene	<1.0		1.0
108-88-3	Toluene	**1.7**		1.0
1330-20-7	Xylene, Total	**6.2**		3.0

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 16 Sample

Submittal Number: 32826- 3
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-MW3-950 2-33	Data C	Qualifiers Q	Qualifiers M	Units

Lab Sample No: 120995

Sampled by: Wahlberg
Date Sampled: 06/16/95
Time Sampled: 13:25
Date Received: 06/21/95
Time Received: 12:20

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SEMI-VOLATILE ORGANICS
P/N/A SCAN

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 16 Sample
Sample: DC-MW3-950
2-33

Submittal Number 32826- 3
Date Sampled: 06/16/95 Time: 13:25
Date Received: 06/21/95 Time: 12:20
Analysis Date: 06/26/95
Lab Sample No: 120995
Batch No: 87119

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<5.0		5.0
208-96-8	Acenaphthylene	<5.0		5.0
120-12-7	Anthracene	<5.0		5.0
56-55-3	Benzo (a) Anthracene	<5.0		5.0
-----	Benzo (b&k) Fluoranthene	<5.0		5.0
50-32-8	Benzo (a) Pyrene	<5.0		5.0
191-24-2	Benzo (g,h,i,) Perylene	<5.0		5.0
591-78-6	Chrysene	<5.0		5.0
53-70-3	Dibenzo (a,h) Anthracene	<5.0		5.0
206-44-0	Fluoranthene	<5.0		5.0
86-73-7	Fluorene	**10**		5.0
193-39-5	Indeno (1,2,3-cd) Pyrene	<5.0		5.0
91-20-3	Naphthalene	**100**		5.0
85-01-8	Phenanthrene	**19**		5.0
129-00-0	Pyrene	**5.0**		5.0

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-MW04 9502-04	Data C	Qualifiers Q	M	Units
Lab Sample No:	120230				

Sampled by:	Ed Culver
Date Sampled:	06/09/95
Time Sampled:	12:00
Date Received:	06/13/95
Time Received:	11:10

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-MW04
9502-04

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 12:00
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/22/95
Lab Sample No: 120230
Batch No: 87199

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<5.0		5.0
208-96-8	Acenaphthylene	<5.0		5.0
120-12-7	Anthracene	<5.0		5.0
56-55-3	Benzo (a) Anthracene	<5.0		5.0
50-32-8	Benzo (a) Pyrene	<5.0		5.0
-----	Benzo (b&k) Fluoranthene	<5.0		5.0
191-24-2	Benzo (g,h,i,) Perylene	<5.0		5.0
65-85-0	Benzoic Acid	<50		50
100-51-6	Benzyl Alcohol	<50		50
111-91-1	Bis (2-Chloroethoxy)-Methane	<5.0		5.0
92-49-9	Bis (2-Chloroethyl) Ether	<5.0		5.0
-----	Bis (2-Chloroisopropyl)-Ether	<5.0		5.0
117-81-7	Bis (2-ethylhexyl)-Phthalate	<5.0		5.0
101-55-3	4-Bromophenyl Phenylether	<5.0		5.0
85-68-7	Butyl Benzyl Phthalate	<5.0		5.0
59-50-7	4-Chloro-3-Methylphenol	<5.0		5.0
106-47-8	4-Chloroaniline	<20		20
91-58-7	2-Chloronaphthalene	<5.0		5.0
95-57-8	2-Chlorophenol	<5.0		5.0
7005-72-3	4-Chlorophenylphenyl-Ether	<5.0		5.0
591-78-6	Chrysene	<5.0		5.0
84-74-2	Di-n-Butylphthalate	<5.0		5.0
117-84-0	Di-n-Octylphthalate	<5.0		5.0
53-70-3	Dibenzo (a,h) Anthracene	<5.0		5.0
132-64-9	Dibenzofuran	<5.0		5.0
95-50-1	1,2-Dichlorobenzene	<5.0		5.0
541-73-1	1,3-Dichlorobenzene	<5.0		5.0
106-46-7	1,4-Dichlorobenzene	<5.0		5.0
91-94-1	3,3'-Dichlorobenzidine	<20		20
120-83-2	2,4-Dichlorophenol	<5.0		5.0
84-66-2	Diethylphthalate	<5.0		5.0

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-MW04
9502-04

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 12:00
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/22/95
Lab Sample No: 120230
Batch No: 87199

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
131-11-3	Dimethylphthalate	<5.0		5.0
105-67-9	2,4-Dimethylphenol	<5.0		5.0
534-52-1	4,6-Dinitro-2-Methylphenol	<20		20
51-28-5	2,4-Dinitrophenol	<20		20
121-14-2	2,4-Dinitrotoluene	<5.0		5.0
606-20-2	2,6-Dinitrotoluene	<5.0		5.0
206-44-0	Fluoranthene	<5.0		5.0
86-73-7	Fluorene	<5.0		5.0
118-74-1	Hexachlorobenzene	<5.0		5.0
87-68-3	Hexachlorobutadiene	<5.0		5.0
77-47-4	Hexachlorocyclopentadiene	<5.0		5.0
67-72-1	Hexachloroethane	<5.0		5.0
193-39-5	Indeno (1,2,3-cd) Pyrene	<5.0		5.0
78-59-1	Isophorone	<5.0		5.0
91-57-6	2-Methylnaphthalene	<5.0		5.0
95-48-7	2-Methylphenol	<5.0		5.0
106-44-5	4-Methylphenol	<5.0		5.0
-----	N-Nitrosodi-n-Propylamine	<5.0		5.0
156-10-5	N-Nitroso-di-Phenylamine	<5.0		5.0
91-20-3	Naphthalene	<5.0		5.0
88-74-4	2-Nitroaniline	<20		20
99-09-2	3-Nitroaniline	<20		20
100-01-6	4-Nitroaniline	<20		20
98-95-3	Nitrobenzene	<5.0		5.0
88-75-5	2-Nitrophenol	<5.0		5.0
100-02-7	4-Nitrophenol	<20		20
87-86-5	Pentachlorophenol	<20		20
85-01-8	Phenanthrene	<5.0		5.0
108-95-2	Phenol	<5.0		5.0
129-00-0	Pyrene	<5.0		5.0
120-82-1	1,2,4-Trichlorobenzene	<5.0		5.0
95-95-4	2,4,5-Trichlorophenol	<50		50
88-06-2	2,4,6-Trichlorophenol	<5.0		5.0
110-86-1	Pyridine	<10		10

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-MW04
9502-04

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 12:00
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/19/95
Lab Sample No: 120230
Batch No: 86598

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
71-43-2	Benzene	<1.0		1.0
100-41-4	Ethylbenzene	<1.0		1.0
108-88-3	Toluene	<1.0		1.0
1330-20-7	Xylene, Total	<3.0		3.0

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ANALYTICAL REPORT
USEPA CLP FORM 1

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples

Submittal Number: 32826- 2
Location:
Contact: Ray V. Buhl
Phone: (616) 942-9600

CAS No.	DC-MW05	Data	Qualifiers	Units
	9502-05	C |	Q | M	

Lab Sample No: 120229

Sampled by: Ed Culver
Date Sampled: 06/09/95
Time Sampled: 11:40
Date Received: 06/13/95
Time Received: 11:10

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-MW05
9502-05

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 11:40
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/22/95
Lab Sample No: 120229
Batch No: 87199

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
83-32-9	Acenaphthene	<5.0		5.0
208-96-8	Acenaphthylene	<5.0		5.0
120-12-7	Anthracene	<5.0		5.0
56-55-3	Benzo (a) Anthracene	<5.0		5.0
50-32-8	Benzo (a) Pyrene	<5.0		5.0
-----	Benzo (b&k) Fluoranthene	<5.0		5.0
191-24-2	Benzo (g,h,i,) Perylene	<5.0		5.0
65-85-0	Benzoic Acid	<50		50
100-51-6	Benzyl Alcohol	<50		50
111-91-1	Bis (2-Chloroethoxy)-Methane	<5.0		5.0
92-49-9	Bis (2-Chloroethyl) Ether	<5.0		5.0
-----	Bis (2-Chloroisopropyl)-Ether	<5.0		5.0
117-81-7	Bis (2-ethylhexyl)-Phthalate	<5.0		5.0
101-55-3	4-Bromophenyl Phenylether	<5.0		5.0
85-68-7	Butyl Benzyl Phthalate	<5.0		5.0
59-50-7	4-Chloro-3-Methylphenol	<5.0		5.0
106-47-8	4-Chloroaniline	<20		20
91-58-7	2-Chloronaphthalene	<5.0		5.0
95-57-8	2-Chlorophenol	<5.0		5.0
7005-72-3	4-Chlorophenylphenyl-Ether	<5.0		5.0
591-78-6	Chrysene	<5.0		5.0
84-74-2	Di-n-Butylphthalate	<5.0		5.0
117-84-0	Di-n-Octylphthalate	<5.0		5.0
53-70-3	Dibenzo (a,h) Anthracene	<5.0		5.0
132-64-9	Dibenzofuran	<5.0		5.0
95-50-1	1,2-Dichlorobenzene	<5.0		5.0
541-73-1	1,3-Dichlorobenzene	<5.0		5.0
106-46-7	1,4-Dichlorobenzene	<5.0		5.0
91-94-1	3,3'-Dichlorobenzidine	<20		20
120-83-2	2,4-Dichlorophenol	<5.0		5.0
84-66-2	Diethylphthalate	<5.0		5.0

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PROJECT SPECIFIC ORGANICS
GC/MS 8270

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-MW05
9502-05

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 11:40
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/22/95
Lab Sample No: 120229
Batch No: 87199

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
131-11-3	Dimethylphthalate	<5.0		5.0
105-67-9	2,4-Dimethylphenol	<5.0		5.0
534-52-1	4,6-Dinitro-2-Methylphenol	<20		20
51-28-5	2,4-Dinitrophenol	<20		20
121-14-2	2,4-Dinitrotoluene	<5.0		5.0
606-20-2	2,6-Dinitrotoluene	<5.0		5.0
206-44-0	Fluoranthene	<5.0		5.0
86-73-7	Fluorene	<5.0		5.0
118-74-1	Hexachlorobenzene	<5.0		5.0
87-68-3	Hexachlorobutadiene	<5.0		5.0
77-47-4	Hexachlorocyclopentadiene	<5.0		5.0
67-72-1	Hexachloroethane	<5.0		5.0
193-39-5	Indeno (1,2,3-cd) Pyrene	<5.0		5.0
78-59-1	Isophorone	<5.0		5.0
91-57-6	2-Methylnaphthalene	<5.0		5.0
95-48-7	2-Methylphenol	<5.0		5.0
106-44-5	4-Methylphenol	<5.0		5.0
-----	N-Nitrosodi-n-Propylamine	<5.0		5.0
156-10-5	N-Nitroso-di-Phenylamine	<5.0		5.0
91-20-3	Naphthalene	<5.0		5.0
88-74-4	2-Nitroaniline	<20		20
99-09-2	3-Nitroaniline	<20		20
100-01-6	4-Nitroaniline	<20		20
98-95-3	Nitrobenzene	<5.0		5.0
88-75-5	2-Nitrophenol	<5.0		5.0
100-02-7	4-Nitrophenol	<20		20
87-86-5	Pentachlorophenol	<20		20
85-01-8	Phenanthrene	<5.0		5.0
108-95-2	Phenol	<5.0		5.0
129-00-0	Pyrene	<5.0		5.0
120-82-1	1,2,4-Trichlorobenzene	<5.0		5.0
95-95-4	2,4,5-Trichlorophenol	<50		50
88-06-2	2,4,6-Trichlorophenol	<5.0		5.0
110-86-1	Pyridine	<10		10

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PROJECT SPECIFIC ORGANICS
GC/MS 8240

Horizon Environmental
Proj: Detroit Coke RFI

Subm: June 6-9 Samples
Sample: DC-MW05
9502-05

Submittal Number 32826- 2
Date Sampled: 06/09/95 Time: 11:40
Date Received: 06/13/95 Time: 11:10
Analysis Date: 06/19/95
Lab Sample No: 120229
Batch No: 86598

CAS No.	Compound	Result ug/l	Data Qualifiers	Reporting Limit
71-43-2	Benzene	<1.0		1.0
100-41-4	Ethylbenzene	<1.0		1.0
108-88-3	Toluene	<1.0		1.0
1330-20-7	Xylene, Total	<3.0		3.0

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Chain of Custody Record

Analytical Services

COC No. N2 20454

Project Manager: C. VandenBerg

Project Name: Horizon Detroit Coke

Project No.: DET01 01

Sampler (Print): EDCULVER

Sampler Signature: Edward Culver

No's Correspond to Bottle Packing List

For Lab Use Only: Rack/Tray No. / Lab Project

Date Sampled	Time Sampled	Matrix*	Composite	Grab	Sample Identification	No. of Containers	Container Type	Analysis Required/Comments	Sample No.	Filtered Date/Time
6/8/95	0920	Soil		✓	DC-SSB1-1 95022-22 2'-3'	2		HOLD		
6/8	1105	Soil		✓	DC-SSB1-2 95022-24 2'-3'	2		BTEX (8240) PNAs (8270)		
6/8	1110	Soil		✓	DC-SSB1-2 95022-25 3'-4'	2		HOLD		
6/8	0810	Soil		✓	DC-SSB2-1 95022-20 3'-4'	2		BTEX BNAs w/Pyridine		
6/8	0812	Soil		✓	DC-SSB2-1 95022-21 6'-8'	2		BTEX BNAs w/pyridine		
6/8	1105	Soil		✓	DC-SSB2-2 95022-24 DUP-2-31	2		BTEX (8240) PNAs (8270)		
6/6	1146	Soil		✓	DC-SSB2-1 95022-01 2'-3'	2		HOLD		
6/6	1223	Soil		✓	DC-SSB2-2 95022-02 2'-3'	2		HOLD		
6/6	1330	Soil		✓	DC-SSB2-3 95022-03 2'-3'	2		HOLD		

Relinquished By:	Date/Time	Received By:	Received to Lab By:	Date/Time	Logged in By:	Date/Time
Eric Wahlberg	6/13 1110			1110 6/13/95		

* Matrix: Water (WTR), Wastewater (WW), Soil (SOIL), Sludge (SLG), Air, Oil, Waste (WASTE)

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Chain of Custody Record

Analytical Services

COC No. № 20455

Project Manager: C. Vanderberge

Project Name: Horizon Detroit Coke

Project No.: DET0101

Sampler (Print): ✓ ED CULVER

Sampler Signature: Edward Culver

No's Correspond to Bottle Packing List

For Lab Use Only

Rack/Tray No:

Lab Project

Date Sampled	Time Sampled	Matrix*	Composite	Grab	Sample Identification	No. of Containers	Container Type	Analysis Required/Comments	Sample No.	Filtered Date/Time
6/7/95	1350	Soil		✓	DC-SSB2-4 9502-13 2'-3'	2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 ~~17~~ ~~18~~ 19 20	HOLD		
6/7	1403	Soil		✓	DC-SSB2-5 9502-14 2'-3'	2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 ~~17~~ ~~18~~ 19 20	BTEX (8240) BNAs w/pyridine (8270)		
6/7	1420	Soil		✓	DC-SSB2-6 9502-15 2'-3'	2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 ~~17~~ ~~18~~ 19 20	BTEX (8240) BNAs w/pyridine (8270)		
6/8	1320	Soil		✓	DC-SSB2-7 9502-26 2'-3'	2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 ~~17~~ ~~18~~ 19 20	HOLD		
6/8	1340	Soil		✓	DC-SSB2-7 9502-27 3'-4'	2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 ~~17~~ ~~18~~ 19 20	BTEX BNAs w/pyridine		
6/7	1525	Soil		✓	DC-SSB18-1 9502-16 2'-3'	2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 ~~17~~ ~~18~~ 19 20	BTEX BNAs w/pyridine		
6/7	1550	Soil		✓	DC-SSB18-2 9502-17 2'-3'	2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 ~~17~~ ~~18~~ 19 20	HOLD		
6/8	1356	Soil		✓	DC-SSB18-3 9502-28 2'-3'	2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 ~~17~~ ~~18~~ 19 20	HOLD		
6/8	1410	Soil		✓	DC-SSB18-4 9502-29 2'-3'	2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 ~~17~~ ~~18~~ 19 20	BTEX BNA w/pyridine		

Relinquished By:	Date/Time	Received By:	Received to Lab By:	Date/Time	Logged in By:	Date/Time
Eric Wahlberg	6/13 1110		[signature]	1110 6/13/95		

* Matrix: Water (WTR), Wastewater (WW), Soil (SOIL), Sludge (SLG), Air, Oil, Waste (WASTE)

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Chain of Custody Record

Analytical Services

COC No. № 20456

Project Manager: C. VanderBerg

Project Name: Horizon Detroit Coke

Project No.: DET0101

Sampler (Print): E D C U L V E R

Sampler Signature: Edward Culver

No's Correspond to Bottle Packing List

For Lab Use Only: Rack/Tray No. / Lab Project No.

Date Sampled	Time Sampled	Matrix*	Composite	Grab	Sample Identification	No. of Containers	Container Type	Analysis Required/Comments	Sample No.	Filtered Date/Time
6/8/95	1445	Soil		✓	DC-SSB20-3 950 2-30 1'-2'	2		BTEX (8240) BNAs w/pyridine (8270)		
6/8	1445	Soil		✓	DC-SSB20-3 950 2-30 DUP-2'-3	2		"		
6/7	1636	Soil		✓	DC-SSB20-1 950 2-18 1'-2'	2		"		
6/7	1655	Soil		✓	DC-SSB20-2 950 2-19 1'-2'	2		"		
6/9	1240	Soil		✓	DC-SSB20-5 950 2-31 1'-2'	2		"		
6/9	1300	Soil		✓	DC-SSB20-6 950 2-32 1'-2'	2		"		
6/8/95	0930	Soil			DC-SSB1-1 950 2-23 5'-6'	2		BTEX (8240) PNA (8270)		

Relinquished By:	Date/Time	Received By:	Received to Lab By:	Date/Time	Logged in By:	Date/Time
Eric Wahlberg	6/13 1110			1110 6/13/95		

* Matrix: Water (WTR), Wastewater (WW), Soil (SOIL), Sludge (SLG), Air, Oil, Waste (WASTE)

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Chain of Custody Record

Analytical Services

COC No. № 20457

Project Manager: C. VanduBerg

Project Name: HORIZON DETROIT COKE

Project No.: DET0101

Sampler (Print): W A H L B E R G

Sampler Signature: Eric Wahlberg

For Lab Use Only: Rack/Tray No.: Lab Project #

Date Sampled	Time Sampled	Matrix*	Composite	Grab	Sample Identification	No. of Containers	Container Type (No's Correspond to Bottle Packing List)	Analysis Required/Comments	Sample No.	Filtered Date/Time
6-6-95	1350	SOIL	X	✓	DC-B601 95 02-04 2'-3'	2		PNAs - 8270		
6-6-95			X	✓	DC-B602 95 02-05 2'-3'			"		
6-6-95	1650		X	✓	DC-B604 95 02-07 2'-3'			"		
6-6-95	1735		X	✓	DC-B605 95 02-08 2'-3'			"		
6-6-95	1800		X	✓	DC-B606 95 02-09 2'-3'			"		
6-6-95	1830		X	✓	DC-B607 95 02-10 2'-3'			"		
6-6-95	1830		X	✓	DC-B607 95 02-10- DUP ~~DATE~~			"		
6-7-95	750		X	✓	DC-B608 95 02-11 2'-3'			"		
6-7-95	840	↓	X	✓	DC-B603 95 02-12 2'-3'	↓		"		

Relinquished By:	Date/Time	Received By:	Received to Lab By:	Date/Time	Logged in By:	Date/Time
Eric Wahlberg	6/13 1110			1110 6/13/95		

* Matrix: Water (WTR), Wastewater (WW), Soil (SOIL), Sludge (SLG), Air, Oil, Waste (WASTE)

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Chain of Custody Record

Analytical Services

COC No. № 20482

Project Manager: C. Vandenberge

Project Name: Horizon - Detroit Coke

Project No.: DET0101

Sampler (Print): ED CULVER

Sampler Signature: Edward Culver

No's Correspond to Bottle Packing List

Cooler # 336 A

For Lab Use Only

Rack/Tray No:

Lab Project #:

Date Sampled	Time Sampled	Matrix*	Composite	Grab	Sample Identification	No. of Containers	Container Type	Analysis Required/Comments	Sample No.	Filtered Date/Time
6/1/95	4PM	WTR		✓	TRIP BLANK	2		BTEX - 8240		
6/7	0800	WTR		✓	DC-BE08 9502-11-EB	3		PNAs - 8270		
6/9	0930	WTR		✓	DC-MW02 9502-02	4		BTEX - 8240 PNAs - 8270		
6/9	1140	WTR		✓	DC-MW05 9502-05	4		BTEX - 8240 BNA's + Pyridine - 8270		
6/9	1200	WTR		✓	DC-MW04 9502-04	4		BTEX - 8240 BNA's + Pyridine - 8270		

Relinquished By:	Date/Time	Received By:	Received to Lab By:	Date/Time	Logged in By:	Date/Time
Eric Wahlberg	6/13 1110			6/13/95 1110		

* Matrix: Water (WTR), Wastewater (WW), Soil (SOIL), Sludge (SLG), Air, Oil, Waste (WASTE)

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Chain of Custody Record

Analytical Services

COC No. № 20459

Project Manager: C. Vander Berg

Project Name: Horizon - Detroit Coke

Project No.: DET0101

Sampler (Print): ED CULNER

Sampler Signature: Edward Culner

No's Correspond to Bottle Packing List

COOLER #15A

For Lab Use Only: Rack/Tray No. / Lab Project #

Date Sampled	Time Sampled	Matrix*	Composite	Grab	Sample Identification	No. of Containers	Container Type	Analysis Required/Comments	Sample No.	Filtered Date/Time
6/1/95	4 PM	WTR		✓	TRIP BLANK	2		BTEX - 8240		
6/8	1240	WTR		✓	DC-SSB2-7-9502-26-EB	3		BTEX - 8240 BNAs w/Pyridine - 8270		
6/8	1530	WTR		✓	DC-SSB20-3-9502-30-EB	3		BTEX - 8240 BNAs w/Pyridine 8270		
6/9	0830	WTR		✓	DC-MW01-9502-01	4		BTEX - 8240 BNAs w/Pyridine 8270		
6/9	1010	WTR		✓	DC-MW03-9502-03	~~4~~ 3		BTEX - 8240 PNAs - 8270		
6/9	1010	WTR		✓	DC-MW03-9502-03-DP	3		BTEX - 8240 PNAs - 8270		

Relinquished By:	Date/Time	Received By:	Received to Lab By:	Date/Time	Logged in By:	Date/Time
Eric Wahlberg	6/8 1110			1110 6/13/95		

* Matrix: Water (WTR), Wastewater (WW), Soil (SOIL), Sludge (SLG), Air, Oil, Waste (WASTE)

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EARTH TECH

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Chain of Custody Record

Analytical Services

COC No. № 21987

Project Manager	Project Name	
	HORIZON DETROIT COKE	
Project No. DET0101	Sampler (Print) W A H L B E R G	
	Sampler Signature	

No's Correspond to Bottle Packing List

For Lab Use Only: Rack/Tray No. / Lab Project #

Date Sampled	Time Sampled	Matrix*	Composite	Grab	Sample Identification	No. of Containers	Container Type	Analysis Required/Comments	Sample No.	Filtered Date/Time
6-16-95	1325	H_2O		X	DC-MW-3-950 2-33	4	1 X 3 4 5 / 6 7 8 9 10 / 11 12 13 14 15 / 16 17 18 19 20			
							1 2 3 4 5 / 6 7 8 9 10 / 11 12 13 14 15 / 16 17 18 19 20			
							1 2 3 4 5 / 6 7 8 9 10 / 11 12 13 14 15 / 16 17 18 19 20			
							1 2 3 4 5 / 6 7 8 9 10 / 11 12 13 14 15 / 16 17 18 19 20			
							1 2 3 4 5 / 6 7 8 9 10 / 11 12 13 14 15 / 16 17 18 19 20			
							1 2 3 4 5 / 6 7 8 9 10 / 11 12 13 14 15 / 16 17 18 19 20			
							1 2 3 4 5 / 6 7 8 9 10 / 11 12 13 14 15 / 16 17 18 19 20			
							1 2 3 4 5 / 6 7 8 9 10 / 11 12 13 14 15 / 16 17 18 19 20			

Relinquished By:	Date/Time	Received By:	Received to Lab By:	Date/Time	Logged in By:	Date/Time
Eric Wahlberg	6-21-95 1117		[illegible]	6/21/95 12:20p		

* Matrix: Water (WTR), Wastewater (WW), Soil (SOIL), Sludge (SLG), Air, Oil, Waste (WASTE)

CofC

Attachment I

Report

Expanded Hydrogeological Investigation of the Detroit Coke Facility

Prepared for:

Detroit Coke Corporation
Box 09229
Detroit, Michigan 48209

Prepared by:

Horizon Environmental Corporation

Grand Rapids Office:
4595 Broadmoor S.E., Suite 200
Kentwood Corporate Center
Grand Rapids, Michigan 49512
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Detroit, Michigan 48213
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September, 1995

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1. General Site Index Map
2. Cross-Section A-A'
3. Cross-Section B-B'
4. Relative Elevations Contours on Top of Clay
5. Surficial Fill Saturated Thickness
6. Contoured Ground Water Elevations

TABLES

1. Monitoring Well, Piezometer and Staff Gauge Construction Summary
2. Survey Coordinates of On-Site Benchmarks

APPENDICES

I. Soil Boring/Piezometer Logs, and Installation Diagrams
II. *In Situ* Hydraulic Conductivity Data

1.0 INTRODUCTION

The Detroit Coke Corporation facility, located at 7819 Jefferson Avenue in Detroit, Michigan (Wayne County, Section 27, T2S, R11E) is a 60 acre site on the north side of the confluence of the River Rouge and the Detroit River. The area is heavily industrialized, although it is within 1000 feet of a residential neighborhood, and within one-half mile of several schools.

The facility is currently used to store bulk coal, coke, and limestone. Historically, from the early 1900's until 1991, the site was operated as a coking facility and produced coal tar and coke oven gas as by-products. Coking operations ceased and the plant was closed in 1991. Much of the facility has subsequently been removed or demolished.

A Toxic Release Inventory for the Detroit Coke site was reported by U.S. EPA in 1990. The U.S. EPA also prepared an RFA for the facility in December, 1992 and determined that there were 13 SWMU's requiring additional investigation and possible corrective action. Detroit Coke is currently conducting a Release Assessment (RA) involving 4 of the 13 SWMU's prior to initiating a full RCRA Facility Investigation (RFI) at the site.

In conjunction with the ongoing RA investigation, this expanded hydrogeologic investigation was conducted to accomplish the following objectives:

- Determine hydrogeologic conditions beneath the site concurrently with ongoing RA work;
- Enhance ability to accurately plan the scope of work for the RFI and avoid unexpected conditions that could delay the project and/or increase cost of the project;
- Provide stratigraphic and hydrogeologic information in support of proposed approach to the RFI; and
- Limit mobilization/de-mobilization of staff and equipment.

2.0 OBJECTIVES/SCOPE OF WORK

The specific objectives of the expanded hydrogeologic investigation were to:

- Develop an understanding of the site stratigraphy (sediment texture, density, thickness, three dimensional distribution);
- Determine the depth(s) to water bearing zone(s) and their saturated thickness;

- Determine the depth to and thickness of confining clay layer(s) separating water bearing zones; and

- Determine the direction and velocity of ground water flow.

To accomplish these objectives, the following work was conducted:

- Six test boring (soil borings) were drilled to characterize the stratigraphy within the unconsolidated glacial/fluvial sediments beneath the site;

- Eight piezometers were installed in the shallow water bearing zones beneath the site. Two of the piezometers were installed in a slightly deeper water bearing zone within a fluvially deposited channel fill sequence to assist in vertical characterization of hydraulic relationships of and between the water bearing zones;

- Top-of-casing elevations were surveyed on each piezometer and static water levels were measured in all piezometers and RA-monitoring wells;

- *In situ* hydraulic conductivity tests (slug tests) were performed on five piezometers;

- Staff gauges were installed in both the Detroit River and the River Rouge to assist in determining the hydraulic relationship between the water bearing zone(s) and the two surface water bodies;

- Water table surface contours were mapped to determine the direction of ground water flow, hydraulic gradient, and the hydraulic relationship between the water bearing zone(s) and the surface water bodies; and

- Ground water flow velocities were estimated.

3.0 FIELD METHODS

Field work was conducted during the month of June, 1995. The soil borings and piezometers were installed with 8 inch OD/4.25 inch ID hollow-stem auger (HSA) drilling equipment on June 14, 15, 16, and 19. The top of casing elevations of the piezometers were surveyed and the piezometers developed on June 20 and slug tests to determine hydraulic conductivity were conducted on June 22 and 23. Figure 1 is an index map of the Detroit Coke site showing the location of the various soil borings, piezometers, RA-monitoring wells, and staff gauges.

The horizontal location of all investigation points and benchmarks are referenced to site coordinate system established for this and future investigations that may be conducted at the site. The ordinate of this system is established near the northeast corner of the site

where a permanent iron marker has been placed for future reference. Additionally, 11 Benchmarks were established at various locations across the site.

3.1 SOIL BORINGS

In order to determine the general site conditions prior to the installation of the piezometers, and to develop an understanding of the stratigraphy beneath the site in accordance with the objectives of the study, six soil borings were drilled at the proposed locations of the piezometers. These borings were exploratory in nature and ranged in depth from 28 to 65 feet for the purpose of determining the thickness of the fill material at the site, the depth to ground water, the saturated thickness of the water bearing zones, and the occurrence and thickness of confining (clay) units. The drillers' logs of the soil boring are presented in Appendix I.

The sediments encountered while drilling the soil borings were sampled using continuous split-spoon sampling techniques to at least 30 feet in all but one boring, which was continuously sampled to 20 feet. Below depths of 30 feet the sampling interval was lengthened to 5 foot intervals, although boring TB-3 was continuously sampled to it's total depth of 50 feet below grade. The sampler was a standard 2 inch ID, 2 foot long split-spoon and the methods used were in accordance with ASTM 1586, which describes the standard methods for split-spoon sampling of soils. Each sample interval was field-screened with a photoionization detector (PID) for volatile organic vapors and checked for odor or staining. Blow counts were recorded along with the headspace gas reading from the PID on the driller's log of the soil borings. No samples were collected or retained for laboratory analysis. Upon completion of the soil borings, the holes were abandoned with a cement-bentonite grout tremmied in place from the bottom up as the augers were withdrawn and/or with a mixture of bentonite and hole-plug.

3.2 PIEZOMETER INSTALLATION

Based on the stratigraphic data gathered while drilling the soil borings, 8 piezometers were installed adjacent to the location of their corresponding soil boring. Six of the piezometers are completed in the shallow water bearing zone, comprised largely of fill material, and are screened to straddle the interface between the sandy fill material and the underlying clay till. The remaining two piezometers (P-4D-95 & P-5D-95) are screened in a deeper zone below and/or where the clay is truncated by the erosion associated with the ancestral river channels. These two piezometers have shallow companions (P-4S-95 & P-5S-95) which allow measurement of any vertical hydraulic gradient within or between the saturated zone(s).

The construction details of each piezometer are given in their respective logs which are presented in Appendix I. Since the piezometers were installed immediately adjacent to the soil borings where blow counts and headspace gas were recorded for each 2 foot

interval, these parameters were not recorded again during piezometer installation. Table 1 summarizes the pertinent details on the piezometers and RA-monitoring wells used in this investigation.

The piezometers were installed using a 5-foot length of 2-inch ID stainless steel screen (10 slot) with 2-inch ID galvanized casing to surface. The screened intervals were filtered-packed with #3 silica sand to approximately 2 feet above the top of the screen followed by 2 feet of bentonite pellets. (No filter-pack or bentonite was placed in piezometer P-4D-95 due to natural collapse around the screen and casing.) The remaining annular space was filled with a cement/bentonite grout to the surface. The piezometers were left with an above ground casing "stick-up" of 2 to 3 feet, capped with a J-plug, and secured with a locked, 4-inch square, steel protective casing cemented in place around the piezometer.

The piezometers were developed by surging with a disposable bailer, or more typically, by a submersible-type pump with dedicated Teflon® tubing. The piezometers were pumped at rates of 1 to 3 gallons per minute until they stabilized with respect to pH, conductivity, and total dissolved solids. Water volumes removed ranged from 15 to 60 gallons. Development water was reintroduced to the piezometer from which it came following development. Development was terminated on piezometer P-6D-95 when it began to generate a "creosote-like" product.

3.3 *IN SITU* HYDRAULIC CONDUCTIVITY TESTING

In situ hydraulic conductivity tests (slug tests) were performed in five of the recently constructed piezometers (P-1S-95, P-3S-95, P-4S-95, P-4D-95, and P-5D-95). The test method allows estimation of the hydraulic conductivity or transmissivity of a water bearing zone in the immediate vicinity of the piezometer's screen based on the rate of water level recovery in a well when a volume or "slug" of water is suddenly added or removed.

With the exception of piezometer P-4S-95, a known volume of water was added to each piezometer by drawing water into the piezometer using a vacuum, allowing the column of water to stabilize within the piezometer, and then instantaneously releasing the vacuum and thus the volume of water. Water level recovery was measured and recorded using a pressure sensing transducer linked to a field microprocessor (Hermit Datalogger). In the case of piezometer P-4S-95, a solid cylinder (slug), displacing a known volume of water, was dropped into the water column and the recovery of the water level to static conditions was recorded.

The data were downloaded to a microcomputer and interpreted using the Brouwer-Rice method for water-table conditions (P-3S-95) and the Cooper, Bredehoeft, and Papadopulos method for confined conditions (P-1S-95, P-4S-95, P-4D-95, and P-5D-95).

3.4 STAFF GAUGES

Staff gauges were installed in the Detroit River and River Rouge by selecting fixed reference points against which relative changes in river level could be reliably measured. These reference points were located relative to the site survey coordinate system and their elevations measured. Staff Gauge 1 was established on the concrete sea-wall adjacent the Detroit River, just east of the truck ferry tie-off. Staff Gauge 2 was established on the concrete sea-wall on the River Rouge.

4.0 RESULTS

4.1 SITE STRATIGRAPHY

Details of the site stratigraphy are graphically presented in cross-sections A-A' and B-B', Figure 2 and 3, respectively. The surface traces of the cross-sections are shown on the index map presented as Figure 1.

Both cross-sections depict a surficial fill layer on the order of 10 to 13 feet thick consisting of coal fines, rubble, bricks, slag, cinders, wood, sand and clay. The lowermost portion of the fill interval is typically sand on the order of 3 to 6 feet thick. However, it is unclear whether this lower sand interval is imported fill or naturally deposited material. The presence of rubble noted on boring logs for this interval (TB-5 & TB-4), and the total absence of any sand in the fill layer in boring TB-2 support the interpretation of this sandy unit as fill.

The surface fill layer is generally underlain by at least 15 feet of clay and in some instances the clay layer was greater than 30 feet thick (explored thickness). The layer was found to be laterally extensive across the site, except where truncated by fluvial erosion associated with the former Rouge and Detroit River cuts, and is comprised of predominately brown and/or gray, plastic, silty to sandy clay. Figure 4 is a contour map of relative elevations on the top of the clay showing a gentle sloping surface to the southeast toward the Detroit River. This clay layer grades laterally into sand of approximately equal thickness in the proximity of both rivers. These sandy facies are interpreted to be fluvial channel-fill deposits associated with the ancestral river beds and banks.

4.2 SITE HYDROGEOLOGY

There are two distinct water bearing zones beneath the site separated by a clay layer that provides an effective barrier to vertical flow between the two water bearing zones over the majority of the site. The shallow water-bearing zone within the surficial fill layer has an unconfined ground water table at a depth of approximately 3 to 10 feet below ground level. The saturated thickness of the fill layer ranges from 2 to 10.5 feet as show in

Figure 5. Within the surficial fill layer there may also be local shallow perched zones of limited area extent based on the occurrence of ground water at depths as shallow as 2 to 3 feet and the presence of thin clay layers at shallow depths within the fill, such as those logged in TB-1 and TB-6. The lower water bearing zone appears to be confined over much of the site based on static water levels above the top of the overlying clay in both piezometers screened in that zone.

Given the similar static or piezometric water level elevations in both the shallow and deeper saturated zones, and the trucation of the clay layer in proximity of the rivers, it is likely that the two water bearing zones and the rivers are in hydraulic continuity.

The screened intervals in the piezometers and RA-monitoring wells shown in the cross-sections previously discussed demonstrate the likely hydraulic continuity within the surficial fill layer. The static water levels shown are approximately parallel to both the top of clay surface and the topographic surface at the site.

Figure 6 is a contour map of relative ground water elevations from the existing monitoring wells installed as part of the RA, and the piezometers installed in conjunction with this expanded hydrogeologic investigation. The contour map shows ground water flow to the south and southeast at an approximate hydraulic gradient of 0.006 to 0.007 feet/foot across much of the site. However, based on the water levels measured in proximity of the sea-walls adjacent to both the River Rouge and the Detroit River, and as illustrated in the water level contour map prepared for the site (Figure 6), there is some apparent mounding of ground water behind these sea-walls. Consequently, the hydraulic gradient and correspondingly the ground water flow velocities immediately upgradient of these sea-walls are reduced relative to those observed on a site wide basis.

4.3 *IN SITU* HYDRAULIC CONDUCTIVITY

The piezometers tested were P-1S-95, P-3S-95, P-4S-95, P-4D-95, and P-5D-95, all constructed with 5-foot long screens. The field data collected along with recovery plots and additional construction details are included in Appendix III. Test results in the form of hydraulic conductivity (K) for the screened materials are summarized below:

- P-1S-95 medium grained sand K = 16.29 feet/day
- P-3S-95 rubble K = 0.228 feet/day
- P-4S-95 fine grained sand K = 5.47 feet/day
- P-4D-95 fine grained sand K = 1.87 feet/day
- P-5D-95 medium grained sand K = 17.57 feet/day

In general, the results provide an estimate of the hydraulic conductivity of a small volume of porous media in the immediate vicinity of each piezometer's screen.

In calculating the velocity of ground water flow beneath the site, the hydraulic conductivity measured in P-3S-95 was regarded as non-representative of predominate conditions beneath the site, and therefore was not included in the calculations. A porosity (η) of 30% was assumed based upon the relatively low density of soils underlying the site as indicated by the blow counts needed to drive the split-spoon as recorded on the drillers' logs for each split-spoon interval. Furthermore, recognizing variable sediment textural distributions across the site (fine grained verses medium to coarse grained) within the saturated zone(s), the range of hydraulic conductivity's (K) considered to be representative of site conditions is 1.9 to 17.6 feet per day (fine to coarse textures, respectively). The approximate hydraulic gradient (ι) presented previously ranges from 0.006 to 0.007 feet/foot.

Based on these assumptions and interpretations, a range of ground water flow velocities were calculated using the following formula:

$$V_a = {}^{K(\iota)} / {}_{\eta},$$

Yielding a range of velocities of 0.04 to 0.4 feet per day, corresponding to fine to coarse textured sediments, respectively.

5.0 DISCUSSION

Hydrogeology and Ground Water Occurrence

The additional information obtained as a result of this investigation provides valuable insight into the stratigraphic and hydrogeologic conditions beneath the site. Shallow ground water occurring beneath the site is largely contained, in the vertical dimension, by the clay layer below it and flows generally along that clay surface at a rate of 0.04 to 0.4 feet per day toward the Detroit River and the River Rouge. The ancentral river channels of the two rivers have truncated the clay layer in proximity to the current shoreline/sea-walls and scoured a relatively deep u-shaped channel that is now filled with mostly fine sand. The shallow water-bearing zone and the deeper saturated zone, occurring predominately near the rivers, appear to be in hydraulic continuity based on similar static and piezometeric water levels. Additionally, there appears to be hydraulic continuity between the two saturated zones and the rivers with ground water discharging to the rivers. Some mounding of ground water appears to occur behind the sea-walls prior to discharge to the rivers.

Soil and Ground Water Quality Observations

With the exception of TB-1 and its corresponding piezometer P-6D-95, none of the borings or piezometer installations showed any appreciable evidence of impact to either the soil or the ground water matrices. Soil boring TB-1 and piezometer P-6D-95 encountered lenses of a black, oily, "creosote-like", sheen with a strong odor in soil samples from 10 to 13 feet corresponding with a 4 foot thick sand layer immediately above the confining clay layer that underlies the fill. The static water level in piezometer P-6D-95 occurs at a depth of 5.4 feet below grade. A similar "creosote-like" product was produced during the development of the piezometer. Development was terminated when free product became apparent.

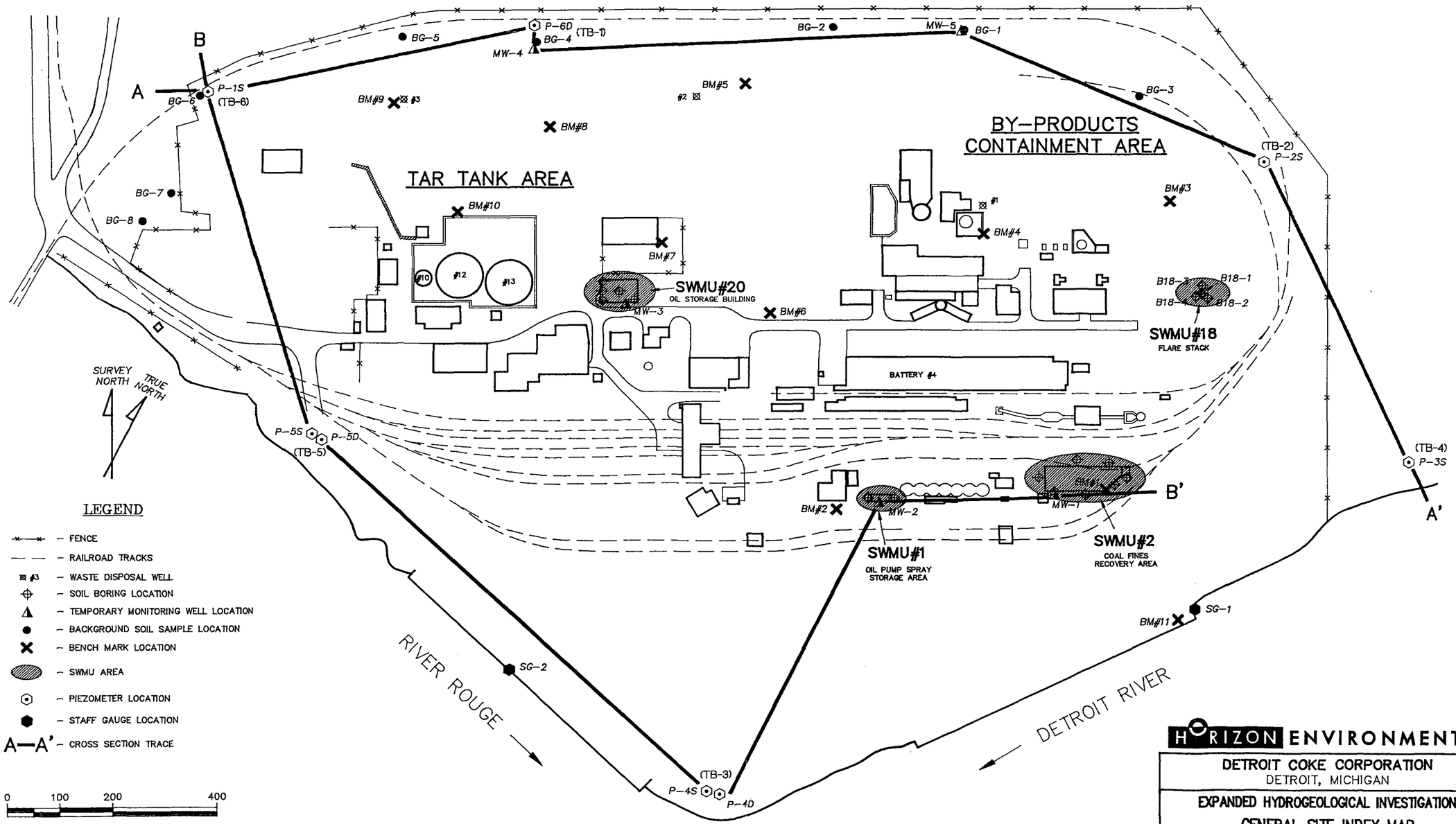
Implications of Probable Off-Site Source of Ground Water Impact

The implications of the presence of apparent free product is of concern for a number of reasons: (1) it occurs at the most hydraulically upgradient location on the site and likely represents an off-site source of ground water impact in the upgradient direction (north); (2) the product appears to have a specific gravity greater than that of water causing it to sink through the ground water column to the underlying clay and then migrate downgradient along the top of the clay surface; (3) it is probable that dissolution of this product as it migrates beneath the Detroit Coke site is contributing to the degradation of water quality beneath the site; and, (4) although the product has not been characterized analytically, it's appearance strongly suggests that it would contain PNA compounds similar to those detected in monitoring wells installed, sampled and analyzed during the RA.

6.0 RECOMMENDATIONS

The Expanded Hydrogeological Investigation was conducted in support of the RCRA Corrective Action Program being implemented at the facility. It's objectives were focused on providing stratigaphic and hyrdodynamic information that would allow the RFI to be planned and conducted in a more efficient manner. The knowledge gained during this phase of work has assisted us in formulating the recommendations presented in the RA report, and has provided us with a good understanding of how the most significant migration pathway for contaminates, ground water, may potentially cause future unacceptable environmental exposures.

Additional stratigraphic and hydrodynamic information will be gathered during the RFI, and consequently, recommendations for a subsequent phases of hydrogeologic investigation are unnecessary.



HORIZON ENVIRONMENTAL

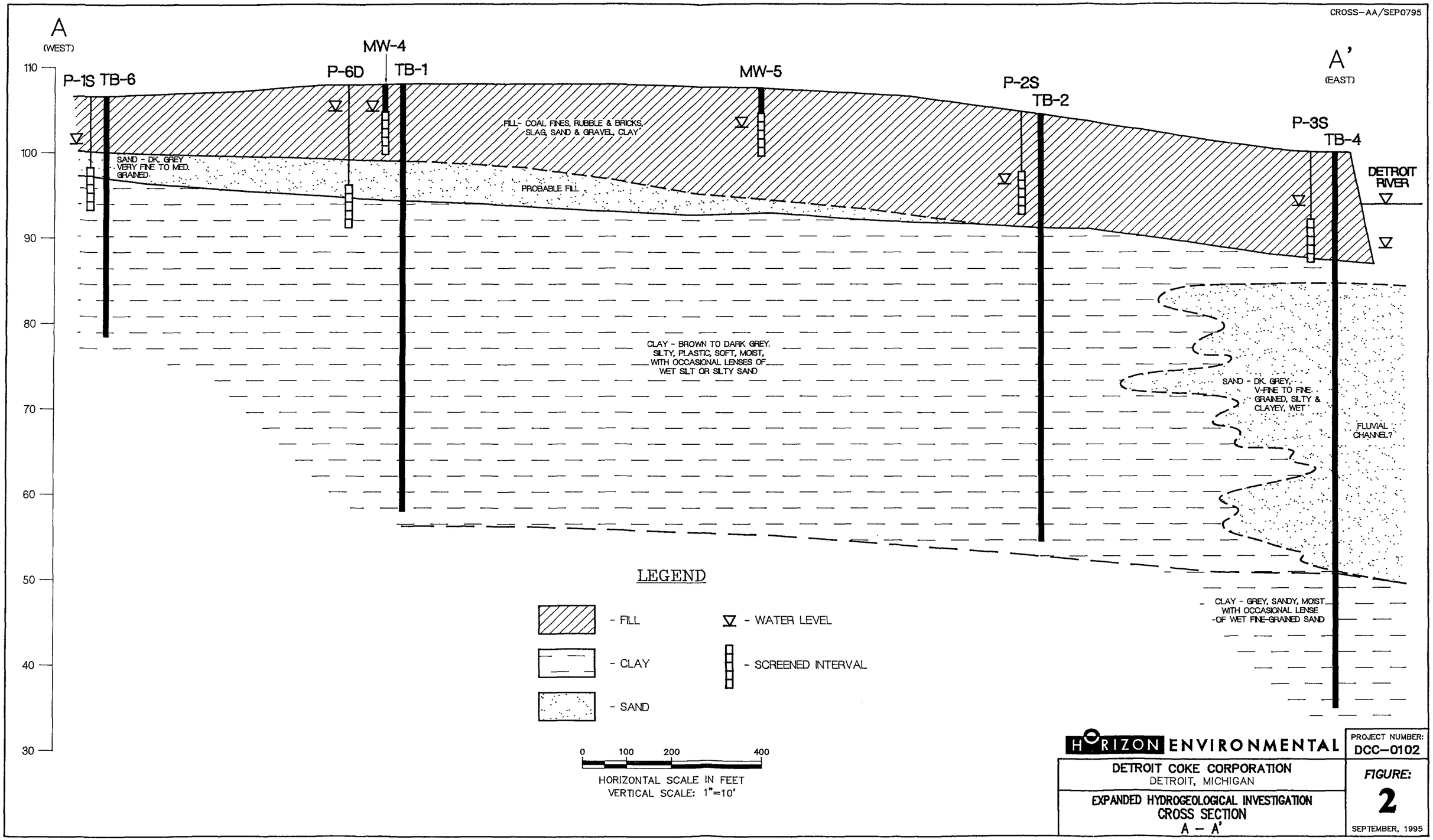
PROJECT NUMBER: DCC-0102

DETROIT COKE CORPORATION
DETROIT, MICHIGAN

EXPANDED HYDROGEOLOGICAL INVESTIGATION
GENERAL SITE INDEX MAP

FIGURE: 1

SEPTEMBER, 1995



HORIZON ENVIRONMENTAL

PROJECT NUMBER: DCC-0102

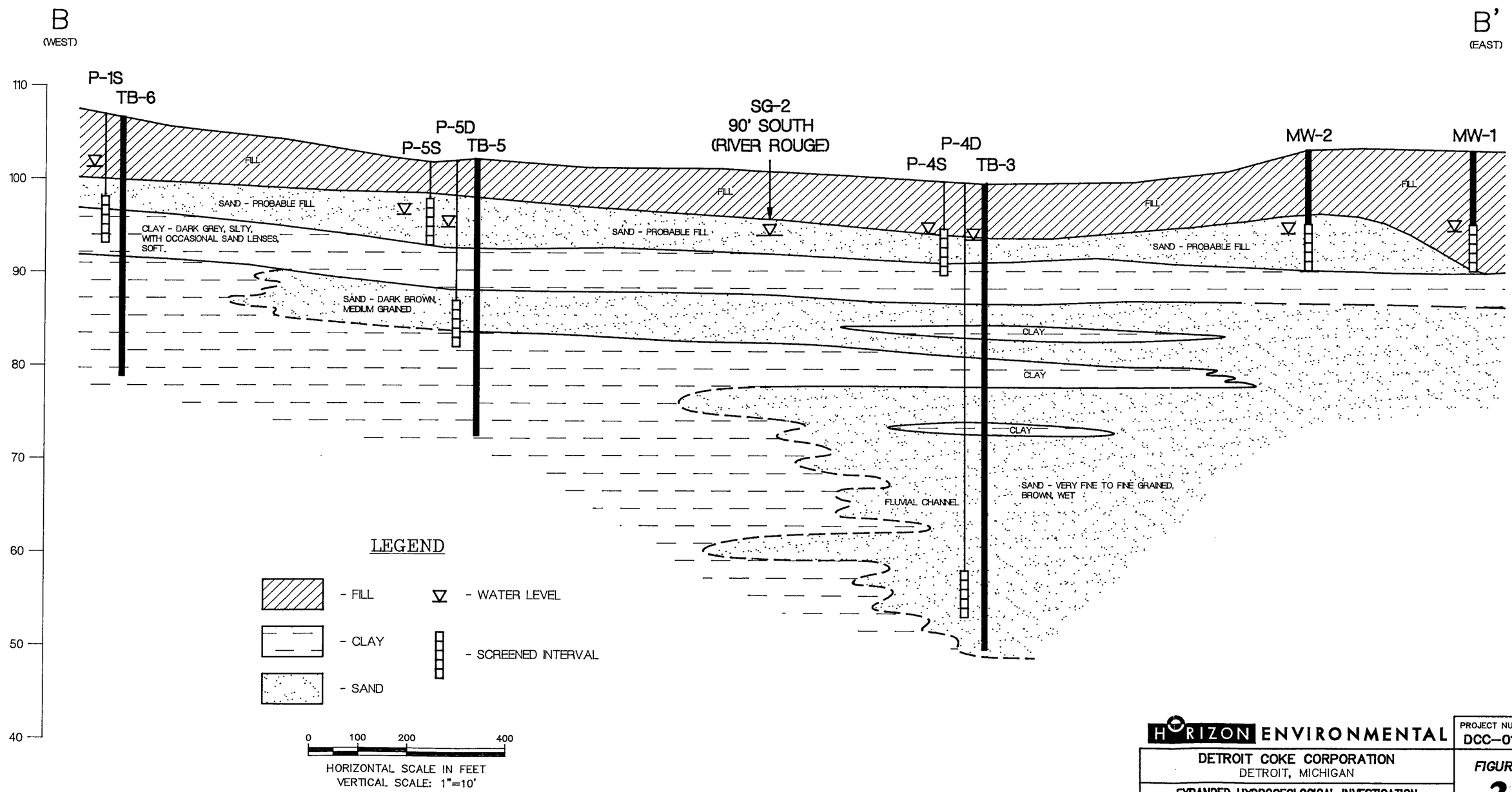
DETROIT COKE CORPORATION
DETROIT, MICHIGAN

EXPANDED HYDROGEOLOGICAL INVESTIGATION
CROSS SECTION
A – A'

FIGURE: 2

SEPTEMBER, 1995

CROSS-BB/SEP0795



HORIZON ENVIRONMENTAL

PROJECT NUMBER: DCC-0102

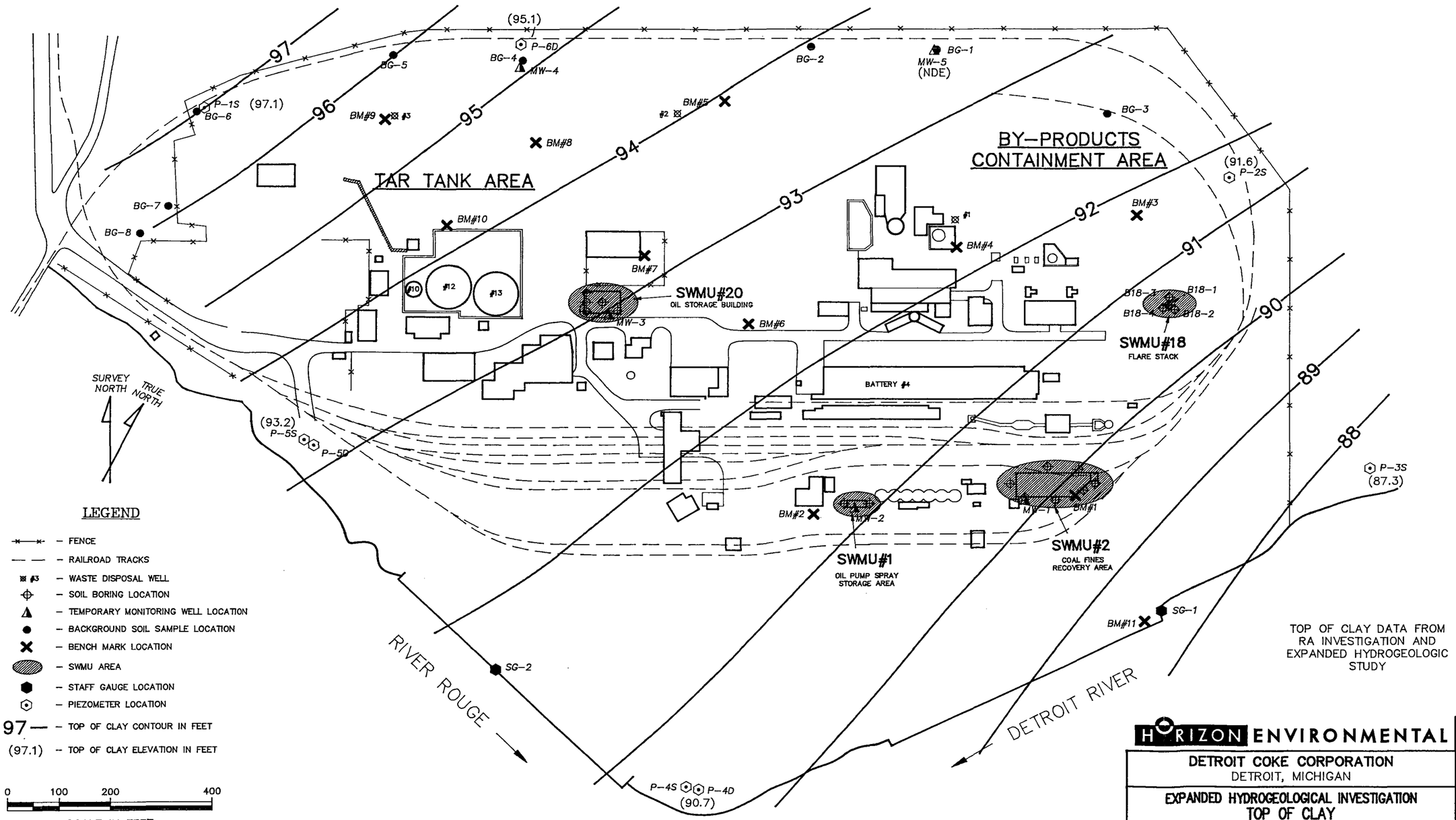
DETROIT COKE CORPORATION
DETROIT, MICHIGAN

EXPANDED HYDROGEOLOGICAL INVESTIGATION
CROSS SECTION
B – B'

FIGURE: 3

SEPTEMBER, 1995

T-CLAY/SEP0795



TOP OF CLAY DATA FROM RA INVESTIGATION AND EXPANDED HYDROGEOLOGIC STUDY

HORIZON ENVIRONMENTAL

PROJECT NUMBER: DCC-0102

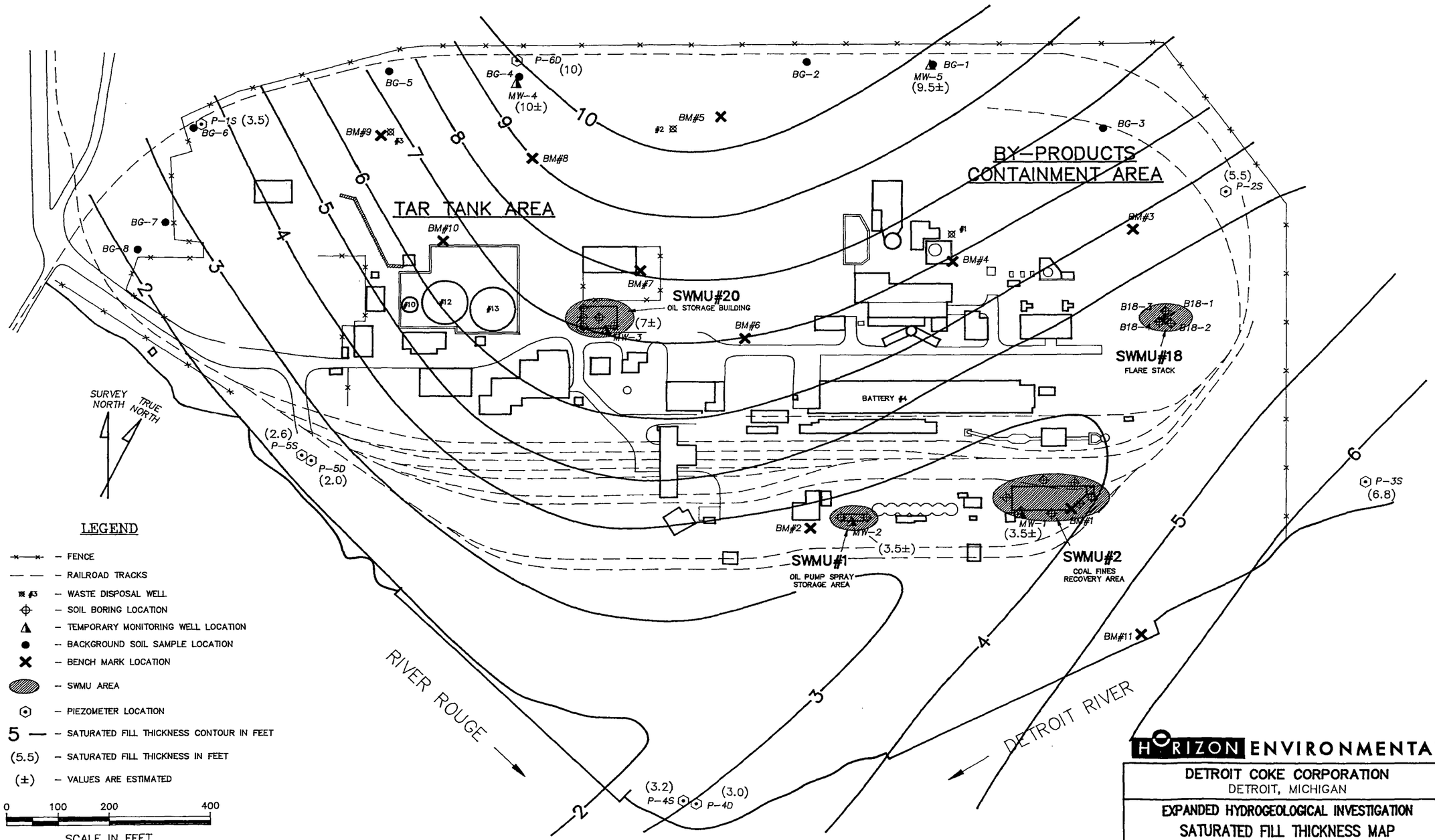
DETROIT COKE CORPORATION
DETROIT, MICHIGAN

EXPANDED HYDROGEOLOGICAL INVESTIGATION
TOP OF CLAY
RELATIVE ELEVATION

FIGURE: 4

SEPTEMBER, 1995

FILL/SEP0795



HORIZON ENVIRONMENTAL

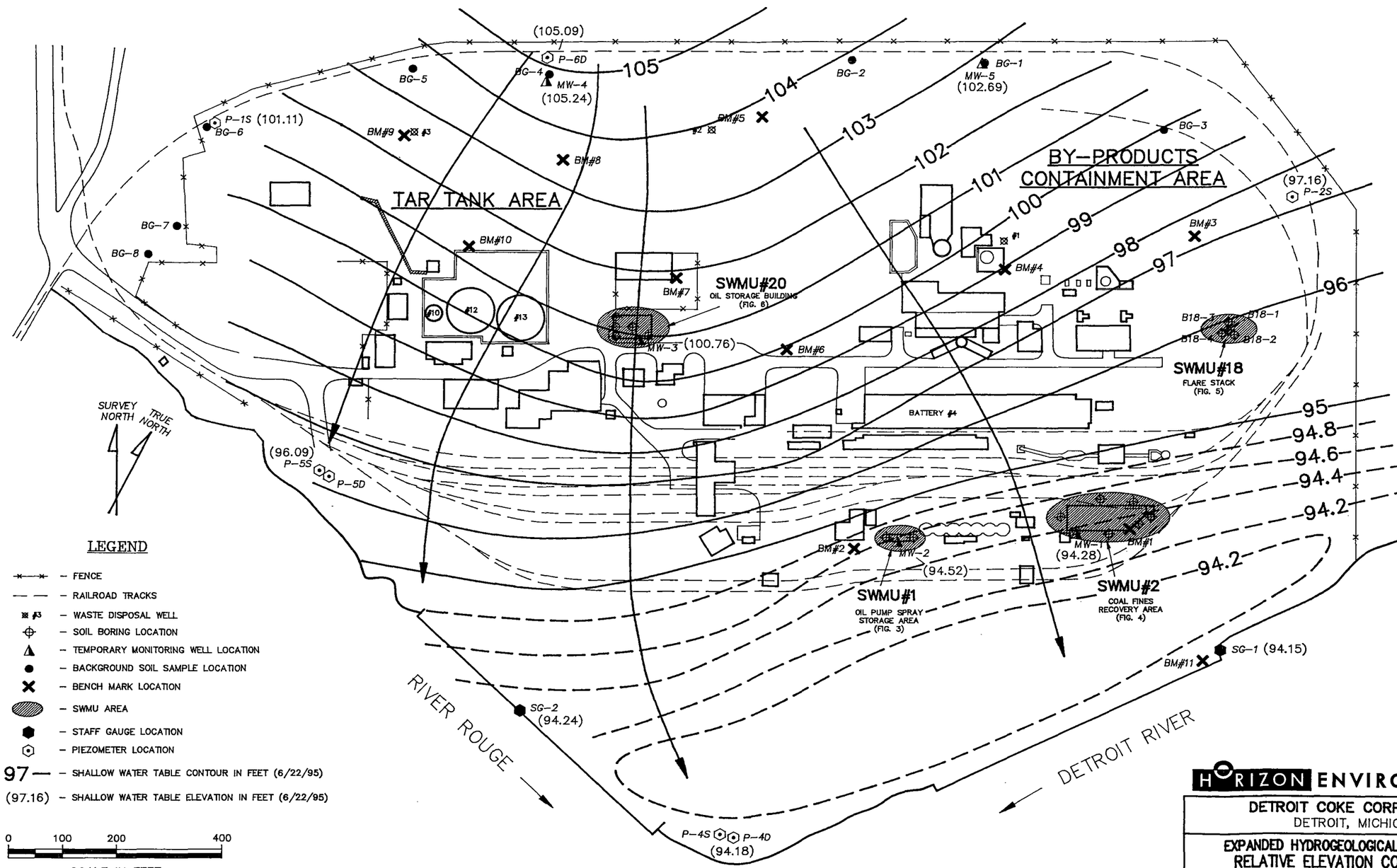
PROJECT NUMBER: DCC-0102

DETROIT COKE CORPORATION
DETROIT, MICHIGAN

EXPANDED HYDROGEOLOGICAL INVESTIGATION
SATURATED FILL THICKNESS MAP

FIGURE: 5

SEPTEMBER, 1995



HORIZON ENVIRONMENTAL

PROJECT NUMBER: DCC-0102

DETROIT COKE CORPORATION
DETROIT, MICHIGAN

EXPANDED HYDROGEOLOGICAL INVESTIGATION
RELATIVE ELEVATION CONTOURS ON SHALLOW WATER TABLE

FIGURE: 6

SEPTEMBER, 1995

TABLE 1
SURVEY COORDINATES OF ON-SITE BENCHMARKS
Expanded Hydrogeological Investigation
Detroit Coke Corporation
Detroit, Michigan

Bench Mark No.	Relative Elevation (ft)	Site Survey Coordinates		Location Description
		South (ft)	West (ft)	
BM - 1	105.78	926	336	Top of ramp wall SWMU #2, South wall near angle.
BM - 2	105.88	960	848	Power pole west of SWMU #1, West side of white trailer.
BM - 3	106.61	350	208	Power pole N & W of SWMU #18, newer pole along East/West power line.
BM - 4	107.47	412	566	# 1 waste disposal well, containment tank area, top of wall, Southeast corner.
BM - 5	111.77	82	770	Bumper post North & East of #2 disposal well, top of post.
BM - 6	106.73	570	972	Light pole South & East of yellow building near SWMU #20.
BM - 7	106.76	430	1180	Power pole between SWMU #20 & Battery #4 demolition.
BM - 8	108.99	194	1390	Top of yellow bumper post between tank farm & MW-4
BM - 9	108.28	148	1684	Northeast corner of shed pad for #3 waste disposal well.
BM - 10	106.09	368	1558	Power pole along North containment wall of tar tanks.
BM - 11	100.00	1192	200	Ferry tie, easternmost yellow post, river side of casing.

TABLE 2
MONITORING WELL, PIEZOMETER, AND STAFF GAUGE CONSTRUCTION SUMMARY
Expanded Hydrogeological Investigation
Detroit Coke Corporation
Detroit, Michigan

Monitoring Well Identification	Survey Coordinates		Screened Interval (ft)	Total Depth (ft)	Ground Elevation	TOC Elevation	Date	Depth to Water (ft) [1]	Water Level Elevation [1]	pH (s.u.)	Conductivity (ms/cm)
	South (ft)	West (ft)									
MW-1-95	936	448	7.6 - 12.6	12.6	103.18	105.18	6/22/95	10.90	94.28	7.02	2.29
MW-2-95	950	770	7.7 - 12.7	12.7	103.32	104.52	6/22/95	10.00	94.52	6.19	2.90
MW-3-95	544	1266	0.0 - 5.2	5.2	102.60	104.31	6/22/95	3.55	100.76	10.09	3.14
MW-4-95	34	1426	3.0 - 8.0	8.0	108.13	111.13	6/22/95	5.89	105.24	8.04	1.15
MW-5-95	0	606	3.0 - 8.0	8.0	107.58	110.58	6/22/95	7.89	102.69	11.3	0.71

	Piezometer Identification	Survey Coordinates		Screened Interval (ft)	Total Depth (ft)	Ground Elevation	TOC Elevation	Date	Depth to Water (ft) [1]	Water Level Elevation [1]	pH (s.u.)	Conductivity (ms/cm)
		South (ft)	West (ft)									
TB-6-95	P-1s-95	134	2052	8.0 - 13.0	13.0	106.64	109.55	6/22/95	8.44	101.11	7.13	6.82
TB-2-95	P-2s-95	263	18	6.5 - 11.5	11.5	104.63	107.13	6/22/95	9.97	97.16		
TB4-95	P-3s-95	912	140	7.5 - 12.5	12.5	99.76	102.29	6/22/95	8.24	94.05	7.09	6.61
TB-3-95	P-4s-95	1520	1140	5.0 - 10.0	10.0	99.95	101.70	6/22/95	7.52	94.18	10.21	2.83
	P-4d-95	1524	1132	41.3 - 46.3	46.3	99.65	102.40	6/22/95	8.75	93.65	6.71	1.00
TB-5-95	P-5s-95	794	1834	4.6 - 9.6	9.6	102.52	104.22	6/22/95	8.13	96.09	7.65	3.17
	P-5d-95	796	1826	15.0 - 20.0	20.0	102.24	104.74	6/22/95	9.47	95.27	8.25	3.28
TB-1-95	P-6d-95	30	1428	11.0 - 16.0	16.0	108.07	110.49	6/22/95	5.40	105.09	Product in well	

Staff Gauge Identification	Survey Coordinates		Screened Interval (ft)	Total Depth (ft)	Ground Elevation	TOC Elevation	Date	Depth to Water (ft) [1]	Water Level Elevation [1]	pH (s.u.)	Conductivity (ms/cm)
	South (ft)	West (ft)									
SG - 1	1180	166				97.61		3.46	94.15	NA	NA
SG - 2	1232	1520				100.49		6.25	94.24	NA	NA

[1] Depth to Water and ground water elevation values based on depth of ground water from top of casing.

Horizon Environmental

Page: 1 of 2
Boring No.: TB-1-95
Completed Well No.: P-6D-95
Client: Detroit Coke
Project No.: DCC-0102
Date: Started: 6/14/95 Finished: 6/14/95
Time: Started: 0815 Finished: 1130

Well/Boring Log Sheet

State	County	City	Fraction	Section	T	R
MI	Wayne	City of Detroit			2S	11E

Contractor: T & T Drilling
Address: 4400 Grand River
Webberville, MI
Equipment: Mobile B-57
Crew Chief: Eric
Horizon Supervisor: E. Culver

Drilling Method(s)	Depth
8" HSA 4 1/4" ID	48'

Ground Surface Elevation (feet): 108.09
TOC Elevation (feet) 110.49
Datum (feet) BM#11
Static Water Level: 5.40
Reference: TOC

Grouting/Seal For Test Boring

Depth/To	Material/Method
0-50'	Cement Bentonite Grout tremied through augers

Location:
Description: Survey Coordinates S + 15, W + 1426
Sketch:

Construction: ___ Abandonment: X Additional Field Notes: Log Book X Computer File ___

Thickness (feet)	Depth to Base (feet)	USCS*	Lithologic Description	Sample Depth	Blow Counts 6"	12"	18"	24"	Headspace	Background
3.0	3.0		Coal, fines, rubble	2.0-4.0	3	6	4	5	4.7	
0.2	3.2		Rubble, black, wet	4.0-6.0	3	5	7	12	5.0	
1.8	5.0	OH	Clay, dark gray to black, moist	6.0-8.0	47	9	10	12	4.1	
1.0	6.0		Rubble, bricks, wood, moist	8.0-10.0	11	15	23	15	4.5	
3.0	9.0		Slag, bits of wood, black, wet	10.0-12.0	11	12	15	12	8.0	
1.0	10.0	SP	Sand, fine, gray, wet	12.0-14.0	8	8	12	16	12.0	
3.0	13.0	SP	Sand, fine, gray to black, wet, lenses of black oily sheen,	14.0-16.0	6	6	7	8	0.9	
			strong odor	16.0-18.0	2	3	3	3	0.5	
1.0	14.0	OL	Clay, dark brown, plastic, trace of silt	18.0-20.0	2	2	2	2		
2.0	16.0	OL	Clay, dark brown, very silty, moist, lenses of wet silty sand	20.0-22.0	3	2	5	3		
34.0	50.0	OL	Clay, brown, plastic, moist, soft, occasional pebble	22.0-24.0	2	2	2	2	0.5	
				24.0-26.0	2	1	1	1	0.4	
				26.0-28.0	1	1	2	1	0.5	
				28.0-30.0	1	1	1	1	0.4	
				33.0-35.0	1	1	1	1	0.9	
				38.0-40.0	1	1	1	1	0.5	
				43.0-45.0	1	1	1	1	0.5	
				48.0-50.0	1	1	1	1	0.3	
			Piezometer (P-6D-95) constructed in adjacent borehole.							

* = The USCS symbol assigned is based on visual and manual observations and not on tests performed in the laboratory.

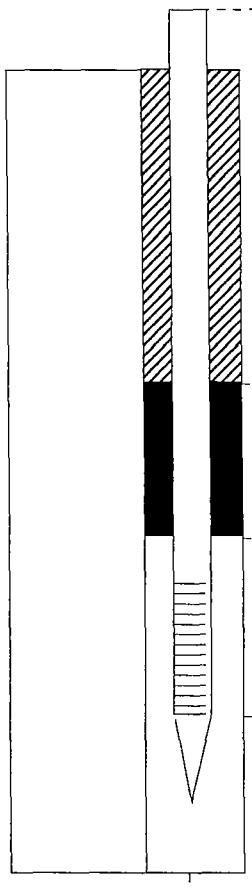
HORIZON ENVIRONMENTAL

Project Name: Detroit Coke
Project Number: DCC-0102

Log of Well Installation

Well Number: P-6D-95

Generalized Subsurface Profile



2.4'	Length of Casing Above Ground Surface
0.0'	Depth to Top of Grout or Backfill
	Material (Grout or Backfill) Cement/ Bentonite Grout
6.0'	Depth to Top of Bentonite Pellets
8.0'	Depth to Top of Filter Pack Type: Silica Sand
16.0'	Depth to Bottom of Well Screen
N/A	Borehole Backfill Material
16.0'	Total Depth of Borehole

Top of Casing Elevation (feet): 110.49

Water Level Data

Date	Time	Water Level	Elevation
6/20/95		5.33	105.16
6/22/95		5.40	105.09

Development: Bailer until began to generate product.

Survey Reference:

Well Casing
- Diameter: 2"
- Total Length: 13.4'
- Material: Galvanized Steel
- Cap Type: J Plug

Well Screen
- Diameter: 2"
- Length: 60"
- Slot/Type: 10 Slot
- Material: Stainless Steel

Protective Well Casing
- Material: Steel Dia. 4"sq.
- Height Above Ground: 2.4'
- Lock Type: Master 3212

General Notes:

Horizon Environmental

Page: 1 of 3
Boring No.: TB-5-95
Completed Well No.: P-5S-95; P-5D-95
Client: Detroit Coke
Project No.: DCC-0102
Date: Started: 6/16/95 Finished: 6/16/95
Time: Started: 1500 Finished: 1800

Well/Boring Log Sheet

State	County	City	Fraction	Section	T	R
MI	Wayne	City of Detroit			2S	11E

Contractor: T & T Drilling
Address: 4400 Grand River
Webberville, MI
Equipment: Mobile B-57
Crew Chief: Eric
Horizon Supervisor: E. Culver

Drilling Method(s)	Depth
8" HSA 4 1/4" ID	30.0'

Ground Surface (P-5D-95)
Elevation (feet): 102.24
TOC Elevation (feet) 104.74
Datum (feet) BM#11
Static Water Level: 9.47
Reference: TOC

Location:

Grouting/Seal for Test Boring

Depth/To	Material/Method
0-32'	Cement/Bentonite Grout

Description: Survey Coordinates;

Sketch: P-5S-95, S + 794 - W + 1834
P-5D-95, S + 796 - W + 1826

Construction: ___ Abandonment: X Additional Field Notes: Log Book ___ Computer File ___

Thickness (feet)	Depth to Base (feet)	USCS*	Lithologic Description	Sample Depth	Blow Counts 6"	12"	18"	24"	Headspace	Background
3.5	3.5		Rubble, concrete & bricks, coal fines	4.0-6.0	3	2	2	3	5.0	
4.5	8.0	SC	Sand, fine, clayey, black, some rubble, moist	**6.0-8.0	-	-	-	-		
1.0	9.0	SC	Sand, fine, clayey, black, some rubble, wet	8.0-10.0	12	-	-	-	5.0	
0.5	9.5	CL	Clay, gray,very silty, moist	10.0-12.0	1	1	1	1	5.0	
4.5	14.0	OL	Clay, black, very silty, sandy, trace root structure, moist,	12.0-14.0	1	2	1	2	4.3	
			lenses of wet black sand	14.0-16.0	1	1	1	1		
4.0	18.0	SP	Sand, medium dark brown to black, wet	16.0-18.0	No	Recovery				
7.0	25.0	CL	Clay, gray, sandy, moist	18.0-20.0	3	4	5	8	2.3	
3.0	28.0	CL	Clay, gray, plastic, soft, moist	20.00-22.0	4	7	9	11	0.5	
4.0	32.0	CL	Clay, gray, plastic, soft, moist, occasional pebble	22.0-24.0	4	5	3	4	0.5	
				24.0-26.0	7	6	3	3	0.5	
				26.0-28.0	2	2	2	3	0.0	
				28.0-30.0	1	1	2	2	0.0	
			**No Sample Collected (Rubble)	30.0-32.0	1	1	1	1	0.0	
			Piezometers (P-5S & 5D-95) constructed in adjacent							
			boreholes.							

* = The USCS symbol assigned is based on visual and manual observations and not on tests performed in the laboratory.

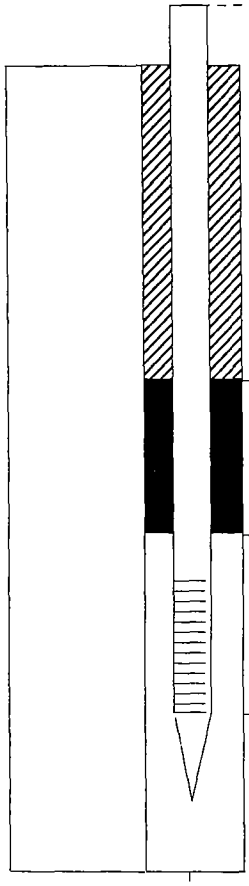
HORIZON ENVIRONMENTAL

Project Name: Detroit Coke
Project Number: DCC-0102

Log of Well Installation

Well Number: P-5S-95

Generalized Subsurface Profile



1.8'	Length of Casing Above Ground Surface
1.0'	Depth to Top of Grout or Backfill
	Material (Grout or Backfill) N/A
1.0'	Depth to Top of Bentonite Pellets
3.8'	Depth to Top of Filter Pack Type: #3 Silica Sand
9.6'	Depth to Bottom of Well Screen
Natural Cave-in	Borehole Backfill Material
10.0'	Total Depth of Borehole

Top of Casing Elevation (feet): 104.22

Water Level Data

Date	Time	Water Level	Elevation
6/22/95		8.13	96.09

Development: Submersible pump @ 2 gpm for 20 min. = 40 gals. put back down well.

Survey Reference: S + 794 - W + 1834

Well Casing
- Diameter: 2"
- Total Length: 6.4'
- Material: Galvanized Steel
- Cap Type: J Plug

Well Screen
- Diameter: 2"
- Length: 60"
- Slot/Type: 10 Slot
- Material: Stainless Steel

Protective Well Casing
- Material: Steel Dia. 4"sq.
- Height Above Ground: 1.8'
- Lock Type: Master 3212

General Notes:

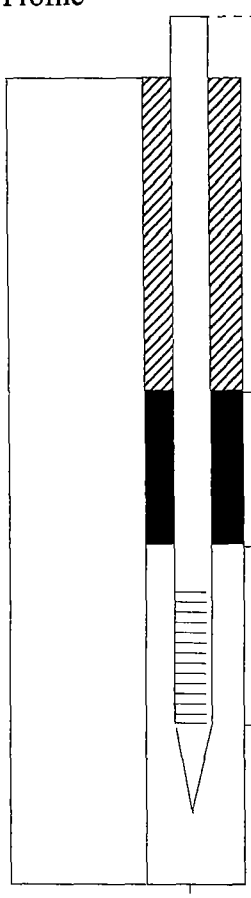
HORIZON ENVIRONMENTAL

Project Name: Detroit Coke
Project Number: DCC-0102

Log of Well Installation

Well Number: P-5D-95

Generalized Subsurface Profile



2.5'	Length of Casing Above Ground Surface
0.0'	Depth to Top of Grout or Backfill
	Material (Grout or Backfill) Cement/ Bentonite Grout
11.0'	Depth to Top of Bentonite Pellets
13.0'	Depth to Top of Filter Pack Type: Silica Sand
20.0'	Depth to Bottom of Well Screen
N/A	Borehole Backfill Material
21.0'	Total Depth of Borehole

Top of Casing Elevation (feet): 104.74

Water Level Data

Date	Time	Water Level	Elevation
6/22/95		9.47	95.27

Development: Submersible pump @ 2 gpm for 30 min. = 60 gals.; back into well

Survey Reference: S + 796 - W + 1826

Well Casing
- Diameter: 2"
- Total Length: 17.5'
- Material: Galvanized Steel
- Cap Type: J Plug

Well Screen
- Diameter: 2"
- Length: 60"
- Slot/Type: 10 Slot
- Material: Stainless Steel

Protective Well Casing
- Material: Steel
- Dia. 4"sq.
- Height Above Ground: 2.5'
- Lock Type: Master 3212

General Notes:

Horizon Environmental

Page: 1 of 3
Boring No.: TB-3-95
Completed Well No.: P-4S-95, P-4D-95
Client: Detroit Coke
Project No.: DCC-0102
Date: Started: 6/15/95 Finished: 6/15/95
Time: Started: 1050 Finished: 1420

Well/Boring Log Sheet

State	County	City	Fraction	Section	T	R
MI	Wayne	City of Detroit			2S	11E

Contractor: T & T Drilling
Address: 4400 Grand River
Webberville, MI
Equipment: Mobile B-57
Crew Chief: Eric
Horizon Supervisor: E. Culver

Drilling Method(s)	Depth
8" HSA 4 1/4" ID	

Ground Surface (P-4D-95)
Elevation (feet): 99.65
TOC Elevation (feet) 102.40
Datum (feet) BM#11
Static Water Level: 8.76
Reference: TOC

Grouting/Seal for Test Boring

Depth/To	Material/Method
0.0-35.0'	Cement/Bentonite Grout
35.0-38.0'	Bentonite Holeplug

Location:
Description: Survey Coordinates:
Sketch: P-4S-95, S + 1520 - W + 1140
P-4D-95, S + 1524 - W + 1132

Construction: X Abandonment: ____ Additional Field Notes: Log Book ___ Computer File ____

Thickness (feet)	Depth to Base (feet)	USCS*	Lithologic Description	Sample Depth	Blow Counts 6"	12"	18"	24"	Headspace	Background
2.0	2.0		Coal fines						1.0	0.0
2.0	4.0		Bricks and coal fines	4.0-6.0	3	4	5	7	1.0	
2.0	6.0		Coal fines	6.0-8.0	3	4	6	2	1.0	
2.0	8.0	SC	Sand, fine, dark brown to black, clayey, moist	8.0-10.0	1	1	1	1	0.2	
1.0	9.0	SP	Sand, fine, dark gray to black, wet	10.0-12.0	1	1	1	2	0.2	
4.0	13.0	CL	Clay, dark gray, very soft, some root structures, sandy	12.0-14.0	1	1	4	5	0.2	
2.5	15.5	SP	Sand, medium brown, wet	14.0-16.0	3	5	7	3	0.2	
1.0	16.5	CL	Clay, brown, very sandy, moist	16.0-18.0	1	2	9	9	0.2	
2.5	19.0	SP	Sand, medium, brown, wet	18.0-20.0	1	1	2	1	0.2	
2.0	21.0	CL	Clay, gray, soft, moist with layers of coarse to medium	20.0-22.0	3	5	5	5	0.2	
			wet sand	22.0-24.0	5	7	7	9	0.2	
2.0	23.0	SC	Sand, medium to coarse, brown, wet, layers of clayey,	24.0-26.0	4	6	10	11	0.0	
			brown sand	26.0-28.0	1	1	4	4	0.0	
2.0	25.0	SP	Sand, fine, gray, wet	28.0-30.0	1	2	2	2	0.0	
1.0	26.0	SP	Sand, very fine, brown, wet	30.0-32.0	1	1	7	7		
1.0	27.0	CL	Clay, brown, silty, moist	32.0-34.0	1	2	4	2		
1.0	28.0	SP	Sand, very fine, silty, wet	34.0-36.0	3	3	3	3		
4.0	32.0	SC	Sand, fine, brown, wet, layers of soft moist silty brown clay	36.0-38.0	2	5	5	5		
2.0	34.0	SP	Sand, very fine, silty, brown, wet	38.0-40.0	10	8	8	9		
16.0	50.0	SC	Sand, fine, brown, wet with pebbles, occasional layer of	40.0-42.0	2	1	1	2		
			soft silty, brown, clay	**42.0-44.0	1	2	1	1		
				44.0-46.0	2	3	8	12		
			Piezometers (P-4S & 4D-95) constructed in adjacent boreholes	46.0-48.0	2	3	7	7		
			** No Sample Recovery	**48.0-50.0	1	4	3	5		

* = The USCS symbol assigned is based on visual and manual observations and not on tests performed in the laboratory.

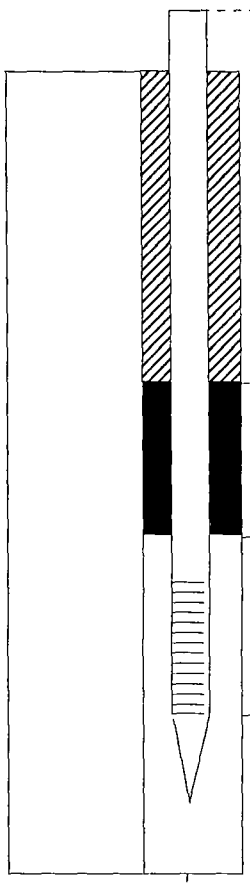
HORIZON ENVIRONMENTAL

Project Name: Detroit Coke
Project Number: DCC-0102

Log of Well Installation

Well Number: P-4S-95

Generalized Subsurface Profile



1.75'	Length of Casing Above Ground Surface
N/A	Depth to Top of Grout or Backfill
	Material (Grout or Backfill) N/A
1.0'	Depth to Top of Bentonite Pellets
4.0'	Depth to Top of Filter Pack Type: #3 Silica Sand
10.0'	Depth to Bottom of Well Screen
N/A	Borehole Backfill Material
10.0'	Total Depth of Borehole

Top of Casing Elevation (feet): 101.70

Water Level Data

Date	Time	Water Level	Elevation
6/19/95		7.64	94.06
6/22/95		7.52	94.18

Development: Submersible pump @ 2 gpm for 30 min. = 60 gals.; then down well.

Survey Reference: BM #11 000.00' elevation S + 1520 - W + 1140

Well Casing
- Diameter: 2"
- Total Length: 60"
- Material: Galvanized Steel
- Cap Type: J Plug

Well Screen
- Diameter: 2"
- Length: 60"
- Slot/Type: 10 Slot
- Material: Stainless Steel

Protective Well Casing
- Material: Steel Dia. 4"sq.
- Height Above Ground: 1.75'
- Lock Type: Master 3212

General Notes:

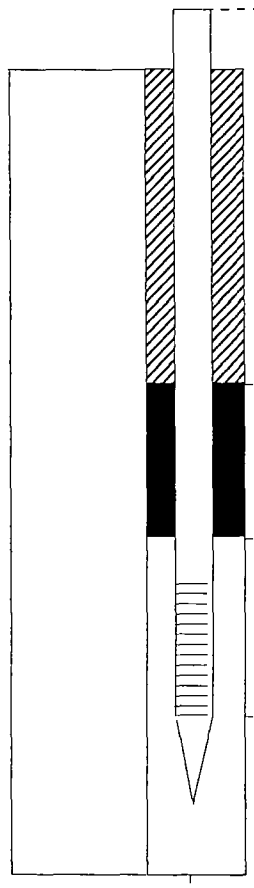
HORIZON ENVIRONMENTAL

Project Name: Detroit Coke
Project Number: DCC-0102

Log of Well Installation

Well Number: P-4D-95

Generalized Subsurface Profile



2.75'	Length of Casing Above Ground Surface
0.0	Depth to Top of Grout or Backfill
	Material (Grout or Backfill) Cement/ Bentonite Grout
35.0'	Depth to Top of Bentonite Pellets
None	Depth to Top of Filter Pack Type: N/A
46.3'	Depth to Bottom of Well Screen
Natural Cave-in	Borehole Backfill Material
48.0'	Total Depth of Borehole

Top of Casing Elevation (feet): 102.40

Water Level Data

Date	Time	Water Level	Elevation
6/22/95		8.75	93.65
6/23/95		8.76	93.64

Development: Submersible pump @ 1 gpm for 30 min. = 30 gals. water contained and placed back in well.

Survey Reference: BM #11 100.00' elevation
S + 1524 - W + 1132

Well Casing
- Diameter: 2"
- Total Length: 44.0'
- Material: Galvanized Steel
- Cap Type: J Plug

Well Screen
- Diameter: 2"
- Length: 60"
- Slot/Type: 10 Slot
- Material: Stainless Steel

Protective Well Casing
- Material: Steel Dia. 4"sq.
- Height Above Ground: 2.75'
- Lock Type: Master 3212

General Notes: No filter pack or bentonite pellet above screen due to natural cave-in.

Horizon Environmental

Page: 1 of 2
Boring No.: TB-6-95
Completed Well No.: P-1S-95
Client: Detroit Coke
Project No.: DCC-0102
Date: Started: 6/19/95 Finished: 6/19/95
Time: Started: 1040 Finished: 1240

Well/Boring Log Sheet

State	County	City	Fraction	Section	T	R
MI	Wayne	City of Detroit			2S	11E

Contractor: T & T Drilling
Address: 4400 Grand River
Webberville, MI
Equipment: Mobile B-57
Crew Chief: Gary
Horizon Supervisor: E. Culver

Drilling Method(s)	Depth
8" HSA 4 1/4" ID	28.0'

Ground Surface Elevation (feet): 106.64 +/-
TOC Elevation (feet) 109.55
Datum (feet) BM#11
Static Water Level: 8.39
Reference: TOC

Location:
Description: See Location Map;
Survey Coordinates: S + 134 - W + 2052
Sketch:

Grouting/Seal for Test Boring

Depth/To	Material/Method
0-30.0'	Cement/Bentonite Grout

Construction: X Abandonment: ___ Additional Field Notes: Log Book ___ Computer File ___

Thickness (feet)	Depth to Base (feet)	USCS*	Lithologic Description	Sample Depth	Blow Counts 6"	12"	18"	24"	Headspace	Background
4.0	4.0		Coal fines and rubble							
2.0	6.0	CL	Clay, dark brown to black, sandy, moist	2.0-4.0	-	-	-	-		
2.0	8.0	SP	Sand, medium, dark gray, moist	4.0-6.0	2	3	9	5	0.0	0.0
1.5	9.5	SM	Sand, very fine, silty, gray, wet	6.0-8.0	8	8	10	16	0.0	0.0
6.0	15.5	CL	Clay, dark gray, very silty, occasioinal lense of wet silt	8.0-10.0	4	9	11	12	0.0	0.0
14.5	30.0	OL	Clay, brown, plastic, silty, moist, soft	10.0-12.0	3	4	7	12	0.0	0.0
				12.0-14.0	6	6	5	6	0.0	0.0
				14.0-16.0	2	2	2	2	0.0	0.0
				16.0-18.0	1	2	1	1	0.0	0.0
				18.0-20.0	1	1	1	1	0.0	0.0
				20.0-22.0	1	1	1	1	0.0	0.0
				22.0-24.0	1	1	1	1	0.0	0.0
				24.0-26.0	1	1	1	1	0.0	0.0
				26.0-28.0	1	1	1	1	0.0	0.0
				28.0-30.0	1	1	1	1	0.0	0.0
			Piezometer P-1S-95 constructed in adjacent borehole.							

* = The USCS symbol assigned is based on visual and manual observations and not on tests performed in the laboratory.

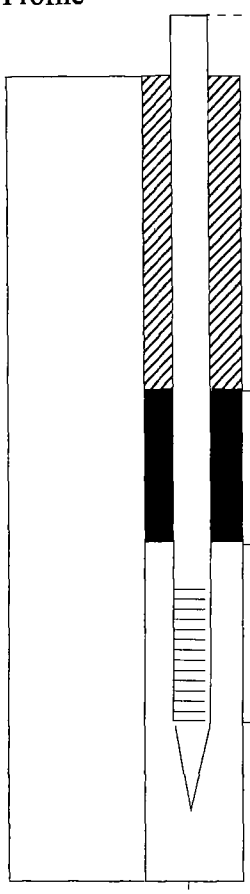
HORIZON ENVIRONMENTAL

Project Name: Detroit Coke
Project Number: DCC-0102

Log of Well Installation

Well Number: P-1S-95

Generalized Subsurface Profile



2.91' — Length of Casing Above Ground Surface

0.0 — Depth to Top of Grout or Backfill

Material (Grout or Backfill) Cement/ Bentonite Grout

4.0' — Depth to Top of Bentonite Pellets

6.0' — Depth to Top of Filter Pack
Type: #3 Silica Sand

13.0' — Depth to Bottom of Well Screen

N/A — Borehole Backfill Material

13.0' — Total Depth of Borehole

Top of Casing Elevation (feet): 109.55

Water Level Data

Date	Time	Water Level	Elevation
6/20/95		8.39	101.16
6/22/95		8.44	101.11

Development: Bailer removing 15 gal. then back down well.

Survey Reference: BM #11
S + 134 - W + 2052

Well Casing
- Diameter: 2"
- Total Length: 10.9'
- Material: Galvanized Steel
- Cap Type: J Plug

Well Screen
- Diameter: 2"
- Length: 60"
- Slot/Type: 10 Slot
- Material: Stainless Steel

Protective Well Casing
- Material: Steel
- Dia. 4"sq.
- Height Above Ground: 2.91'
- Lock Type: Master 3212

General Notes:

Horizon Environmental

Page: 1 of 2
Boring No.: TB-4-95
Completed Well No.: P-3S-95
Client: Detroit Coke
Project No.: DCC-0102
Date: Started: 6/14/95 Finished: 6/15/95
Time: Started: 1630 Finished: 1200

Well/Boring Log Sheet

State	County	City	Fraction	Section	T	R
MI	Wayne	City of Detroit			2S	11E

Contractor: T & T Drilling
Address: 4400 Grand River
Webberville, MI
Equipment: Mobile B-57
Crew Chief: Eric
Horizon Supervisor: E. Culver

Drilling Method(s)	Depth
8" HSA 4 1/4" ID	65.0'

Ground Surface Elevation (feet): 99.76
TOC Elevation (feet) 102.29
Datum (feet) BM#11
Static Water Level: 8.24
Reference: TOC

Grouting/Seal for Test Boring

Depth/To	Material/Method
0-65'	Cement/Bentonite Grout

Location:
Description: Survey Coordinates:
S + 912 - W + 140
Sketch:

Construction: ___ Abandonment: X Additional Field Notes: Log Book ___ Computer File ___

Thickness (feet)	Depth to Base (feet)	USCS*	Lithologic Description	Sample Depth	Blow Counts 6"	12"	18"	24"	Headspace	Background
4.0	4.0		Coal fines, rubble, black	4.0-6.0	9	6	5	5		
2.0	6.0	SP	Sand, fine, black, some rubble	6.0-8.0	5	6	11	-		
1.0	7.0	SC	Sand, fine, clayey, black, wet	8.0-10.0						
5.5	12.5		Rubble, bricks, sand, black, wet	10.0-12.0	11	9	8	-		
2.5	15.0	CL	Clay, gray, soft, moist, some root structures							
11.0	26.0	SC	Sand, fine, clayey, silty, gray, wet layers, soft, gray clay	12.0-14.0	11	3	4	3		
11.0	37.0	SP	Sand, fine, dark gray to black, wet	14.0-16.0	3	2	2	3		
12.5	49.5	ML	Silt, very fine sand, gray, wet, occasional layer of soft very	16.0-18.0	17	7	5	3		
			silty clay	18.0-20.0	3	2	2	2		
4.5	54.0	CL	Clay, gray, sandy, moist, occasional lense of wet fine sand	23.0-25.0	17	7	8	6		
11.0	65.0	CL	Clay, gray, sandy, moist	28.0-30.0	8	10	6	6		
				33.0-35.0	4	3	3	2		
				38.0-40.0	7	8	10	13		
				43.0-45.0	6	9	11	12		
				49.0-51.0	10	3	3	4		
				53.0-55.0	3	3	3	5		
				58.0-60.0	3	4	4	3		
				63.0-65.0	5	7	7	9		
			Piezometer (P-3S-95) constructed in adjacent borehole.							

* = The USCS symbol assigned is based on visual and manual observations and not on tests performed in the laboratory.

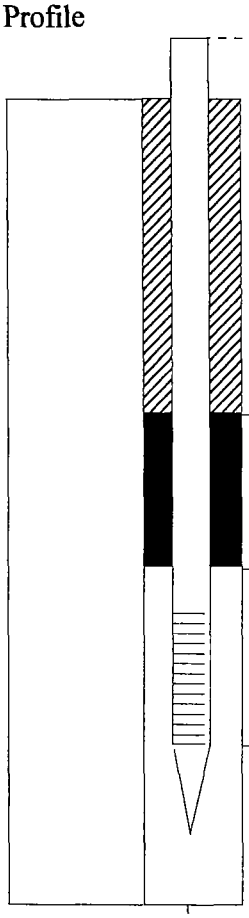
HORIZON ENVIRONMENTAL

Project Name: Detroit Coke
Project Number: DCC-0102

Log of Well Installation

Well Number: P-3S-95

Generalized Subsurface Profile



2.5'	Length of Casing Above Ground Surface
1.0'	Depth to Top of Grout or Backfill
	Material (Grout or Backfill) N/A
1.0'	Depth to Top of Bentonite Pellets
6.0'	Depth to Top of Filter Pack Type: #3 Silica Sand
12.5'	Depth to Bottom of Well Screen
N/A	Borehole Backfill Material
12.5'	Total Depth of Borehole

Top of Casing Elevation (feet): 102.29

Water Level Data

Date	Time	Water Level	Elevation
6/19/95		8.33	93.96
6/22/95		8.24	94.05

Development: Submersible pump @ 3 gpm for 15 min. = 45 gals, then down well.

Survey Reference: S + 912 - W + 140

Well Casing
- Diameter: 2"
- Total Length: 8.5'
- Material: Galvanized Steel
- Cap Type: J Plug

Well Screen
- Diameter: 2"
- Length: 60"
- Slot/Type: 10 Slot
- Material: Stainless Steel

Protective Well Casing
- Material: Steel Dia. 4"sq.
- Height Above Ground: 2.5'
- Lock Type: Master 3212

General Notes:

Horizon Environmental

Page: 1 of 2
Boring No.: TB-2-95
Completed Well No.: P-2S-95
Client: Detroit Coke
Project No.: DCC-0102
Date: Started: 6/14/95 Finished: 6/14/95
Time: Started: 1550 Finished: 1800

Well/Boring Log Sheet

State	County	City	Fraction	Section	T	R
MI	Wayne	City of Detroit			2S	11E

Contractor: T & T Drilling
Address: 4400 Grand River
Webberville, MI
Equipment: Mobile B-57
Crew Chief: Eric
Horizon Supervisor: E. Culver

Drilling Method(s)	Depth
8" HSA 4 1/4" ID	48'

Ground Surface Elevation (feet): 104.63
TOC Elevation (feet) 107.13
Datum (feet) BM#11
Static Water Level: 9.97
Reference: TOC

Location:
Description: Survey Coordinates S + 266 W + 18
Sketch:

Grouting/Seal for Test Boring

Depth/To	Material/Method
0-50'	Cement Bentonite Grout

Construction: ___ Abandonment: X Additional Field Notes: Log Book ___ Computer File ___

Thickness (feet)	Depth to Base (feet)	USCS*	Lithologic Description	Sample Depth	Blow Counts 6"	12"	18"	24"	Headspace	Background
6.5	6.5		Coal, fines, rubble, black	2.0-4.0	5	20	20	7	2.0	
6.5	13.0		Slag, coal fines, black, wet	4.0-6.0	5	7	12	7	1.0	
7.0	20.0	CL	Clay, mottled, gray to brown, soft and moist	6.0-8.0	3	3	2	1	0.5	
6.0	26.0	CL	Clay, gray, plastic, soft, moist	8.0-10.0	3	2	2	3	0.5	
12.0	38.0	OL	Clay, brown, plastic, soft, moist, occasional pebble	10.0-12.0	2	5	6	3	0.5	
3.0	41.0	OL	Clay, brown, plastic, soft, moist, lenses of fine wet sand	12.0-14.0	5	4	3	1	1.0	
6.0	47.0	OL	Clay, brown, plastic, soft, moist, occasional pebbles	14.0-16.0	1	2	2	3	0.5	
3.0	50.0	OL	Clay, brown, soft, sandy, pebbles, moist	16.0-18.0	4	5	7	7	0.0	
				18.0-20.0	4	6	5	6	0.0	
				20.0-22.0	3	3	4	5	0.0	
				22.0-24.0	2	1	1	1	0.0	
				24.0-26.0	1	1	1	1	0.0	
				26.0-28.0	1	1	1	1	0.0	
				28.0-30.0	1	1	1	1	0.0	
				33.0-35.0	1	1	1	1	0.0	
				38.0-40.0	1	1	1	1	0.0	
				43.0-45.0	1	1	1	1	0.0	
				48.0-50.0	2	2	1	2	0.0	
			Piezometer (P-2S-95) constructed in adjacent borehole.							

* = The USCS symbol assigned is based on visual and manual observations and not on tests performed in the laboratory.

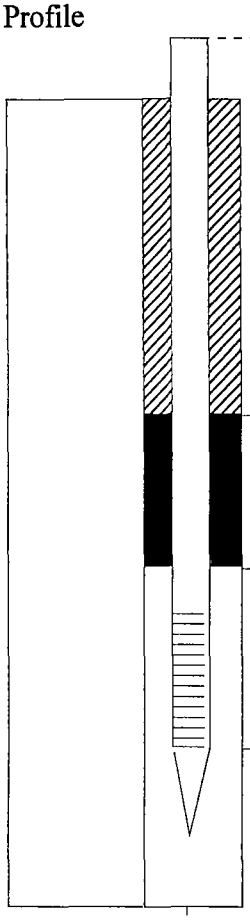
HORIZON ENVIRONMENTAL

Project Name: Detroit Coke
Project Number: DCC-0102

Log of Well Installation

Well Number: P-2S-95

Generalized Subsurface Profile



2.5' — Length of Casing Above Ground Surface

1.0' — Depth to Top of Grout or Backfill

Material (Grout or Backfill) N/A

1.0' — Depth to Top of Bentonite Pellets

4.5' — Depth to Top of Filter Pack
Type: Silica Sand

11.5' — Depth to Bottom of Well Screen

N/A — Borehole Backfill Material

11.5' — Total Depth of Borehole

Top of Casing Elevation (feet): 107.13

Water Level Data

Date	Time	Water Level	Elevation
6/20/95		9.91	97.22
6/22/95		9.97	97.16

Development: Submersible pump @ 2 gpm for 20 min. = 40 gals, then down well.

Survey Reference: BM #11 100.00' elevation
S + 263 - W + 18

Well Casing
- Diameter: 2"
- Total Length: 9.0'
- Material: Galvanized Steel
- Cap Type: J Plug

Well Screen
- Diameter: 2"
- Length: 60"
- Slot/Type: 10 Slot
- Material: Stainless Steel

Protective Well Casing
- Material: Steel Dia. 4"sq.
- Height Above Ground: 2.5'
- Lock Type: Master 3212

General Notes:

HORIZON ENVIRONMENTAL

SLUG TEST DATA SHEET

Client: Detroit Coke Site: Detroit MI

Project No.: DCC Date: June 22 1995

Tested By: ELC & EJW

WELL DATA

Well I.D.: P1S-95 Casing Diameter: 2"

Total Depth: 13' Screened Interval: 8.0-13.0'

Borehole Diameter: 8" Sand Pack or Natural Collapse

Depth to Water (TOC): 8.76 8.74 2.91 5.85 TOC to Ground: 2.91

HERMIT SYSTEM

DATALOGGER	TRANSDUCER
DataLogger I.D.:	Transducer I.D.:
Access menu press: ENTER & DATA Simultaneously	Access menu press: ENTER & XD Simultaneously
SEL: 2 (Erase tests equal or above)	IN: 1
RATE: LOG 00:30	REF: 0.00 (entered each test)
INP: 1	SCALE: 19.95
TYPE: LEVEL	OFFS: -.03
TEST ID 04046	DSP: En:TOC
Submergence 38.87	

SLUG TEST

METHOD: Slug or Pneumatic

SLUG TYPE: BAILER OR SLUG

LENGTH:

DIAMETER:

PNEUMATIC METHOD:

VAC: 15 min (min)

PRESSURE: (min)

GAGE: 5" (in Hg)

DATA TRANSFER

DATA + TEXT FILE: .HDR DATA FILE: DCC P1S .DAT

COMPUTER ID:

COMMENTS:

HORIZON ENVIRONMENTAL

SLUG TEST DATA SHEET

Client: Detroit Coke Site: Detroit MI

Project No.: Dec 0201 Date: June 23 95

Tested By: EIC EJW

WELL DATA

Well I.D.: P-3S 95 Casing Diameter: 2"

Total Depth: 13'/cpd. Screened Interval: 8'-13'

Borehole Diameter: 8" (Sand Pack) or Natural Collapse

Depth to Water (TOC): 8.19 (8.19 / 2.25 / 5.94) TOC to Ground: 2.25

HERMIT SYSTEM

DATALOGGER

DataLogger I.D.: 1KC 2141

Access menu press:
ENTER & DATA Simultaneously

SEL: 5 (Erase tests equal or above)

RATE: LOG 00:30

INP: 1

TYPE: LEVEL

TEST ID 03013

XD 2.82

TRANSDUCER

Transducer I.D.: 4865GB

Access menu press:
ENTER & XD Simultaneously

IN: 1

REF: ~~0.00~~ 8.19 (entered each test)

SCALE: 19.95

OFFS: -.03

DSP: En:TOC

SLUG TEST

METHOD: Slug or (Pneumatic)

SLUG TYPE: BAILER OR SLUG

LENGTH: _____

DIAMETER: _____

PNEUMATIC METHOD:

VAC: 15 (min)

PRESSURE: _____ (min)

GAGE: 5" (in Hg)

DATA TRANSFER

DATA + TEXT FILE: _____.HDR DATA FILE: DCCP3S.DAT

COMPUTER ID: _____

COMMENTS:

HORIZON ENVIRONMENTAL

SLUG TEST DATA SHEET

Client: Detroit Coke

Site: Detroit MI

Project No.: DCC 0201

Date: June 22

Tested By: ELC EJW

WELL DATA

Well I.D.: P 4S - 95

Casing Diameter: 2"

Total Depth: 10'

Screened Interval: 5.0'-10.0'

Borehole Diameter: 8"

(Sand Pack) or Natural Collapse

Depth to Water (TOC): 7.52 7.52 - 1.75 = 5.77

TOC to Ground: 1.75

HERMIT SYSTEM

DATALOGGER

DataLogger I.D.: 1KC 2141

Access menu press:
ENTER & DATA Simultaneously

SEL: 1 (Erase tests equal or above)

RATE: LOG ✓ 00:30 ✓

INP: 1 ✓

TYPE: LEVEL ✓

Test ID 040.

TRANSDUCER

Transducer I.D.: 4865GB

Access menu press:
ENTER & XD Simultaneously

IN: 1

REF: ~~0.00~~ 7 (entered each test)

SCALE: 19.95

OFFS: -.03

DSP: En:TOC

SLUG TEST

METHOD: (Slug) or Pneumatic

SLUG TYPE: BAILER OR SLUG

LENGTH: 6'

DIAMETER: 1"

PNEUMATIC METHOD:

VAC: _____ (min)

PRESSURE: _____ (min)

GAGE: _____ (in Hg)

DATA TRANSFER

DATA + TEXT FILE: _____ .HDR

DATA FILE: DCC P4S .DAT

COMPUTER ID: _____

COMMENTS:

HORIZON ENVIRONMENTAL

SLUG TEST DATA SHEET

Client: Detroit Coke

Site: Detroit MI

Project No.: DCC 0201

Date: June 23 1995

Tested By: ELC EJW

WELL DATA

Well I.D.: P 4D 95

Casing Diameter: 2"

Total Depth: 46

Screened Interval: 41.25'-46.25'

Borehole Diameter: 8"

Sand Pack or Natural Collapse

Depth to Water (TOC): 8.76 8.76 2.75 6.01

TOC to Ground: 2.75

HERMIT SYSTEM

DATALOGGER

DataLogger I.D.: 1KC 2141

Access menu press:
ENTER & DATA Simultaneously

SEL: 4 (Erase tests equal or above)

RATE: LOG 00:30

INP: 1

TYPE: LEVEL

Test ID 04046

XD 38.87

TRANSDUCER

Transducer I.D.: 486 5GB

Access menu press:
ENTER & XD Simultaneously

IN: 1

REF: ~~0.00~~ 8.76 (entered each test)

SCALE: 19.95

OFFS: -.03

DSP: En:TOC ✓

SLUG TEST

METHOD: Slug or Pneumatic

SLUG TYPE: BAILER OR SLUG

LENGTH: _____

DIAMETER: _____

PNEUMATIC METHOD:

VAC: 15 min (min)

PRESSURE: _____ (min)

GAGE: 5" (in Hg)

DATA TRANSFER

DATA + TEXT FILE: _____.HDR

DATA FILE: Dec P4DD.DAT

COMPUTER ID: _____

COMMENTS:

HORIZON ENVIRONMENTAL

SLUG TEST DATA SHEET

Client: Detroit Coke

Site: Detroit MI

Project No.: DCC 0201

Date: June 22 1995

Tested By: ELC EJW

WELL DATA

Well I.D.: P-4D-95

Casing Diameter: 2"

Total Depth: 46.3

Screened Interval: 41.3-46.3

Borehole Diameter: 8"

Sand Pack or Natural Collapse

Depth to Water (TOC): 8.75 6.00

TOC to Ground: 2.75

HERMIT SYSTEM

DATALOGGER

DataLogger I.D.: 1KC 2141

Access menu press:
ENTER & DATA Simultaneously

SEL: 0 (Erase tests equal or above)

RATE: LOG 00:30

INP: 1

TYPE: LEVEL

Test ID 04046

TRANSDUCER

Transducer I.D.: Serial # 4865GT3

Access menu press:
ENTER & XD Simultaneously

IN: 1

REF: ~~0.00~~ 8.75 (entered each test)

SCALE: 19.95

OFFS: -.03

DSP: En:TOC

SLUG TEST

METHOD: Slug or Pneumatic

SLUG TYPE: BAILER OR SLUG

LENGTH:

DIAMETER:

PNEUMATIC METHOD:

VAC: 7 min (min)

PRESSURE: (min)

GAGE: 5" (in Hg)

DATA TRANSFER

DATA + TEXT FILE: .HDR

DATA FILE: DCC P4D .DAT

COMPUTER ID:

COMMENTS:

HORIZON ENVIRONMENTAL

SLUG TEST DATA SHEET

Client: Detroit Coke

Site: Detroit MI

Project No.: DCC 0201

Date: June 22 1995

Tested By: ELC EJW

WELL DATA

Well I.D.: P 5D-95

Casing Diameter: 2"

Total Depth: 20'

Screened Interval: 15.0'-20.0'

Borehole Diameter: 8"

Sand Pack or Natural Collapse

Depth to Water (TOC): 9.47

TOC to Ground: 2.50

HERMIT SYSTEM

DATALOGGER

DataLogger I.D.:

Access menu press:
ENTER & DATA Simultaneously

SEL: 3 (Erase tests equal or above)

RATE: LOG 00:30

INP: 1

TYPE: LEVEL
TEST ID 05020

TRANSDUCER

Transducer I.D.:

Access menu press:
ENTER & XD Simultaneously

IN: 1

REF: 0.00 (entered each test)

SCALE: 19.95

OFFS: -.03

DSP: En:TOC

SLUG TEST

METHOD: Slug or Pneumatic

SLUG TYPE: BAILER OR SLUG

LENGTH:

DIAMETER:

PNEUMATIC METHOD:

VAC: 20 mm (min)

PRESSURE: (min)

GAGE: 5" (in Hg)

DATA TRANSFER

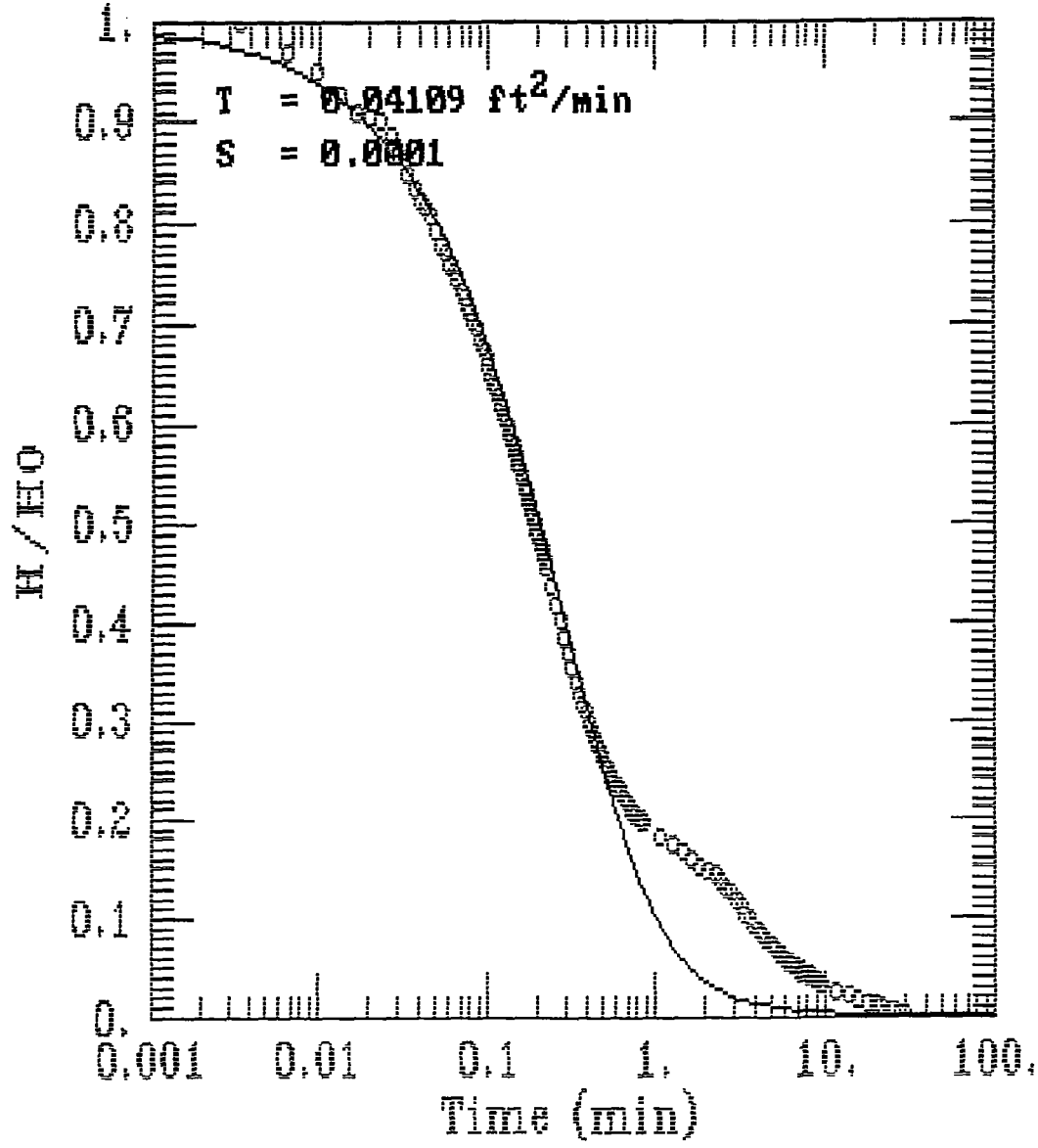
DATA + TEXT FILE: .HDR

DATA FILE: DCC P5D .DAT

COMPUTER ID:

COMMENTS:

P-1S-95

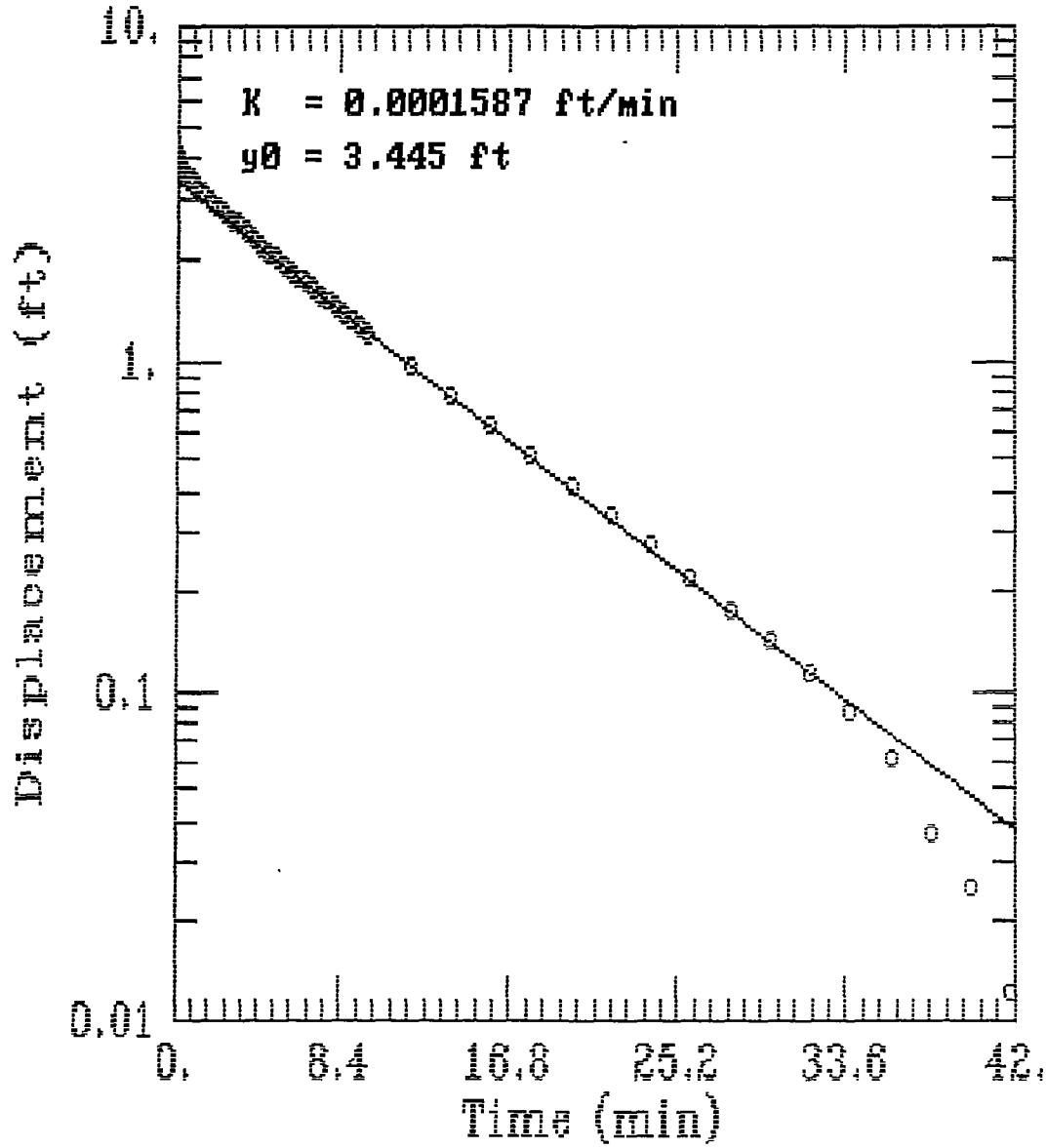


AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

P-3S-95

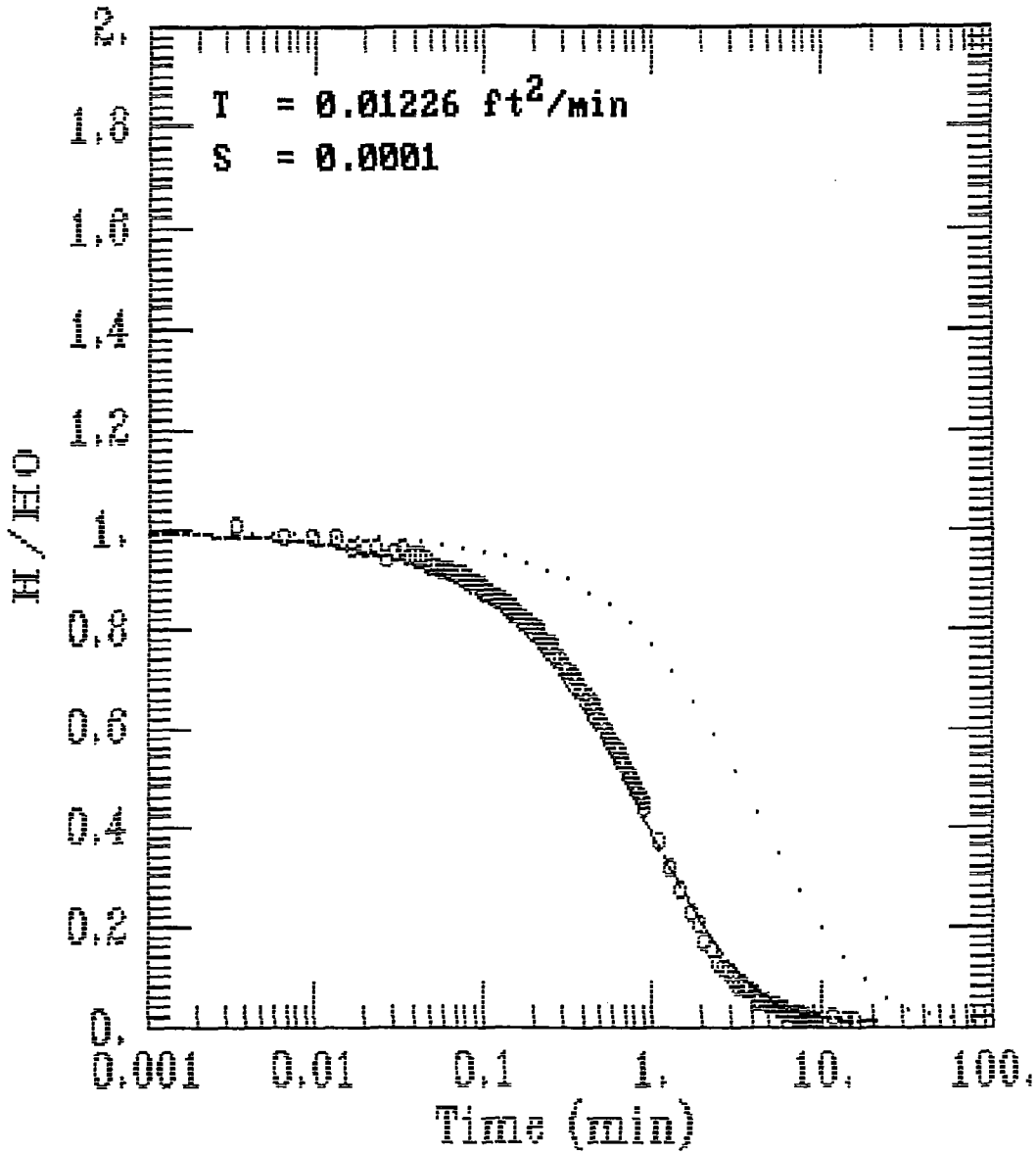


AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

P-4S-95

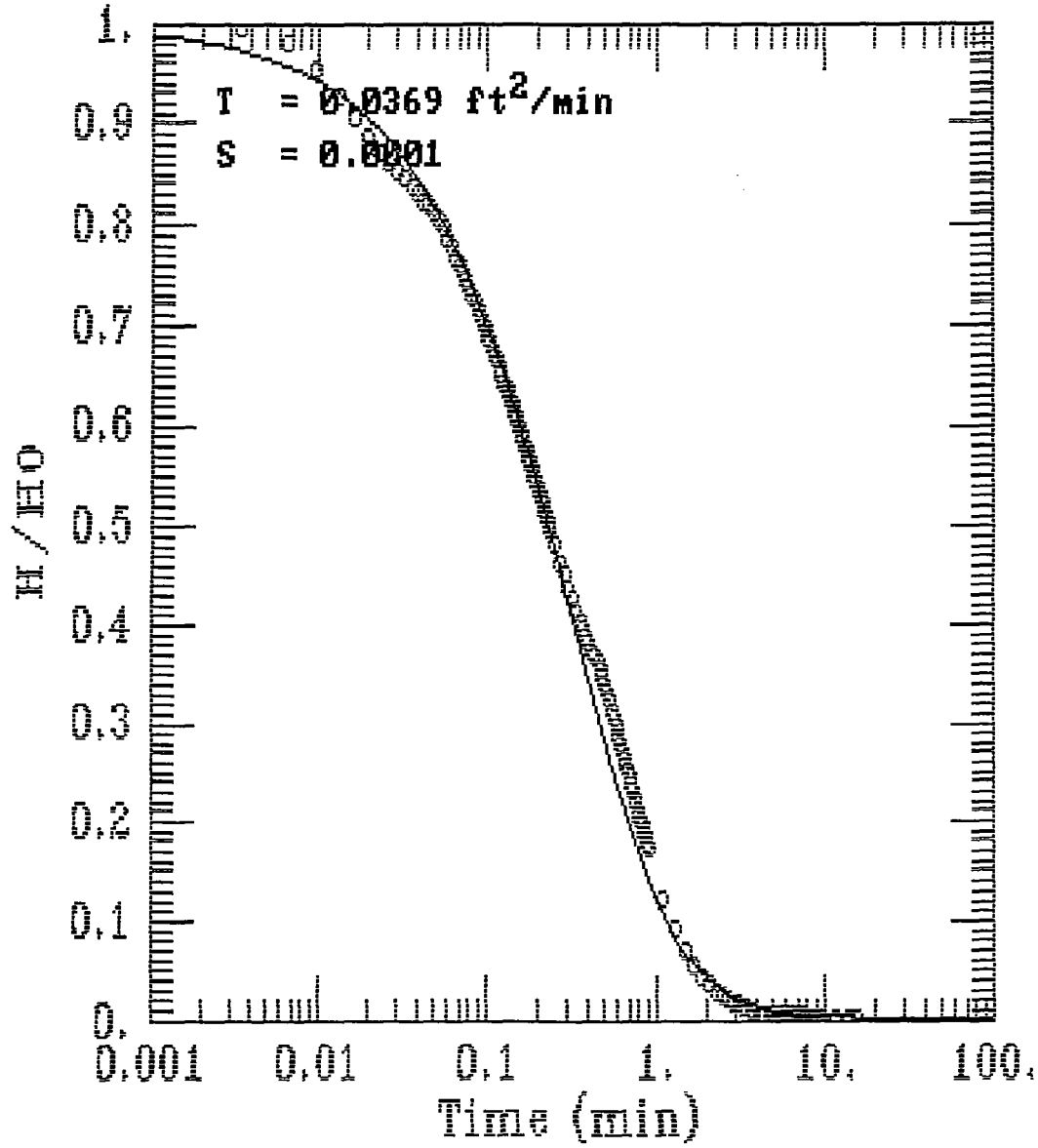


AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

P-4D-95

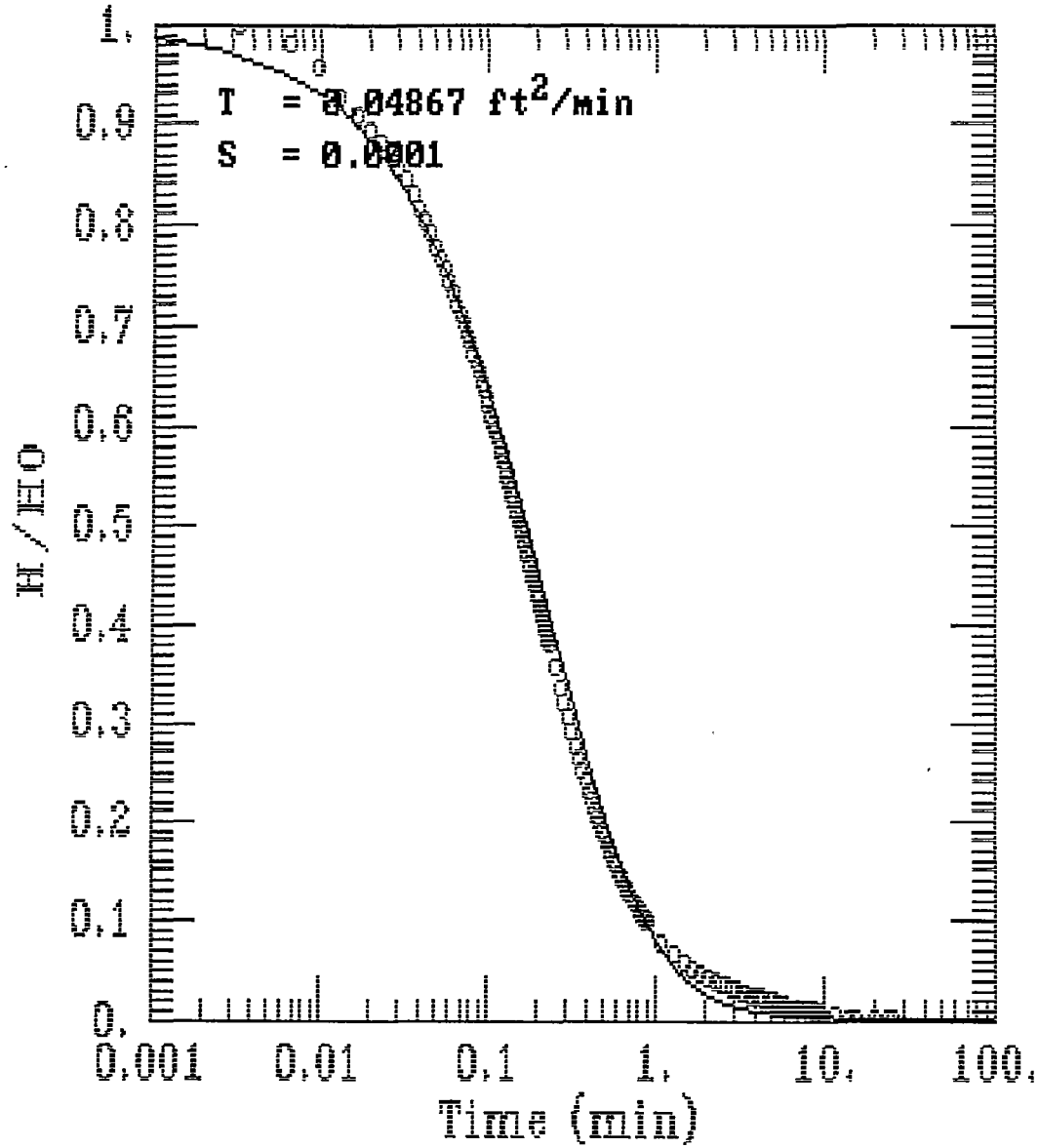


AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

P-5D-95



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

P-15

DCCP1S.DAT

SE1000C
Environmental Logger
06/22 18:45

Unit# 02141 Test 2

Setups:	INPUT 1
Type	Level (F)
Mode	TOC
I.D.	01012

Reference	8.440
Linearity	0.000
Scale factor	19.950
Offset	-0.030
Delay mSEC	50.000

Step 0 06/22 16:05:40

Elapsed Time	INPUT 1
0.0000	8.484
0.0033	8.484
0.0066	8.484
0.0100	8.484
0.0133	8.484
0.0166	8.484
0.0200	8.477
0.0233	7.282
0.0266	5.521
0.0300	4.069
0.0333	2.314
0.0366	1.704
0.0400	2.389
0.0433	3.691
0.0466	5.471
0.0500	6.307
0.0533	5.981
0.0566	5.358
0.0600	4.723
0.0633	4.257
0.0666	4.213
0.0700	4.591
0.0733	5.213
0.0766	5.528
0.0800	5.496
0.0833	5.257
0.0866	5.050
0.0900	5.012
0.0933	5.106

TD = 13'

SWL = ~~[illegible]~~ 5.85' 7.15'

Δ =

Screen = 8-13'

Aquifer Thickness = 9.5' - 5.85' = 3.65'

confined
6 - 9.5'

Aq. 3.5'

D = 3.025'

0.0966	5.301	
0.1000	5.503	
0.1033	5.452	Start
0.1066	5.408	
0.1100	5.414	
0.1133	5.496	
0.1166	5.559	
0.1200	5.628	
0.1233	5.679	
0.1266	5.697	
0.1300	5.710	
0.1333	5.748	
0.1366	5.811	
0.1400	5.867	
0.1433	5.911	
0.1466	5.943	
0.1500	5.968	
0.1533	5.993	
0.1566	6.031	
0.1600	6.075	
0.1633	6.106	
0.1666	6.131	
0.1700	6.157	
0.1733	6.182	
0.1766	6.213	
0.1800	6.238	
0.1833	6.264	
0.1866	6.282	
0.1900	6.307	
0.1933	6.333	
0.1966	6.364	
0.2000	6.383	
0.2033	6.402	
0.2066	6.421	
0.2100	6.446	
0.2133	6.471	
0.2166	6.496	
0.2200	6.515	
0.2233	6.534	
0.2266	6.553	
0.2300	6.572	
0.2333	6.591	
0.2366	6.609	
0.2400	6.628	
0.2433	6.647	
0.2466	6.666	
0.2500	6.685	
0.2533	6.704	
0.2566	6.716	
0.2600	6.735	
0.2633	6.754	
0.2666	6.767	
0.2700	6.785	
0.2733	6.804	

0.2766	6.817
0.2800	6.830
0.2833	6.848
0.2866	6.867
0.2900	6.880
0.2933	6.892
0.2966	6.905
0.3000	6.924
0.3033	6.936
0.3066	6.949
0.3100	6.962
0.3133	6.974
0.3166	6.987
0.3200	6.999
0.3233	7.012
0.3266	7.024
0.3300	7.037
0.3333	7.050
0.3500	7.113
0.3666	7.169
0.3833	7.219
0.4000	7.270
0.4166	7.314
0.4333	7.364
0.4500	7.402
0.4666	7.440
0.4833	7.471
0.5000	7.502
0.5166	7.528
0.5333	7.553
0.5500	7.572
0.5666	7.597
0.5833	7.616
0.6000	7.635
0.6166	7.653
0.6333	7.666
0.6500	7.685
0.6666	7.697
0.6833	7.710
0.7000	7.723
0.7166	7.729
0.7333	7.741
0.7500	7.748
0.7666	7.760
0.7833	7.767
0.8000	7.773
0.8166	7.785
0.8333	7.792
0.8500	7.798
0.8666	7.804
0.8833	7.811
0.9000	7.817
0.9166	7.823
0.9333	7.823

0.9500	7.829
0.9666	7.836
0.9833	7.836
1.0000	7.842
1.2000	7.880
1.4000	7.905
1.6000	7.924
1.8000	7.949
2.0000	7.968
2.2000	7.987
2.4000	7.999
2.6000	8.018
2.8000	8.037
3.0000	8.056
3.2000	8.081
3.4000	8.100
3.6000	8.119
3.8000	8.138
4.0000	8.150
4.2000	8.163
4.4000	8.175
4.6000	8.188
4.8000	8.201
5.0000	8.213
5.2000	8.219
5.4000	8.232
5.6000	8.245
5.8000	8.251
6.0000	8.257
6.2000	8.263
6.4000	8.270
6.6000	8.270
6.8000	8.282
7.0000	8.282
7.2000	8.289
7.4000	8.295
7.6000	8.301
7.8000	8.301
8.0000	8.307
8.2000	8.307
8.4000	8.314
8.6000	8.314
8.8000	8.320
9.0000	8.326
9.2000	8.326
9.4000	8.326
9.6000	8.333
9.8000	8.333
10.0000	8.333
12.0000	8.358
14.0000	8.370
16.0000	8.377
18.0000	8.389
20.0000	8.395

22.0000	8.408
24.0000	8.414
26.0000	8.421
28.0000	8.427
30.0000	8.427
32.0000	8.433
34.0000	8.433
36.0000	8.433

P-3S

DCCP3S.DAT

SE1000C
Environmental Logger
06/27 03:02

Unit# 02141 Test 5

TD = 13'
SWL = 5.94
Δ =

Screen = 8-13'

Aq. thickness = 12.5 - 5.94 = 6.56'

Setups:	INPUT 1
Type	Level (F)
Mode	TOC
I.D.	03013

Reference	8.190
Linearity	0.000
Scale factor	19.950
Offset	-0.030
Delay mSEC	50.000

Step 0 06/23 06:54:15

Elapsed Time	INPUT 1
0.0000	8.215
0.0033	8.215
0.0066	8.215
0.0100	8.215
0.0133	8.208
0.0166	6.649
0.0200	5.039
0.0233	2.831
0.0266	1.215
0.0300	0.926
0.0333	2.567
0.0366	4.485
0.0400	5.611
0.0433	5.366
0.0466	3.932
0.0500	3.108
0.0533	2.775
0.0566	3.334
0.0600	4.139
0.0633	4.636
0.0666	4.479
0.0700	3.863
0.0733	3.523
0.0766	3.517
0.0800	3.863
0.0833	4.196
0.0866	4.265
0.0900	4.014
0.0933	3.806

0.0966	3.781
0.1000	3.938
0.1033	4.102
0.1066	4.120
0.1100	4.007
0.1133	3.919
0.1166	3.938
0.1200	4.026
0.1233	4.089
0.1266	4.064
0.1300	4.007
0.1333	4.001
0.1366	4.039
0.1400	4.076
0.1433	4.076
0.1466	4.058
0.1500	4.045
0.1533	4.064
0.1566	4.083
0.1600	4.089
0.1633	4.083
0.1666	4.083
0.1700	4.089
0.1733	4.102
0.1766	4.108
0.1800	4.108
0.1833	4.108
0.1866	4.114
0.1900	4.120
0.1933	4.127
0.1966	4.133
0.2000	4.133
0.2033	4.139
0.2066	4.146
0.2100	4.146
0.2133	4.152
0.2166	4.152
0.2200	4.158
0.2233	4.165
0.2266	4.165
0.2300	4.171
0.2333	4.171
0.2366	4.177
0.2400	4.177
0.2433	4.183
0.2466	4.183
0.2500	4.190
0.2533	4.196
0.2566	4.196
0.2600	4.202
0.2633	4.202
0.2666	4.209
0.2700	4.209
0.2733	4.215

$\bar{y} = 4.108'$

0.2766	4.215
0.2800	4.221
0.2833	4.221
0.2866	4.227
0.2900	4.227
0.2933	4.234
0.2966	4.234
0.3000	4.240
0.3033	4.240
0.3066	4.246
0.3100	4.246
0.3133	4.253
0.3166	4.253
0.3200	4.253
0.3233	4.259
0.3266	4.265
0.3300	4.265
0.3333	4.265
0.3500	4.284
0.3666	4.297
0.3833	4.309
0.4000	4.322
0.4166	4.334
0.4333	4.347
0.4500	4.359
0.4666	4.372
0.4833	4.385
0.5000	4.397
0.5166	4.410
0.5333	4.416
0.5500	4.429
0.5666	4.441
0.5833	4.454
0.6000	4.460
0.6166	4.473
0.6333	4.485
0.6500	4.492
0.6666	4.504
0.6833	4.510
0.7000	4.523
0.7166	4.529
0.7333	4.542
0.7500	4.554
0.7666	4.561
0.7833	4.573
0.8000	4.580
0.8166	4.592
0.8333	4.598
0.8500	4.605
0.8666	4.617
0.8833	4.624
0.9000	4.630
0.9166	4.642
0.9333	4.649

0.9500	4.655
0.9666	4.668
0.9833	4.674
1.0000	4.680
1.2000	4.793
1.4000	4.881
1.6000	4.970
1.8000	5.051
2.0000	5.127
2.2000	5.202
2.4000	5.278
2.6000	5.347
2.8000	5.410
3.0000	5.479
3.2000	5.542
3.4000	5.605
3.6000	5.661
3.8000	5.718
4.0000	5.774
4.2000	5.825
4.4000	5.881
4.6000	5.932
4.8000	5.976
5.0000	6.026
5.2000	6.070
5.4000	6.120
5.6000	6.164
5.8000	6.208
6.0000	6.246
6.2000	6.290
6.4000	6.328
6.6000	6.366
6.8000	6.403
7.0000	6.441
7.2000	6.479
7.4000	6.517
7.6000	6.548
7.8000	6.579
8.0000	6.611
8.2000	6.642
8.4000	6.674
8.6000	6.705
8.8000	6.737
9.0000	6.768
9.2000	6.793
9.4000	6.818
9.6000	6.850
9.8000	6.875
10.0000	6.900
12.0000	7.139
14.0000	7.309
16.0000	7.466
18.0000	7.579
20.0000	7.680

22.0000	7.762
24.0000	7.825
26.0000	7.881
28.0000	7.925
30.0000	7.957
32.0000	7.988
34.0000	8.013
36.0000	8.039
38.0000	8.064
40.0000	8.076
42.0000	8.089
44.0000	8.101

P-45

DCCP4S.DAT
SE1000C
Environmental Logger
06/22 14:41

Unit# 02141 Test 1

Setups: INPUT 1

Type	Level (F)
Mode	TOC
I.D.	04009

Reference	7.520
Linearity	0.000
Scale factor	19.950
Offset	-0.030
Delay mSEC	50.000

Step 0 06/22 12:47:43

Elapsed Time	INPUT 1
0.0000	7.520
0.0033	7.520
0.0066	7.520
0.0100	7.520
0.0133	7.809
0.0166	7.626
0.0200	7.645
0.0233	7.765
0.0266	7.840
0.0300	7.872
0.0333	7.979
0.0366	8.067
0.0400	8.186
0.0433	8.243
0.0466	8.262
0.0500	8.287
0.0533	8.274
0.0566	8.274
0.0600	8.262
0.0633	8.262
0.0666	8.287
0.0700	8.262
0.0733	8.255
0.0766	8.255
0.0800	8.262
0.0833	8.243
0.0866	8.243
0.0900	8.243
0.0933	8.230
0.0966	8.230
0.1000	8.230

10'

5.77

Screen = 5-10'

Ag. Thickness = 9 - 5.77 = 3.23

D = 0.71'

0.1033	8.211
0.1066	8.224
0.1100	8.230
0.1133	8.218
0.1166	8.218
0.1200	8.218
0.1233	8.211
0.1266	8.205
0.1300	8.205
0.1333	8.199
0.1366	8.199
0.1400	8.199
0.1433	8.192
0.1466	8.192
0.1500	8.192
0.1533	8.192
0.1566	8.186
0.1600	8.186
0.1633	8.180
0.1666	8.180
0.1700	8.174
0.1733	8.174
0.1766	8.167
0.1800	8.167
0.1833	8.167
0.1866	8.167
0.1900	8.161
0.1933	8.161
0.1966	8.161
0.2000	8.155
0.2033	8.155
0.2066	8.155
0.2100	8.148
0.2133	8.148
0.2166	8.148
0.2200	8.142
0.2233	8.142
0.2266	8.142
0.2300	8.136
0.2333	8.136
0.2366	8.136
0.2400	8.136
0.2433	8.130
0.2466	8.130
0.2500	8.130
0.2533	8.123
0.2566	8.123
0.2600	8.123
0.2633	8.117
0.2666	8.123
0.2700	8.117
0.2733	8.117
0.2766	8.117
0.2800	8.117

0.2833	8.111
0.2866	8.111
0.2900	8.111
0.2933	8.111
0.2966	8.104
0.3000	8.104
0.3033	8.098
0.3066	8.098
0.3100	8.098
0.3133	8.098
0.3166	8.092
0.3200	8.092
0.3233	8.092
0.3266	8.092
0.3300	8.086
0.3333	8.092
0.3500	8.073
0.3666	8.067
0.3833	8.060
0.4000	8.054
0.4166	8.048
0.4333	8.042
0.4500	8.035
0.4666	8.029
0.4833	8.023
0.5000	8.016
0.5166	8.004
0.5333	8.004
0.5500	7.997
0.5666	7.985
0.5833	7.979
0.6000	7.972
0.6166	7.972
0.6333	7.966
0.6500	7.960
0.6666	7.953
0.6833	7.947
0.7000	7.941
0.7166	7.935
0.7333	7.935
0.7500	7.928
0.7666	7.922
0.7833	7.916
0.8000	7.909
0.8166	7.903
0.8333	7.903
0.8500	7.897
0.8666	7.891
0.8833	7.891
0.9000	7.884
0.9166	7.878
0.9333	7.878
0.9500	7.872
0.9666	7.865

0.9833	7.865
1.0000	7.859
1.2000	7.809
1.4000	7.771
1.6000	7.740
1.8000	7.708
2.0000	7.689
2.2000	7.664
2.4000	7.652
2.6000	7.633
2.8000	7.626
3.0000	7.620
3.2000	7.614
3.4000	7.601
3.6000	7.601
3.8000	7.595
4.0000	7.595
4.2000	7.589
4.4000	7.582
4.6000	7.582
4.8000	7.582
5.0000	7.576
5.2000	7.576
5.4000	7.576
5.6000	7.576
5.8000	7.570
6.0000	7.570
6.2000	7.570
6.4000	7.564
6.6000	7.564
6.8000	7.564
7.0000	7.564
7.2000	7.557
7.4000	7.564
7.6000	7.557
7.8000	7.557
8.0000	7.557
8.2000	7.557
8.4000	7.557
8.6000	7.551
8.8000	7.551
9.0000	7.551
9.2000	7.551
9.4000	7.551
9.6000	7.545
9.8000	7.545
10.0000	7.545
12.0000	7.557
14.0000	7.551
16.0000	7.551
18.0000	7.545
20.0000	7.545

P-4D (2)

DCCP4DD.DAT

TD = 46.3
SWL = 6.01
screen = 41.25 - 46.25
Ag Thickness =

SE1000C
Environmental Logger
06/27 02:55

Unit# 02141 Test 4

Setups:	INPUT 1
Type	Level (F)
Mode	TOC
I.D.	04046

Reference	8.760
Linearity	0.000
Scale factor	19.950
Offset	-0.030
Delay mSEC	50.000

Step 0 06/23 05:56:52

Elapsed Time	INPUT 1
0.0000	8.741
0.0033	8.741
0.0066	8.741
0.0100	8.741
0.0133	8.276
0.0166	6.961
0.0200	5.691
0.0233	4.672
0.0266	3.942
0.0300	3.364
0.0333	2.980
0.0366	2.810
0.0400	2.848
0.0433	2.955
0.0466	3.106
0.0500	3.383
0.0533	3.804
0.0566	4.338
0.0600	4.779
0.0633	5.162
0.0666	5.420
0.0700	5.590
0.0733	5.665
0.0766	5.665
0.0800	5.621
0.0833	5.540
0.0866	5.458
0.0900	5.402
0.0933	5.382
0.0966	5.363

D = 3.93

0.1000	5.382
0.1033	5.433
0.1066	5.515
0.1100	5.602
0.1133	5.684
0.1166	5.754
0.1200	5.804
0.1233	5.835
0.1266	5.867
0.1300	5.885
0.1333	5.917
0.1366	5.942
0.1400	5.961
0.1433	5.974
0.1466	6.005
0.1500	6.024
0.1533	6.055
0.1566	6.093
0.1600	6.124
0.1633	6.156
0.1666	6.187
0.1700	6.213
0.1733	6.238
0.1766	6.263
0.1800	6.288
0.1833	6.313
0.1866	6.338
0.1900	6.363
0.1933	6.382
0.1966	6.401
0.2000	6.420
0.2033	6.433
0.2066	6.458
0.2100	6.483
0.2133	6.502
0.2166	6.527
0.2200	6.552
0.2233	6.577
0.2266	6.590
0.2300	6.609
0.2333	6.622
0.2366	6.640
0.2400	6.659
0.2433	6.678
0.2466	6.690
0.2500	6.709
0.2533	6.728
0.2566	6.753
0.2600	6.772
0.2633	6.791
0.2666	6.798
0.2700	6.810
0.2733	6.829
0.2766	6.841

0.2800	6.860
0.2833	6.873
0.2866	6.892
0.2900	6.911
0.2933	6.923
0.2966	6.929
0.3000	6.942
0.3033	6.955
0.3066	6.967
0.3100	6.986
0.3133	7.005
0.3166	7.011
0.3200	7.024
0.3233	7.036
0.3266	7.049
0.3300	7.068
0.3333	7.074
0.3500	7.131
0.3666	7.188
0.3833	7.231
0.4000	7.282
0.4166	7.320
0.4333	7.357
0.4500	7.388
0.4666	7.420
0.4833	7.445
0.5000	7.470
0.5166	7.496
0.5333	7.514
0.5500	7.540
0.5666	7.558
0.5833	7.583
0.6000	7.609
0.6166	7.634
0.6333	7.666
0.6500	7.697
0.6666	7.722
0.6833	7.753
0.7000	7.785
0.7166	7.810
0.7333	7.835
0.7500	7.860
0.7666	7.886
0.7833	7.910
0.8000	7.936
0.8166	7.955
0.8333	7.980
0.8500	8.005
0.8666	8.024
0.8833	8.043
0.9000	8.068
0.9166	8.080
0.9333	8.099
0.9500	8.118

0.9666	8.137
0.9833	8.156
1.0000	8.169
1.2000	8.351
1.4000	8.458
1.6000	8.527
1.8000	8.577
2.0000	8.615
2.2000	8.647
2.4000	8.665
2.6000	8.684
2.8000	8.697
3.0000	8.703
3.2000	8.709
3.4000	8.722
3.6000	8.722
3.8000	8.735
4.0000	8.735
4.2000	8.741
4.4000	8.741
4.6000	8.741
4.8000	8.747
5.0000	8.747
5.2000	8.747
5.4000	8.747
5.6000	8.753
5.8000	8.747
6.0000	8.753
6.2000	8.753
6.4000	8.753
6.6000	8.753
6.8000	8.753
7.0000	8.753
7.2000	8.753
7.4000	8.760
7.6000	8.753
7.8000	8.760
8.0000	8.760
8.2000	8.760
8.4000	8.760
8.6000	8.760
8.8000	8.760
9.0000	8.760
9.2000	8.760
9.4000	8.760
9.6000	8.760
9.8000	8.760
10.0000	8.760
12.0000	8.760
14.0000	8.760
16.0000	8.760
18.0000	8.772
20.0000	8.766
22.0000	8.766

P-5D

DCCP5D.DAT

SE1000C
Environmental Logger
06/22 20:02

Unit# 02141 Test 3

TD = 40.0
SWL = 6.00
Δ =

Screen = 41.3 - 46.3
Ag Thickness = 4'
confined
14 - 18'

Setups:	INPUT 1
Type	Level (F)
Mode	TOC
I.D.	05020

Reference	9.470
Linearity	0.000
Scale factor	19.950
Offset	-0.030
Delay mSEC	50.000

Step 0 06/22 17:10:23

Elapsed Time	INPUT 1
0.0000	9.256
0.0033	9.249
0.0066	9.249
0.0100	9.249
0.0133	9.249
0.0166	7.388
0.0200	5.281
0.0233	3.514
0.0266	2.218
0.0300	1.476
0.0333	1.294
0.0366	1.740
0.0400	2.778
0.0433	4.055
0.0466	5.143
0.0500	5.847
0.0533	6.036
0.0566	5.721
0.0600	5.237
0.0633	4.904
0.0666	4.816
0.0700	4.941
0.0733	5.250
0.0766	5.545
0.0800	5.753
0.0833	5.816
0.0866	5.790
0.0900	5.753
0.0933	5.772
0.0966	5.834

Δ = 4.408'

0.1000	5.923
0.1033	6.017
0.1066	6.080
0.1100	6.136
0.1133	6.174
0.1166	6.212
0.1200	6.262
0.1233	6.306
0.1266	6.356
0.1300	6.407
0.1333	6.451
0.1366	6.489
0.1400	6.533
0.1433	6.577
0.1466	6.621
0.1500	6.658
0.1533	6.690
0.1566	6.728
0.1600	6.765
0.1633	6.803
0.1666	6.834
0.1700	6.866
0.1733	6.904
0.1766	6.935
0.1800	6.967
0.1833	6.998
0.1866	7.029
0.1900	7.061
0.1933	7.086
0.1966	7.117
0.2000	7.143
0.2033	7.174
0.2066	7.199
0.2100	7.224
0.2133	7.250
0.2166	7.275
0.2200	7.300
0.2233	7.325
0.2266	7.350
0.2300	7.369
0.2333	7.394
0.2366	7.419
0.2400	7.438
0.2433	7.463
0.2466	7.482
0.2500	7.507
0.2533	7.526
0.2566	7.545
0.2600	7.564
0.2633	7.583
0.2666	7.602
0.2700	7.621
0.2733	7.639
0.2766	7.658

0.2800	7.677
0.2833	7.690
0.2866	7.709
0.2900	7.728
0.2933	7.740
0.2966	7.759
0.3000	7.778
0.3033	7.790
0.3066	7.809
0.3100	7.816
0.3133	7.834
0.3166	7.853
0.3200	7.866
0.3233	7.878
0.3266	7.897
0.3300	7.910
0.3333	7.916
0.3500	7.992
0.3666	8.061
0.3833	8.117
0.4000	8.174
0.4166	8.218
0.4333	8.268
0.4500	8.312
0.4666	8.350
0.4833	8.388
0.5000	8.426
0.5166	8.457
0.5333	8.488
0.5500	8.520
0.5666	8.545
0.5833	8.570
0.6000	8.589
0.6166	8.614
0.6333	8.633
0.6500	8.652
0.6666	8.671
0.6833	8.690
0.7000	8.709
0.7166	8.721
0.7333	8.734
0.7500	8.746
0.7666	8.759
0.7833	8.771
0.8000	8.784
0.8166	8.797
0.8333	8.803
0.8500	8.815
0.8666	8.822
0.8833	8.834
0.9000	8.841
0.9166	8.853
0.9333	8.860
0.9500	8.866

0.9666	8.872
0.9833	8.878
1.0000	8.885
1.2000	8.960
1.4000	8.998
1.6000	9.023
1.8000	9.048
2.0000	9.061
2.2000	9.073
2.4000	9.086
2.6000	9.098
2.8000	9.105
3.0000	9.111
3.2000	9.117
3.4000	9.124
3.6000	9.130
3.8000	9.136
4.0000	9.136
4.2000	9.136
4.4000	9.143
4.6000	9.149
4.8000	9.149
5.0000	9.155
5.2000	9.155
5.4000	9.161
5.6000	9.161
5.8000	9.168
6.0000	9.168
6.2000	9.174
6.4000	9.180
6.6000	9.180
6.8000	9.180
7.0000	9.180
7.2000	9.180
7.4000	9.180
7.6000	9.180
7.8000	9.180
8.0000	9.180
8.2000	9.180
8.4000	9.180
8.6000	9.180
8.8000	9.187
9.0000	9.193
9.2000	9.193
9.4000	9.193
9.6000	9.199
9.8000	9.199
10.0000	9.199
12.0000	9.205
14.0000	9.212
16.0000	9.218
18.0000	9.224
20.0000	9.218
22.0000	9.224