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RCRA FACILITY INVESTIGATION REPORT

ASHLAND CHEMICAL COMPANY
BINGHAMTON, NEW YORK

EPA ID NO. NYD 049 253 719

PREPARED

BY

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1.0 Introduction

This Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) report describes the results of the RFI that was conducted at the Ashland Chemical Company (Ashland) facility located at 3 Broad Street in Binghamton, New York (Figure 1). The RFI was conducted to determine the quality of the soils and groundwater adjacent to five solid waste management units (SWMUs; SWMU 2 - neutralization unit, SWMU 6 - process pipeline, SWMU 7 - former underground storage tank area, SWMU 11-post-treatment sewer, and SWMU 13 - storm drain system) at the Ashland facility (Figure 2). This report has been prepared in accordance with the corrective action requirements of the final 373 Hazardous Waste Operating Permit and the final Hazardous and Solid Waste Amendments (HSWA) of 1984 Permit that were issued to Ashland for the Binghamton facility.

1.1 Background

The RFI was required as a result of an RCRA Facility Assessment (RFA)-Preliminary Review (PR) conducted by the U.S. Environmental Protection Agency (EPA) and New York State Department of Environmental Conservation (NYSDEC) on September 28, 1990, and an RFA-Visual Site Inspection (VSI) conducted on November 5, 1990. As a result of these inspections, 13 SWMUs were identified at the facility. The EPA and NYSDEC concluded that 7 of the 13 SWMUs did not require further action. Of the remaining six, SWMUs 2 and 7 were required to be included in an RFI. From September 7 through 10, 1993, Environmental Strategies Corporation (ESC), on the behalf of Ashland, conducted an RFA-Sampling Visit (SV) at the facility to assess the soil conditions at the remaining four SWMUs (SWMU 6 - process pipeline, SWMU 8 - former soil piles, SWMU 11 - post-treatment sewer, and SWMU 13 - storm drain system). The RFA-SV report was submitted to the EPA and the NYSDEC on November 19, 1993, and concluded that trace concentrations of various analytes were detected in the soil samples below cleanup objectives (New York State Technical and Administrative Guidance Memorandum [TAGM] 4046) and no further action was needed at any of the four SWMUs investigated during the RFA-SV. The

TAGM 4046 cleanup levels are the most stringent cleanup levels that were established to eliminate all significant threats to human health and/or the environment posed by an inactive hazardous waste site. However, in a letter dated June 27, 1994, the agencies concluded that SWMUs 6, 11, and 13 should be included in the RFI and that no further action was required at SWMU 8.

During the week of February 5, 1996, ESC on the behalf of Ashland, initiated the RFI at the Binghamton facility in accordance with the approved June 15, 1995, RFI Work Plan. The investigation included advancing soil borings adjacent to SWMUs 2 and 7 to assess the soil characteristics at the SWMUs. Also, three monitoring wells were installed to determine the groundwater quality beneath the facility. During the week of February 29, 1996, the wells were purged and sampled for volatile organic compounds (VOCs). In two Ashland response letters, dated October 23, 1995, and December 12, 1995, Ashland agreed to analyze the groundwater samples for additional parameters. On April 10, 1996, the wells were repurged and sampled for the additional parameters which included semi-volatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), and total and dissolved target analyte list (TAL) metals. This document details the RFI activities that were conducted at the Ashland Binghamton facility and summarizes the soil and groundwater sampling results.

1.2 Summary of Previous Investigations

During April 10 and 11, 1986, a subsurface investigation was conducted during the removal of four compartmented underground storage tanks (SWMU 7) which were used to store methyl ethyl ketone (MEK), toluene, mineral spirits, acetone, methanol, xylenes, and isopropanol. Analytical results for 2 soil samples collected from approximately 20 cubic yards of soil that were removed from the excavation pit indicated alkane hydrocarbons at concentrations no more than 310 mg/kg. Toluene and acetone were also detected at concentrations less than 0.3 mg/kg. The soils remained on polyethylene plastic at the facility for 2 years and were eventually spread over the ground surface on the southern side of the truck unloading pad (SWMU 8).

The former soil waste piles (SWMU 8) were monitored with a photoionization detector (PID) and soil exhibiting PID readings twice the background concentrations or appearing discolored were stockpiled at the southern side of the truck unloading pad. The soil was staged on polyethylene sheeting in two long piles which consisted of approximately 10 cubic yards each. The soils at this location were evaluated during the September 1993 RFA-SV investigation and contained no VOCs, and alkane hydrocarbons ranging from 0.0026 to 0.021 mg/kg alkane hydrocarbons which were qualified as laboratory contaminants.

From September 7 through 10, 1993, an RFA-SV investigation was conducted to evaluate four of the SWMUs identified by the NYSDEC and EPA during the RFA-PR and RFA-VSI. The RFA-SV investigation was performed to assess soils adjacent to the process pipeline (SWMU 6), former soil piles (SWMU 8), post-treatment sewer (SWMU 11), and the storm drain system (SWMU 13) (Figure 3). A brief description of each of these SWMUs and a discussion of the RFA-SV results are provided below.

The process pipeline (SWMU 6) was located on the eastern side of the former aboveground product storage tank farm. The pipeline was used from approximately 1975 to 1990 during the operation of the former acid tanker truck unloading pad. Small amounts of hydrochloric acid, sulfuric acid, phosphoric acid, glacial acetic acid, formaldehyde, caustic soda, and ammonia were discharged to and neutralized in the neutralization unit. The concrete truck unloading pad was used exclusively for transferring acids and caustics from tanker trucks to the former aboveground storage tank farm. The concrete pad was equipped with an emergency sump which collected inadvertent product spillage and line flush during unloading activities. The sump was connected to the neutralization unit on the western side of former Warehouse 3 via an underground pipeline. The process pipeline was reportedly located 1 foot to 2 feet below the ground surface. Facility personnel indicated that truck unloading activities were discontinued in approximately 1990.

The post-treatment sewer (SWMU 11) is an inactive unit which begins at the neutralization unit, runs underneath the former Warehouse 3 and in between the former truck unloading pad and Warehouse 4, and connects to the city sewer system underneath Bevier Street. The sewer line was installed by Ashland in approximately 1976 when the neutralization unit was built. The neutralization unit previously received wash water from the acid truck unloading pad, barrel washing station, and fume scrubber. These wash waters were treated with caustic soda to increase the pH to between 6 and 8. The treated wastewater was then discharged through the post-treatment sewer to the city sewer system. A drain located on the northern side of Warehouse 4 also tied into the post-treatment sewer system. This drain received storm water that accumulated in a loading dock area.

The storm drain system (SWMU 13) consists of several catch basins that collect storm water runoff from the facility property and discharge the runoff to the storm sewer system on Broad Street. Washwater generated from the cleaning of facility buildings and equipment may have been discharged into the storm sewer system. A cut-off valve was installed in this storm drain system in 1989. Subsequent testing indicated that the portion of the storm drain system north of the truck unloading pad was tight, but the portion of the system south of the truck pad was not.

Based on the results of the RFA-SV investigation, the agencies concluded that no further soils investigation was warranted at SWMUs 6, 11, and 13 and that no further action was required at SWMU 8. However, to determine the groundwater quality beneath SWMUs 6, 11, and 13, it was agreed that monitoring well MW-3 would be installed in the vicinity of these three SWMUs. Also, this well provides additional hydrogeological data for the facility.

2.0 Facility Description

2.1 General

The Ashland facility is located within the northeast city limits of Binghamton, Broome County, New York (Figure 1). The plant property consists of approximately 2.7 acres and is located at 3 Broad Street. The main features of the site include three one-story metal warehouses, a newly constructed building used by First Recovery, and a former truck unloading pad (Figure 2). First recovery is a bulk used oil storage and transfer facility that operates separately from the Ashland facility and has no impact on the RFI being conducted at the facility.

The area surrounding the facility is zoned for general industrial use. The properties immediately adjacent to the facility include the Delaware and Hudson Railroad to the west, Bevier Street to the south, Broad Street to the east, and the Systems Manufacturing Corporation to the north. There are no residences located within a 500-foot radius of the facility.

Operations at the Ashland Binghamton facility began in 1967. Until 1986, the Binghamton facility was operated by Ashland as a wholesale distributor of industrial chemicals, solvents, and petroleum products. Bulk solvents, acids, and caustic soda were received at the plant by tank truck and railcar for storage in aboveground and underground product tanks. These chemicals and solvents were then drummed, blended, repackaged, and resold in bulk or less than truckload quantities to various industrial and commercial users. There were no chemicals manufactured at this site. There are currently no aboveground or underground product storage tanks located on the facility property.

Ashland's Environmental Services Division currently manages a storage operation of small containers at the facility. The chemical, solvent, and petroleum packaging and distribution activities have been discontinued. The facility is operating a hazardous waste container storage area under a RCRA permit issued by the NYSDEC which became effective on April 1, 1992.

The Ashland Binghamton facility provides its customers with a service for the removal and arranges for disposal of their hazardous wastes. To facilitate the waste disposal process, customers' wastes are temporarily stored at the Ashland facility in portable containers until a truckload or partial truckload shipment can be accumulated for transportation to a waste management facility.

In addition, First Recovery, a used oil and nonhazardous waste management firm, has constructed a storage building near the center of the property. The building was constructed in 1995 and is used to house a tanker truck and to temporarily store nonhazardous wastes.

2.2 Description of RFI Solid Waste Management Units

The RFI was conducted to investigate the soils and groundwater near SWMUs 2 and 7. The location of the monitoring wells installed during this phase also provides groundwater data concerning SWMUs 6, 11, and 13. Two of the wells (MW-1 and MW-2) are hydraulically downgradient of the SWMUs. The following is a summary of SMWUs 2 and 7 and the materials handled at each unit.

2.2.1 Neutralization Tank (SWMU 2)

The neutralization unit is a below ground concrete tank with a Hetron plastic liner in which low pH washwaters were neutralized before being discharged to the Binghamton municipal sewer system. The neutralization unit previously received washwaters from the acid truck unloading pad, barrel washing station, and fume scrubber via underground piping. Hydrochloric acid, sulfuric acid, phosphoric acid, glacial acetic acid, formaldehyde, caustic soda, and ammonia were discharged to and neutralized in the

neutralization unit. The washwaters were typically neutralized with caustic soda to increase the pH to between 6 and 8. The treated wastewater was then discharged through the post-treatment sewer to the city sewer system. The unit was in operation from approximately 1976 to the early 1990s.

2.2.2 Former Underground Storage Tank Area (SWMU 7)

The former underground storage tank area is approximately 40 feet by 40 feet and is located between the former aboveground tank farm and the northern side of Warehouse 4. Four steel underground product tanks were removed from this area on April 10 and 11, 1986. Each of the four tanks had two compartments with a capacity of approximately 6,500 gallons per compartment. The following products were stored in the tanks: mineral spirits, toluene, MEK, acetone, methanol, xylenes, and isopropanol. The underground storage tank closure report indicated that discolored soils were removed from around the four pumps that serviced the underground storage tanks. Approximately 20 cubic yards of soil were removed and stockpiled onsite. The soils from the pit excavation were sampled and analyzed for the products stored in the tank. Mineral spirits were detected at concentrations up to 310 mg/kg. Toluene ranging from 0.0077 mg/kg to 0.208 mg/kg and acetone ranging from below the method detection limit to 0.15 mg/kg were detected in two soil samples collected from the excavation pit.

3.0 Environmental Setting

3.1 Climate

The Ashland Binghamton facility is part of the Eastern Plateau Climatic Division of New York State (National Oceanic and Atmospheric Administration [NOAA] 1992). Global atmospheric circulation brings a great variety of air masses to the area. Masses of cold, dry air come from the northern interior of the continent. Warm, humid air originating at the Gulf of Mexico and adjacent tropical waters flows from the south. These two air masses provide the dominant characteristics of the local climate. The climate is thus classified as "humid continental" by the modified Koppen classification system. This climate is categorized by severe winters, moist seasons with precipitation evenly distributed throughout the year, and short warm summers.

During most of the year, high and low-pressure systems move generally west to east through the area. During the winter months, high pressure tends to move northwest to southeast, and low pressure often moves from southwest to northeast. During the summer months, a high-pressure system called the Bermuda High may extend over the area for several days at a time with little significant movement. During the late summer, cold fronts (known as "back door" cold fronts) may move from the northeast through the area, although most cold fronts move from the northwest. Warm fronts tend to originate from the south.

The Ashland facility does not have historical meteorological data onsite. The nearest National Weather Service station is located at the Broome County Airport in Binghamton, New York. The source of numeric data for climatological parameters discussed below are from the National Climatic Data Center (NCDC), a branch of the NOAA.

The NCDC annual average temperature (1963 to 1992) for Binghamton, New York, is 46.0° F, with July being the warmest month (average temperature of 69.1° F) and January being the coldest (averaging 21.2° F). The record extreme temperatures at Binghamton are -20° F and 98° F during a 67-year period ending in 1988 (NOAA 1992).

Precipitation is uniform throughout the year with moisture generally transmitted from the Gulf of Mexico and Atlantic Ocean through atmospheric circulation patterns and storm systems. During 1963 to 1992, Binghamton averaged 37.15 inches of precipitation, with July experiencing the highest monthly average of 3.62 inches and February the lowest monthly average of 2.35 inches (NOAA 1992). Binghamton averages 161 days per year with at least 0.01 inch of precipitation. Thunderstorms occur on approximately 30 days per year.

Figure 4 depicts an average wind rose for Binghamton from 1981 to 1985. The wind rose depicts wind direction versus wind speed during all weather conditions at a particular airport site and may vary at different locations. Prevailing winds in the Binghamton area are generally from the west, with a southwesterly component during the warmer months and a northwesterly component prevailing in the colder months. Average wind speed is 10.3 mph (NOAA 1992).

3.2 Topography and Surface Drainage

Broome County is located in the glaciated Allegheny Plateau. The eastern portion of the county is characterized by the rugged Catskill Mountains which rise to 2,000 feet above mean sea level (MSL). The lowest elevation of 800 feet above MSL exists where the Susquehanna River flows west out of the county. The surface topography in the southern part of the county is consistently several hundred feet higher than the northern part because of the erosion-resistant sandstone that caps the hills. Water erosion of the sedimentary rocks and some remodeling by glacial ice sheets of the county have produced a landscape with generally well-rounded, rolling hills (U.S. Department of Agriculture [USDA] 1971).

The topography within a 1-mile radius of the facility ranges from an elevation of 840 feet above MSL west of the facility near the Chenango River to 1,470 feet above MSL northeast of the site (Figure 1). The Ashland facility is predominantly flat and is located 2,100 feet from the Chenango River flood plain. The property has a mean elevation of 870 feet and slopes slightly to the south near the southern portion of the property.

The regional drainage of the area is generally to the west and south. The major water bodies in the area are the Chenango River and Susquehanna River located 2,100 feet west and 4,750 feet south of the facility. A majority of the facility is nearly level and paved with asphalt or covered with structures. Storm water runoff at the facility is primarily collected by onsite storm water catch basins and discharged to the city storm water system. However, the southern portion of the site is grass covered and generally drains to the south.

3.3 Regional Soils

Broome County is located in a transition area between the rugged relief of the Catskill Mountains and the dissected Allegheny Plateau to the west. The area has been glaciated 4 to 10 times (Coates 1981). Each time the glaciers scoured away weathered material and most of the soil deposits from the previous glaciations. As a result, deep soil profiles and pre-Wisconsinan glacial deposits are rare. Glaciation deepened and scoured U-shaped valleys while only a relatively small amount of erosion and glaciated took place on the ridges. Several cycles of river entrenchment to the area have caused some valleys to contain as many as three terrace levels (MacNish 1986).

Most of the material carried by the glaciers was eroded from nearby sources (i.e., 90 percent of the material in a till sheet was carried about 10 miles). Glacial deposits in the Binghamton area contain abundant metamorphic and carbonate rock fragments called "bright drift" (Mullen 1986).

According to the Broome County Soil Survey (USDA 1971), the soil in the vicinity of the facility is part of the Chenango-Howard-Unadilla association. This soil association includes gravelly outwash terraces and silty stream terraces above the flood plains along the major streams. The soils are typically deep, well drained, gravelly or silty soils which range from nearly level on terrace benches to steeply sloping or rolling topography on terrace escarpments. The Ashland facility is located on an outwash terrace near the flood plain of the Chenango River.

3.4 Regional Geology and Hydrogeology

The western portion of New York State represents the Allegheny Plateau. The region consists of Middle and Late Devonian age sandstone and shale layers that make up part of the complex Catskill Delta. The sediments that later formed the bedrock in this area were primarily deposited in marine waters that ranged from a deep basin to near sea level during the Acadian Orogeny. Millions of years after deposition the layers of lithological sediments were uplifted to their present height well above sea level. They were tilted only slightly by the uplift and later carved by erosion to form the present hilly upland.

Much of the rock in the Catskill Mountains east of the site was originally deposited as sediments by rivers near sea level conditions rather than by sea water. This rock commonly has reddish and greenish colors and contains remains of plant and animal fossils. In the rest of the Plateau, most of the Devonian beds were deposited in a marine environment and contain abundant marine fossils. The Devonian rock of the Allegheny Plateau is about 8,000 feet thick near the eastern edge of the Catskill Mountains and gradually decreases to a thickness of about 3,300 feet near Lake Erie.

The surface bedrock of Broome County is comprised of marine siltstones and shales of the Upper Devonian Sonyea Group. The base of the Sonyea Group is comprised of black shale of the Middlesex or Montour Shales, grading up into the Sawmill Creek Shale. These shales grade upwards into either the Rock Steam Siltstone and Polteney Shale or the greenish-gray Cashaqua Shale. The Sonyea Group was

deposited in a shallow sea as distal muds of the Catskill Delta. It is approximately 425 feet thick and is part of a 7,800-foot thick sequence of lower and middle Paleozoic sedimentary rocks that overlie a granitic Precambrian basement.

There are several potential aquifers in northeastern Broome County. The significant water bearing zones include river deposited material, glacially-derived deposits, and bedrock aquifers. The largest producing wells in the county are those located in the sand and gravel underlying the major rivers such as the Susquehanna and Chenango Rivers. These wells average about 150 feet in depth and have the capacity to produce as much as 70,000 gallons of water per day. The glacially derived water bearing zones include glacial till and the more prominent outwash-filled valleys and kames. Glacial tills are typically poor water producing zones due to the high clay and silt contents. However, glacial outwash-filled valleys and kames can be over 40 feet thick and are capable of providing large quantities of groundwater within the region. Glacial outwash zones are primary sources of groundwater in the region. The bedrock water bearing zones are largely restricted to fracture systems and to bedding planes where the strata change from sandstone to shale. The average depth of bedrock wells in the region is 150 feet deep with an average yield of 12 gallons per minute.

3.5 Site Geology and Hydrogeology

As part of the RFA-SV investigation in 1993 and the RFI in 1996, a total of 25 soil borings have been advanced at the site. The soil at the facility is a sandy gravel and gravelly silt with cobbles that were deposited along the eastern edge of the Chenango River flood plain. The Ashland facility is located on a nearly level gravelly outwash terrace that was deposited by glaciers. The sand and gravel is rounded and generally ranges in size from fine to medium. The upper few feet of the soil consist of disturbed native soil or fill material that typically contains pieces of brick and traces of other miscellaneous construction material. The deepest boring (MW-3) was advanced to a depth of 39 feet and the soil type generally remained the same (sandy gravel and gravelly silt) to a depth of 32 feet where it changed to a

greenish brown, non-plastic silt. This silt horizon was only encountered in this boring. Bedrock was not encountered at any of the boring locations. A copy of the boring logs are provided in Appendix A.

Groundwater was encountered in the borings advanced during the RFI at a depth of approximately 32 feet below the ground surface. The general direction of groundwater flow determined from the three monitoring wells is to the south-southwest toward the river.

4.0 Soil Investigation

4.1 Soil Boring Program

A subsurface investigation was conducted during the RFI to characterize the soils near SWMUs 2 and 7. Soil samples were collected from seven soil borings advanced at SWMU 7 and three soil borings that were advanced adjacent to SWMU 2. The soil borings were advanced with the use of a mobile drilling rig using 4.25-inch inside diameter (ID) hollow stem augers. A 3-inch ID split spoon sampler was used to collect soil samples. The lithology of the soil samples retrieved using the split spoon sampler was described by the onsite geologist during sample collection activities.

A headspace analysis was conducted for each soil sample using a flame ionization detector (FID). The head space analyses were performed by filling a sample jar 50 percent full with soil and covering the jar opening with aluminum foil before replacing the cap. The samples were placed in a warm location (e.g., car, indoors) after being collected to expedite volatilization. After at least 15 minutes, the cap was removed and the aluminum foil covering the sample jars was punctured with the probe of the FID and the highest organic vapor reading was recorded.

All samples collected for laboratory analysis were placed in sample jars provided by Savannah Laboratories and Environmental Services, Inc. The jars were precleaned by Savannah Laboratories in accordance with the SW-846 manual for procedures and associated protocols for container cleaning. Each sample collected was properly labeled and documented by a chain of custody. The samples were stored in an ice-filled cooler immediately after collection until being shipped via overnight delivery to the laboratory.

The soil borings not converted to monitoring wells were filled with a bentonite/cement grout. The grout was added to the borehole as the augers were slowly removed. Soil cuttings generated from drilling

were placed in Department of Transportation (DOT) approved 55-gallon containers. The soil was stored onsite and properly managed based on the analytical results of the soil samples.

The procedures implemented during drilling and field sampling activities at SWMUs 2 and 7 are discussed below.

4.1.1 Neutralization Unit (SWMU 2)

Because of limited drilling space near SWMU 2 (due to overhead wires, railroad spur, and the small size of the unit), only three soil borings (B-1, B-2, and MW-1) were advanced next to the neutralization unit (Figure 5). Continuous soil samples were collected from MW-1. Due to the difficult drilling conditions created by gravel and cobbles, ESC requested NYSDEC's approval to modify the sampling intervals for B-1 and B-2 to every 5 feet. During a site visit by Denise Radtke of the NYSDEC on February 7, 1996, the NYSDEC agreed to allow ESC to modify the sampling interval for B-1 and B-2.

Two soil samples from each soil boring were collected. One sample was collected from below the base of the unit and one was collected from above the groundwater and soil interface. Soil samples were collected from B-1 at depths of 5-7 feet and 31-33 feet, from B-2 at depths of 5-7 feet and 30-32 feet, and from MW-1 at depths of 5-7 feet and 29-31 feet. A duplicate sample (B-11) of B-1 (5-7 feet) was collected for quality assurance/quality control (QA/QC) purposes.

Because the unit was primarily used for neutralization of acids and caustics, the soil samples were analyzed for metals (Method 6000 and 7000 series), sulfate (Method 9036), formaldehyde (Method 8315), ammonia (Method 350.1), chloride (Method 9251), nitrate (Method EPA CE), and soil pH (Method 150.1). The soil boring for MW-1 was converted to a monitoring well which was developed and sampled to assess the groundwater quality near SWMU 2.

4.1.2 Former Underground Storage Tank Area (SWMU 7)

Seven soil borings were advanced at SWMU 7 (Figure 5). Soil borings B-3 through B-7 were installed in the backfill of the former tank cavity and B-8 and MW-2 were installed in the undisturbed soil outside of the former tank cavity. Continuous soil samples were collected and used to perform headspace analyses using an FID. A sample for laboratory analysis was collected from each spoon and stored in an ice-filled cooler. Based on the results of the headspace analysis, two soil samples from each of the seven borings containing the highest headspace readings were submitted for laboratory analysis. The samples were analyzed for VOCs using Method 8240; isopropanol and methanol using a modified Method 8015 (aqueous extraction and direct injection); and alkane hydrocarbons, which make up mineral spirits, using Method 8240 by selective ion monitoring at ion 57 using hexane for calibration. A duplicate soil sample was not collected because an insufficient amount of soil remained in the soil sampler after the potential laboratory sample and headspace sample were collected.

4.2 Decontamination Procedures

For the decontamination of drilling and sampling equipment, a decontamination pad was built and lined with polyethylene plastic to contain all decontamination rinsate. All downhole drilling equipment (e.g., augers, rods) were decontaminated between each soil boring location by steam cleaning at the decontamination pad and following the decontamination steps provided for the split spoon samplers. The split spoon samplers were decontaminated between each sample by the following manner:

- wash and scrub with low phosphate detergent
- tap water rinse
- rinse with deionized analyte-free water
- acetone rinse (pesticide grade or better)
- rinse with deionized analyte free water
- air dry
- wrap in aluminum foil for transport, as necessary

Sampling equipment that was used to collect samples for inorganic analysis did not require a solvent rinse. Analyte-free water used for decontamination was supplied by a laboratory and was certified to contain less than three times the method detection limits of methylene chloride, acetone, toluene, MEK, and phthalates, as determined by the most sensitive analytical method and less than the method detection limits for all other analytes, as determined by the most sensitive analytical method.

All decontamination fluids were placed in 55-gallon DOT-approved containers with the proper labels. The decontamination fluids were stored onsite and properly managed based on the analytical results of the decontamination fluid samples.

5.0 Groundwater Investigation

5.1 Monitoring Well Installation

The monitoring well locations are provided in Figure 5. MW-1 was installed near the southwest side of SWMU 2 which is hydraulically downgradient from the intersection of the neutralization unit and process pipeline (SWMU 6). MW-2 was installed in the undisturbed soil along the west side of the former tank cavity of SWMU 7 and hydraulically downgradient of the cavity. MW-3 was installed near the center of the facility. To provide groundwater data regarding SWMU 13 and, along with the other wells, to determine the direction of groundwater flow at the facility. Also, MW-1 and MW-2 are downgradient from SWMUs 6, 11, and 13 and provide groundwater data for these SWMUs.

The boreholes for the wells were advanced through the unconsolidated soil to a depth of 7 feet below the water table which was encountered at an approximate depth of 32 feet. The boreholes were drilled using a truck mounted drilling rig with 4.25-inch ID hollow stem augers. Continuous soil samples were collected and monitored with an FID in the same manner as the soil borings discussed in Section 4.1. Soil samples were collected for headspace analyses from MW-1 and MW-2 and designated samples were submitted for laboratory analysis at the depths described in Section 4.0. Continuous soil samples were collected from MW-3 below a depth of 15 feet to determine the proper depth for installing the well. Soil samples were collected in this area during the RFA-SV; therefore, soil samples were not collected for laboratory analysis from this location.

The wells were constructed with 2-inch ID, Schedule 40 polyvinyl chloride (PVC) casing with threaded joints. The well casing was shipped to the facility sealed in plastic. The wells were screened with a 10-foot section of 0.02-inch factory slotted PVC well screen. The screen was positioned so that approximately 7 feet of the screen was below the water table. The annular space around the screen was filled with a quartz sand pack up to 2 feet above the top of the screen. A 2-foot bentonite seal was added,

and after sufficient hydration of the seal, the remaining annular space was filled with a bentonite-cement grout. The grout was placed in the borehole to approximately 1 foot below ground surface. The monitoring wells were completed with a flush-mounted curb box set in concrete. Each concrete well pad was built so that it slopes away from the well to reduce surface water infiltration in the protective casings. The wells were capped with an expansion cap and keyed alike locks. A copy of the as-built well diagrams are provided in Appendix B.

5.2 Well Development

The wells were developed at least 24 hours after installation. The monitoring wells were developed to remove any fine sediment or foreign material in the wells. Well development consisted of evacuating the wells by either pumping with a submersible pump or hand-bailing. The wells were periodically surged with a bailer or pump during development activities. Development activities were performed until the water appeared free of fines and field measurements of specific conductance, temperature, and pH stabilized.

The water generated from development was placed in 55-gallon DOT-approved containers and secured onsite at a designated area. The filled drums were properly labeled. The development water was managed and disposed of properly based on the groundwater sampling results.

5.3 Groundwater Elevation Monitoring

Before sampling activities, the water in the wells was allowed to equilibrate before a water level measurement was collected using an electronic water level indicator. Latex surgical gloves were used during handling of water measurement equipment and replaced between each well. Measurements were taken from a designated side of the top of the PVC casings and were recorded to the nearest hundredth of a foot. The groundwater elevation data were used to determine the hydraulic gradient at the facility. The total depth of each well was also measured to calculate the volume of water to be purged from each

well before sampling. All downhole measuring equipment was decontaminated before being placed in each well.

5.4 Groundwater Sampling and Analytical Methods

On February 16, 1996, the three monitoring wells (MW-1, MW-2, and MW-3) were purged and sampled for VOCs (Method 8240), isopropanol and methanol (Method 8015 using direct aqueous injection), alkane hydrocarbons (Method 8240 by selective ion monitoring at ion 57 using hexane for calibration), and formaldehyde (Method 8315). On April 10, 1996, the wells were purged and sampled for total and dissolved TAL metals (Method Series 6000 and 7000), SVOCs (Method 8270), pesticides (Method 8080), and PCBs (Method 8080). The groundwater sampling results are discussed in Section 6.0.

Polyethylene sheeting was placed around each well to prevent the sampling equipment from contacting the ground surface during purging and sampling activities. Surgical gloves were worn by all personnel involved with sampling and replaced between each well location. The wells were to be purged using a peristaltic pump with Teflon tubing but the groundwater was to deep to pull the water to the surface. Therefore, the water was removed using a new, disposable Teflon bailer with dedicated nylon rope and a Teflon-covered wire leader. The wells were considered purged after a minimum of three well volumes were removed. Field measurements were collected for pH, specific conductance, and temperature to verify that the water had stabilized before samples were collected. Stabilization of the water was confirmed when a change in field measurements was less than 5 percent from the previous reading. Also, a turbidity meter was used to measure the turbidity of the water.

Following purging, groundwater samples were collected using new, disposable Teflon bailers with a Teflon leader. At each well location, organic samples were collected first followed by inorganic samples. All samples were collected in sample jars pre-preserved by the laboratory. Sample containers, holding times, and preservative requirements are summarized in the Quality Assurance Project Plan (QAPP).

6.0 Summary of Results

6.1 Soil Sampling Results from RFA-SV

The RFA-SV investigation of SWMUs 6, 8, 11, and 13 was conducted during September 1993, and the RFA-SV report summarizing the results of the investigation was submitted to the EPA and NYSDEC on November 19, 1993. The report concluded that trace concentrations of various analytes were detected in the soil samples below cleanup objective levels. Based on the results, the EPA and NYSDEC concluded that no further soils investigation was warranted at SWMUs 6, 8, 11, and 13. A summary of the VOCs soil sampling results are provided in Table 1, and the inorganic soil sampling results are provided in Table 2. A discussion of the RFA-SV results are provided below.

6.1.1 Process Pipeline - SWMU 6

During the RFA-SV, three soil samples (SS-1, SS-2, and SS-3) were collected from the soils adjacent to the process pipeline (SWMU 6) and analyzed for VOCs, alkane hydrocarbons, formaldehyde, inorganic compounds, and pH (Figure 3). Acetone was detected at 0.11 mg/kg in one sample which is equal to the NYSDEC cleanup objective. However, acetone was used as part of the decontamination process for the split spoon sampler and is also a common laboratory contaminant. Based on the QA/QC review of the analytical data, acetone was classified as a laboratory contaminant for this sample. No other VOCs detected in these soil samples exceeded the cleanup objectives. Formaldehyde was not detected in the three samples and the levels of inorganics appear to be similar to background concentrations except for sodium and sulfate which exceed the background levels (i.e., non-detectable levels). The method detection limits for the background samples for sodium and sulfate were 56 mg/kg and 110 mg/kg.

6.1.2 Former Waste Piles - SWMU 8

Three samples (SS-4, SS-5, and SS-6) collected from the area where the former waste soil piles (SWMU 8) were stored and analyzed for VOCs, alcohols, and alkane hydrocarbons. Alkane hydrocarbons were detected in all samples at concentrations ranging from 0.021 mg/kg to 0.0026 mg/kg. Based on the QA/QC review of the analytical data, the alkane hydrocarbons are likely a result of blank contamination. No VOCs or alcohols were detected in any of the samples. The lack of VOCs and the low concentrations of alkane hydrocarbons (probably blank contamination) indicate that the former waste soil piles had no adverse affects on the underlying soils.

6.1.3 Post-Treatment Sewer - SWMU 11

Three soil samples (SS-7, SS-8, and SS-9) were collected from the soil adjacent to the post-treatment sewer (SWMU 11) and analyzed for VOCs, SVOCs, formaldehyde, and inorganics (Figure 3). Total VOCs ranged from not detected to 0.108 mg/kg. None of the VOCs detected in the soils (methylene chloride, tetrachloroethene [PCE], trichloroethene [TCE], and toluene) exceed the NYSDEC soil cleanup objectives. Bis(2-ethylhexyl)phthalate was detected in two samples SS-8 and SS-9 at concentrations of 0.52 mg/kg and 0.50 mg/kg. Fluoranthene was detected in sample SS-9 at a concentration of 0.40 mg/kg. The concentrations of SVOCs detected in the samples are at least two orders of magnitude below the cleanup objective levels. Formaldehyde was detected in two samples at 0.58 mg/kg and 1.2 mg/kg. There is no cleanup objective level for formaldehyde. The levels of the inorganic compounds were below or only slightly above the background levels except for sodium and sulfate which were detected above background concentrations. The method detection limits for the background samples for sodium and sulfate were 56 mg/kg and 110 mg/kg.

6.1.4 Sewer Drain System - SWMU 13

Five soil samples (SS-10 through SS-14) collected from the soil adjacent to the storm drain system (SWMU 13) were analyzed for VOCs, SVOCs, alkane hydrocarbons, formaldehyde, and inorganics. No

VOCs or SVOCs were detected above the cleanup objective levels. Alkane hydrocarbons were detected in all samples ranging at concentrations from 0.008 mg/kg to 0.019 mg/kg. The alkane hydrocarbons detected in samples SS-11, SS-12, and SS-13 were attributed to probable blank contamination. Formaldehyde and alcohols were not detected in any of the samples, and the levels of inorganic compounds were below or only slightly above the background levels.

6.2 Soil Sampling Results from RFI

6.2.1 Neutralization Unit - SWMU 2

A headspace analysis was performed on the samples collected from the three soil borings (B-1, B-2, and MW-1) advanced near the neutralization unit. Total VOC vapors detected in the headspace of the soil samples ranged from not detected to 58 ppm at MW-1 (35 - 37 feet) which was collected below the water table. All but two of the headspace results were below 10 ppm. The results of the headspace analysis for the samples are presented in Table 3.

Six soil samples and a duplicate sample were collected near the neutralization unit and analyzed for TAL metals, formaldehyde, and inorganic compounds (Table 4). The metal results indicate that mercury was detected in B-2 (5-7 feet) at 1 mg/kg and in MW-1 (29-31 feet) above the NYSDEC cleanup objective of 0.1 mg/kg. Chromium was detected in B-1 (5-7 feet) at 11.8 mg/kg, B-2 (5-7 feet) at 15.3 mg/kg, and MW-1 (29-31 feet) at 24 mg/kg which is above the cleanup objective of 10 mg/kg. No background soil samples for metals were collected at the site.

The New York background levels (TAGM 4046) for chromium range from 1.5 mg/kg to 40 mg/kg. Therefore, the chromium concentrations detected in soils at the Ashland facility are within the normal range of chromium concentration for soils in the state of New York. Arsenic, barium, and lead were detected above NYSDEC cleanup objectives. Formaldehyde was detected at estimated values of 0.099 mg/kg in B-1 (5-7 feet), 0.1 mg/kg in B-1 (31-33 feet), 0.12 mg/kg in B-2 (5-7 feet), and 0.16

mg/kg in MW-1 (29-31 feet). A cleanup objective level does not exist for this analyte. The inorganic compounds that were analyzed include ammonia-nitrogen, nitrate, sulfate, and pH. Ammonia-nitrogen was only detected in 1 sample (B-2, 5 to 7 feet) at 1.2 mg/kg, nitrate was only detected at 15 mg/kg in two samples (B-1, 31-33 feet and B-2, 30-32 feet), sulfate ranged from below the detection limit to 2,700 mg/kg, and pH ranged from 6.15 to 6.63. The soil laboratory data are provided in Appendix C and the QA/QC review is provided as Appendix D.

6.2.2 Former Underground Storage Tank Area - SWMU 7

A headspace analysis was performed on soil samples that were continuously collected from the seven soil borings (B-3 through B-8 and MW-2) advanced at the former underground storage tank area. Total VOC vapors detected in the headspace of the soil samples ranged from below detection limit to 320 ppm at MW-2 (35-37 feet). All but three of the headspace results were less than or equal to 10 ppm. The results of the headspace analysis are presented in Table 3.

Fourteen soil samples collected at the former underground storage tank area were analyzed for VOCs, alkane hydrocarbons, and alcohols (Table 5). The VOC analytical results indicate that total VOCs were detected in the samples ranging from 0.03048 mg/kg in B-7 (23-25 feet) to 0.3799 mg/kg in B-3 (8-10 feet). Individual VOCs were not detected in any of the samples above their respective NYSDEC cleanup objective levels. Alkane hydrocarbons were detected in samples ranging from 0.29 mg/kg in MW-2 (11-13 feet) to 9 mg/kg in B-7 (12-14 feet). Only two alcohols (methanol and isopropanol) were detected in the soil samples. Methanol was detected in four samples ranging from 1.1 mg/kg in B-6 (21-23 feet) and B-7 (12-14 feet) to 1.8 mg/kg in MW-2 (27-29 feet). Isopropanol was only detected in B-8 (8-10 feet) at an estimated value of 0.00026 mg/kg. There are no cleanup objective levels for alkane hydrocarbons, methanol, and isopropanol. However, the concentrations detected for these constituents are low and the soils do not appear to be a source area.

6.3 Groundwater Elevation Monitoring Results

The horizontal locations of the monitoring wells and permanent facility structures were surveyed to the nearest 1.0 foot. The vertical elevation of the top of the each steel protective curb box and the northern side of the top of the PVC well casings were surveyed to the nearest 0.01 foot. Because there are no surveyed points in the area that are surveyed to mean sea level, a 100-foot datum point was referenced at the site for surveying the top of the monitoring wells. The survey was performed by ABD Engineers & Surveyors of Schenectady, New York, a licensed surveying company registered in the state of New York.

On February 29 and April 10, 1996, water level measurements were collected from MW-1, MW-2, and MW-3. The data were used to calculate the groundwater elevations, the direction of groundwater flow, and the hydraulic gradient at the facility. The water elevation data for each well are presented in Table 6. Based on the results of two water level measurement activities, the direction of groundwater flow at the facility is to the southwest. A groundwater contour map using the April 10 data is provided as Figure 6. The data also indicate little change (less than 0.05 foot) between the February and April measurements. The hydraulic gradient at the site is approximately 0.0004 which is relatively flat.

6.4 Groundwater Sampling Results

During the week of February 29, 1996, the wells were purged and sampled for VOCs, alcohols, and alkane hydrocarbons. On April 10, the wells were repurged and sampled for SVOCs, pesticides, PCBs, and total and dissolved TAL metals. Field measurements were recorded for each well during the well purging process. Field measurements included temperature, specific conductance, pH, and turbidity. The measurements for the final purge volumes for each well recorded during the April sampling event indicated that the pH ranges from 7.41 to 7.99, specific conductance ranges from 949 to 1,330 umhos, and temperature ranges from 38.2 °C to 41.2 °C (excluding MW-1). The turbidity readings for MW-1

and MW-2 exceeded 1,000 NTUs, and for MW-3 the turbidity was 523 NTUs. The field measurements collected from both sampling events are provided in Table 7.

A summary of the groundwater sampling results for the three monitoring wells are presented in Table 8. The results indicate that nine VOCs were detected in the samples and the total VOCs ranged from 0.0348 mg/l in MW-2 to 0.1664 mg/l in MW-3. Samples collected from all three wells contained three VOCs slightly above the NYSDEC stringent groundwater drinking water quality standard of 0.005 mg/l established for these constituents. The VOCs detected above the quality standards include cis-1,2-dichloroethene (DCE) ranging from 0.0086 mg/l to 0.024 mg/l, TCE ranging from 0.013 mg/l to 0.055 mg/l, and PCE 0.009 mg/l to 0.36 mg/l. In addition, 1,1,1-trichloroethane (TCA) was detected in MW-1 (0.04 mg/l) and MW-3 (0.55 mg/l) above the groundwater quality standard of 0.005 mg/l, and carbon tetrachloride was detected in MW-3 (0.0074 mg/l) above the groundwater quality standard of 0.005 mg/l.

Methanol was the only alcohol detected in the wells and it ranged in concentration from 1.5 mg/l in MW-3 to 21 mg/l in MW-1. The concentration of methanol detected in MW-1 was slightly above the groundwater quality standard of 18 mg/l.

Total alkane hydrocarbons ranged in concentrations from 0.012 mg/l in MW-3 to 0.14 mg/l in MW-2. There is no groundwater quality standard for total alkane hydrocarbons.

Only two SVOCs were detected in the groundwater samples, and they were only detected in MW-2. Di-n-butylphathalate was detected at an estimated concentration of 0.0011 mg/l, and bis(2-ethylhexyl)phthalate was detected at an estimated concentration of 0.0036 mg/l. Both SVOCs were detected at concentrations below the groundwater quality standard of 0.05 mg/l.

A total of six pesticides were detected in the samples collected from the three wells. MW-1 contained 0.000016 mg/l of gamma-chlordane. MW-2 contained an estimated 0.000015 mg/l of endosulfan sulfate and an estimated value of 0.000031 mg/l of gamma-chlordane; and MW-3 contained an estimated 0.0000079 mg/l of dieldrin, an estimated 0.0000034 mg/l of 4,4'-DDE, an estimated 0.000005 mg/l of endrin, and an estimated 0.00001 mg/l of 4,4'-DDT. The concentration of gamma-chlordane detected in MW-2 (0.000031 mg/l) is above the groundwater quality standard (0.00002 mg/l). Dieldrin, 4,4'-DDE, and 4,4'-DDT were detected in MW-3 at parts per trillion levels but are above the groundwater quality standard for these compounds because the standard is non-detectable. These chemicals have never been handled at the facility but may have been historically applied to the lawn or surrounding properties.

The groundwater samples were analyzed for total and dissolved TAL metals. The samples analyzed for total metals contained several metals above the groundwater quality standards. However, due to the high turbidity (523 NTUs to greater than 1,000 NTUs) measured in the wells during purging activities, the elevated metal concentrations are likely due to the presence of suspended sediment in the samples. The dissolved metal results reflect a more accurate representation of the concentration of metals in the groundwater. Based on the dissolved metal results, MW-2 and MW-3 contained manganese at 0.518 mg/l and 0.448 mg/l which are slightly above the groundwater quality standard of 0.3 mg/l. Sodium was detected above the groundwater quality standard of 20 mg/l in all three wells. The highest concentration of sodium was detected in MW-3 at 47.1 mg/l. Additionally, iron was detected in MW-3 at 0.421 mg/l which slightly exceeds the groundwater quality standard of 0.3 mg/l. None of the RCRA metals were detected in the filtered samples at concentrations exceeding the NYSDEC groundwater quality standards. A copy of the groundwater laboratory analytical results are provided in Appendix E.

7.0 Conclusions

7.1 Soils

Following the implementation of the RFA-SV, it was agreed by Mr. Paul Counterman, Chief, Bureau of Western Hazardous Waste Programs, of the NYSDEC, in a letter dated June 27, 1994, (Appendix F) that no further characterization of the soils at SWMUs 6, 8, 11, and 13 was necessary. Thus, the RFI soil investigation focussed on SWMUs 2 and 7.

7.1.1 Neutralization Unit - SWMU 2

The soil sampling results of SWMU 2 indicate that a sample collected from B-2 and a sample collected from MW-1 contained mercury slightly above the cleanup objective. Chromium was detected in samples collected from B-1, B-2, and MW-1 above the cleanup objective but within the normal range of chromium concentration for soils in the state of New York.

Inorganic compounds including ammonia-nitrogen, nitrate, and sulfate were detected in some of the samples. Also, formaldehyde was detected in four samples. There are no cleanup objective levels for the formaldehyde inorganic parameters, except for sodium which is site background.

Mercury was detected at low concentrations in two of the soil samples. Sodium was detected in samples above the site background levels of not detected, but within the soil background levels for eastern United States (TAGM 4046). No other samples collected near the neutralization unit contained analytes above the NYSDEC cleanup objectives. The groundwater sample collected from MW-1 located next to the unit did not contain dissolved mercury or chromium above the groundwater quality standard, indicating that the soil is not impacting the groundwater beneath this unit. Based on these results, it appears that the soils adjacent to the neutralization unit have not been adversely impacted. Therefore, no further soils investigation is recommended for SWMU 2. In addition, periodic groundwater sampling of MW-1 located

downgradient of this unit will provide groundwater data for this SWMU and enable Ashland to monitor the effect of any residual concentrations of constituents present and the soil or the water quality below this unit.

7.1.2 Former Underground Storage Tank Area - SWMU 7

The soil sampling results for SWMU 7 indicate that VOCs were detected in the samples at low concentrations, but all concentrations were below cleanup objective levels. Total alkane hydrocarbons were also detected in all of the samples at low levels (less than 9 mg/kg). A cleanup objective has not been established for this group of compounds.

Methanol was detected in four samples collected from three soil boring locations. The highest concentration of methanol was 1.8 mg/kg. Also, isopropanol was detected in one soil sample at very low concentrations (0.00026 mg/kg). A cleanup objective level does not exist for either alcohol.

The soil sampling results indicate that some of the constituents formerly stored in the underground storage tanks or degradation products of these chemicals are present at low concentrations in the soils in this area. However, none of the constituents detected exceed NYSDEC cleanup objective levels. These low concentrations indicate that a small amount of these chemicals may have been released to the soil during operation of the tanks or during removal of the tanks (i.e., product released from the lines during removal activities). However, the results indicate that any potential releases from the tanks did not adversely affect the soils adjacent to the tank cavities. Based on the sampling results for SWMU 7, no further soil investigation is necessary for this unit. In addition, periodic groundwater sampling of MW-2 located downgradient of the tank cavity will provide groundwater data for this SWMU and enable Ashland to monitor the affect of any residual concentration of constituents present in the soil and the water quality below this area.

7.2 Groundwater

The groundwater sampling results indicate that five VOCs were detected in the samples above the NYSDEC groundwater quality standards. The highest concentration of VOCs, in particularly TCE and PCE, were detected in the sample collected from MW-3. This well is located near the center of the facility and is not located near any former or active chemical handling or storage area. A comparison of the soil sampling results of the RFA-SV and the groundwater sampling results of the RFI indicates that SWMU 13, which is upgradient of MW-3, does not contain TCE and PCE above the soil cleanup objectives. This indicates that SWMU 13 is not the source for these analytes. Therefore, Ashland believes that the source of these analytes may be from an offsite source or a result of a small, incidental historical release. Also, except for cis-1,2-DCE, a degradation product of PCE and TCE, the concentrations of these analytes were detected at lower concentrations at the two downgradient wells (MW-1 and MW-2). The groundwater samples collected from the two downgradient wells indicate that natural dispersion, attenuation, and degradation in the unconsolidated water bearing zone is potentially causing the VOCs to decrease in concentrations over a short distance (i.e., 150 feet). The presence of cis-1,2-DCE, and possibly TCE, indicate that natural biodegradation of VOCs is taking place. These two natural occurrences (rapid attenuation and biodegradation) are further reducing the health risks associated with the groundwater at the facility.

Total alkane hydrocarbons were detected in the samples at concentrations less than 0.15 mg/l. There is no groundwater quality standard for this group of compounds. The concentration of methanol at MW-1 slightly exceeded the standard of 18 mg/l. Two SVOCs were detected in MW-2 at low concentrations below the groundwater quality standards. No PCBs were detected in the any of the groundwater samples.

Three pesticides were detected in MW-3 above the non-detect groundwater quality standard and one pesticide was detected in MW-2 slightly above the groundwater quality standards. The concentration

of pesticides in the groundwater are all in the low parts per trillion range and do not suggest or support that a release of pesticides occurred or that a source of pesticides exists at the site. Pesticides have not been handled at the Ashland facilities but may have been historically applied to the lawn at the facility, adjacent railroad, or other offsite properties. In addition, 3 of the 4 pesticides detected above the groundwater quality standards were detected in MW-3 which is located near the center of the facility and upgradient of all SWMUs except the storm drain system. Only one downgradient well, MW-2, contained one pesticide slightly above the groundwater quality standard.

The results of total metals indicate that several analytes are above the groundwater quality standards; however, the high turbidity in the water likely caused the metal concentrations to be elevated. As recommended in TAGM 4015, the wells were sampled for dissolved metals and contained manganese, iron, and sodium above the groundwater quality standards.

Overall the groundwater sampling results indicate that the identified constituents do not pose a concern because of their low concentrations and appears to be restricted to the center of the facility.

8.0 Recommendations

Based on the results of the RFI conducted at the Ashland Binghamton facility, the following recommendations are proposed to complete the RFI.

- obtain confirmation from the NYSDEC and EPA that sufficient soil data have been collected to assess the soil characteristics at SWMUs 2 and 7 and that no further investigation of the soils at the facility is necessary
- collect four quarters of groundwater samples from MW-1, MW-2, and MW-3 and analyze the samples for VOCs, formaldehyde, alkane hydrocarbons, and methanol
- review the results of the four quarters of groundwater sampling data
- submit a final RFI report for the Binghamton facility on approval of the NYSDEC and EPA that no further investigation is needed

9.0 Final RFI Report and Progress Report

A final RFI report, which also describes the activities and results of the proposed additional groundwater sampling, will be prepared and submitted to the NYSDEC and EPA after the agencies have agreed that no further investigation is necessary to complete the RFI.

Progress reports which provide a brief description of each quarterly sampling event and the groundwater results will be submitted to the agencies 30 days following receipt of the final data from the laboratory.

10.0 References

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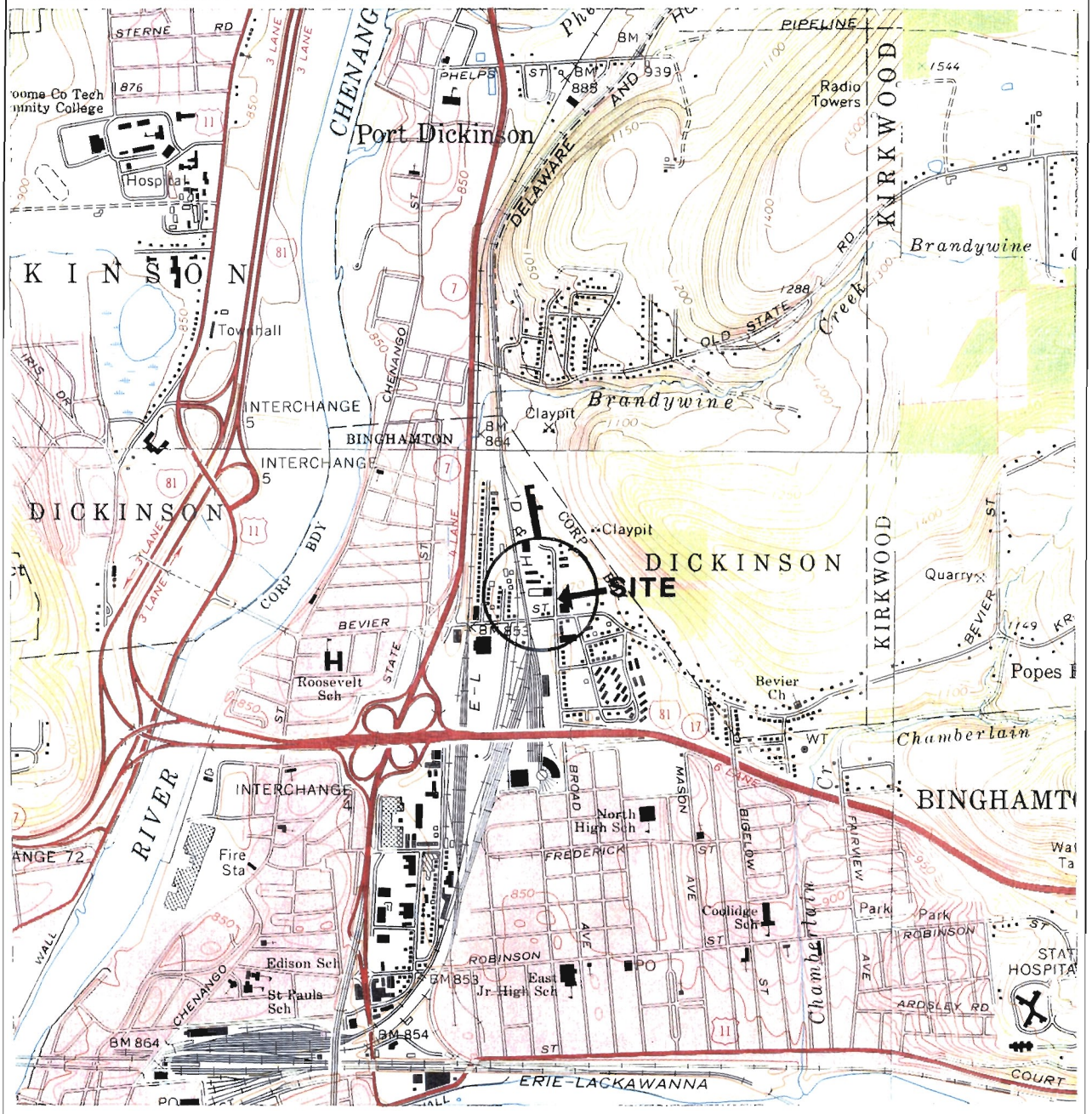

ENVIRONMENTAL STRATEGIES CORPORATION
Four Penn Center West • Suite 315
Pittsburgh, Pennsylvania 15276
(412) 787-5100

Figure 1
Site Location
Ashland Chemical Company
Binghamton, New York

N 77.9
E 16.0

DRAINS
(SWMU 13)

WAREHOUSE #4

BENCH MARK
FINISHED FLOOR
AT DOOR WAY
ELEV. = 100.00'

N 66.1
E 75.5

RAMP

FORMER UNDERGROUND
TANK AREA (SWMU 7)

FORMER PROCESS
PIPELINE (SWMU 6)

FORMER POST-TREATMENT
SEWER (SWMU 11)

NYSE&G 96

GUY WIRE

NYSE&G 97

CONC. PIT

FORMER NEUTRALIZATION
UNIT (SWMU 2)

N 272.2
E 58.6

LOADING DOCK

FORMER
ABOVEGROUND
TANK FARM AREA

CONC
PAD
REMAINS

GRAVEL

BUILDING
REMAINS
(FORMER
WAREHOUSE #3)

METAL BUILDING

WAREHOUSE
#2 (UPPER)

WAREHOUSE
#2 (UPPER)

LOADING DOCK

ASPHALT

ASPHALT

APPROXIMATE PROPERTY LINE LOCATION

BEVIER STREET

GRASS

N 128.3
E 173.1

STORM DRAIN
SYSTEM (SWMU 13)

N 233.2
E 197.6

N 88.6
E 166.1

FIRST RECOVERY
BUILDING

FORMER TRUCK
UNLOADING PAD
(APPROXIMATE
LOCATION)

ASPHALT

GRASS

ASPHALT

HAZARDOUS WASTE
STORAGE AREA

WAREHOUSE
#1

OFFICE

BROAD STREET

LEGEND

o CATCH BASIN

SCALE, FEET
0 40 80

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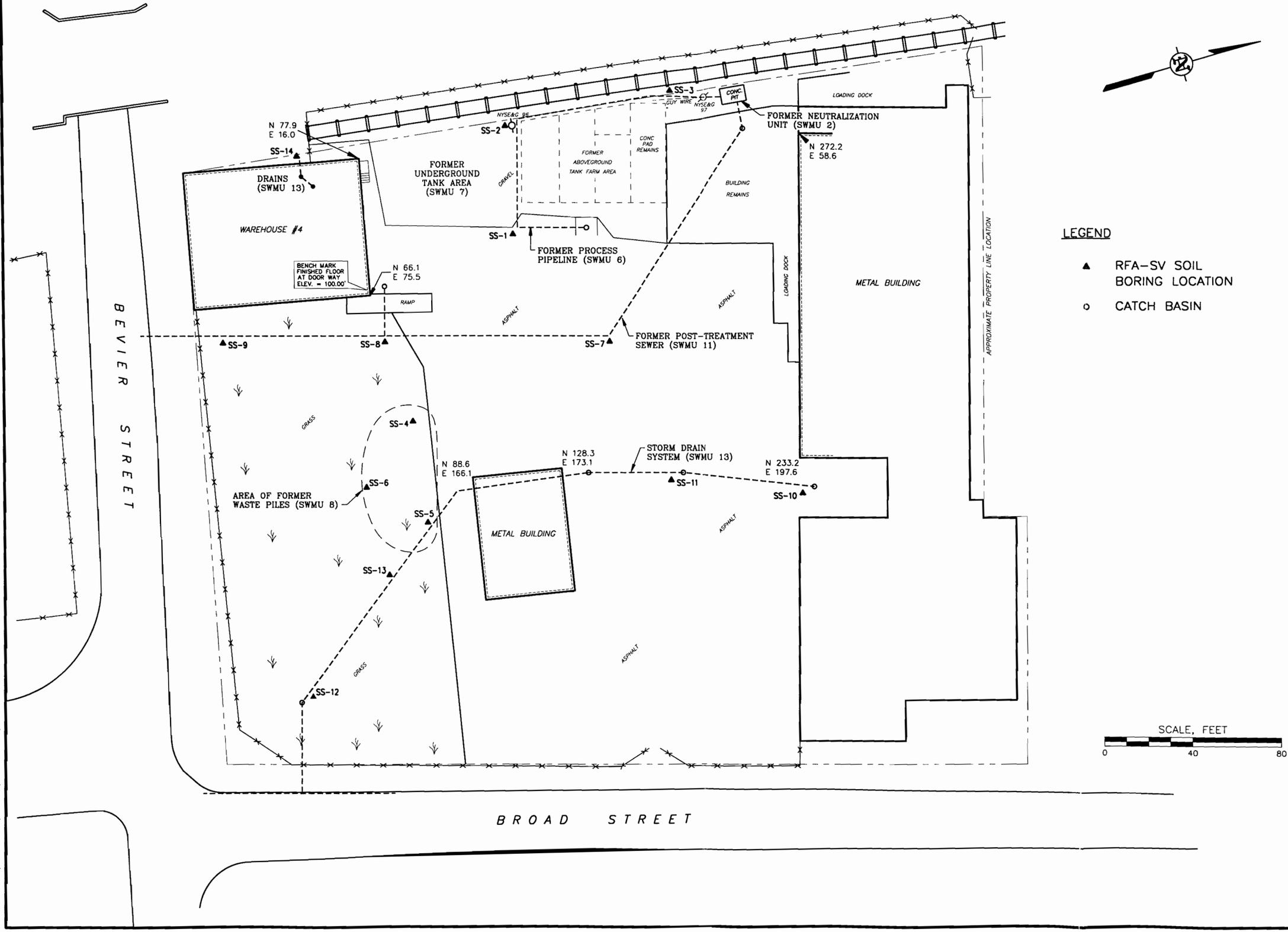
Checked:
Approved:
Drawing Number: 461623-B1

ASHLAND CHEMICAL COMPANY
BINGHAMTON, NEW YORK
PREPARED FOR
ASHLAND CHEMICAL COMPANY
DUBLIN, OHIO

Figure 2
SITE
LAYOUT

ENVIRONMENTAL
STRATEGIES CORPORATION
Four Penn Center West, Suite 315
Pittsburgh, Pennsylvania 15276
(412) 787-5100
ESC



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Drawing Number: 461623-B2

ASHLAND CHEMICAL COMPANY
BINGHAMTON, NEW YORK
PREPARED FOR
ASHLAND CHEMICAL COMPANY
DUBLIN, OHIO

Figure 3
RFA-SV SOIL BORING
LOCATIONS

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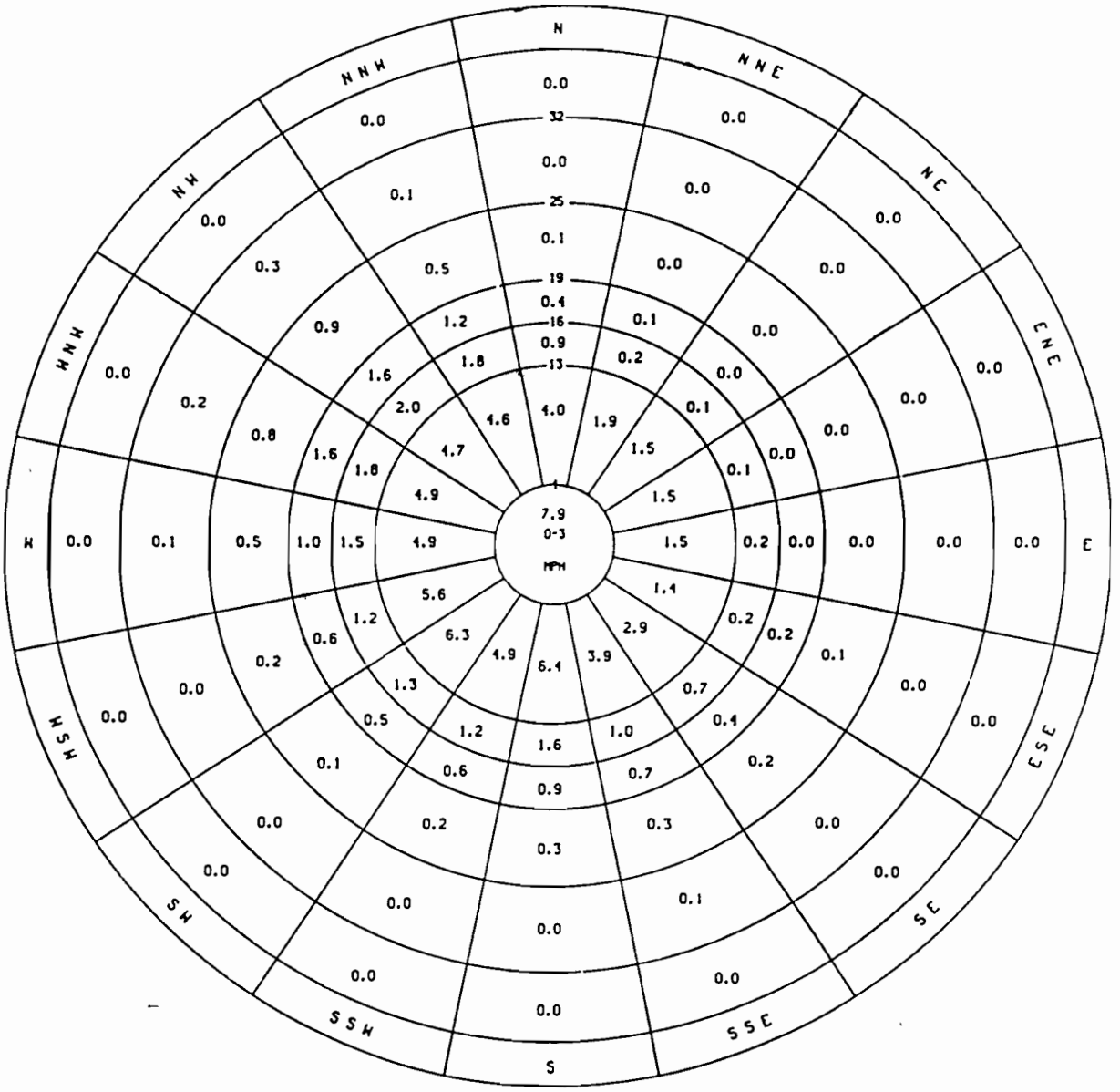
Four Penn Center West, Suite 315
Pittsburgh, Pennsylvania 15276
(412) 787-5100
ESC

BGM Binghamton, New York
Class 7

Ceiling-Visibility
Wind Graph



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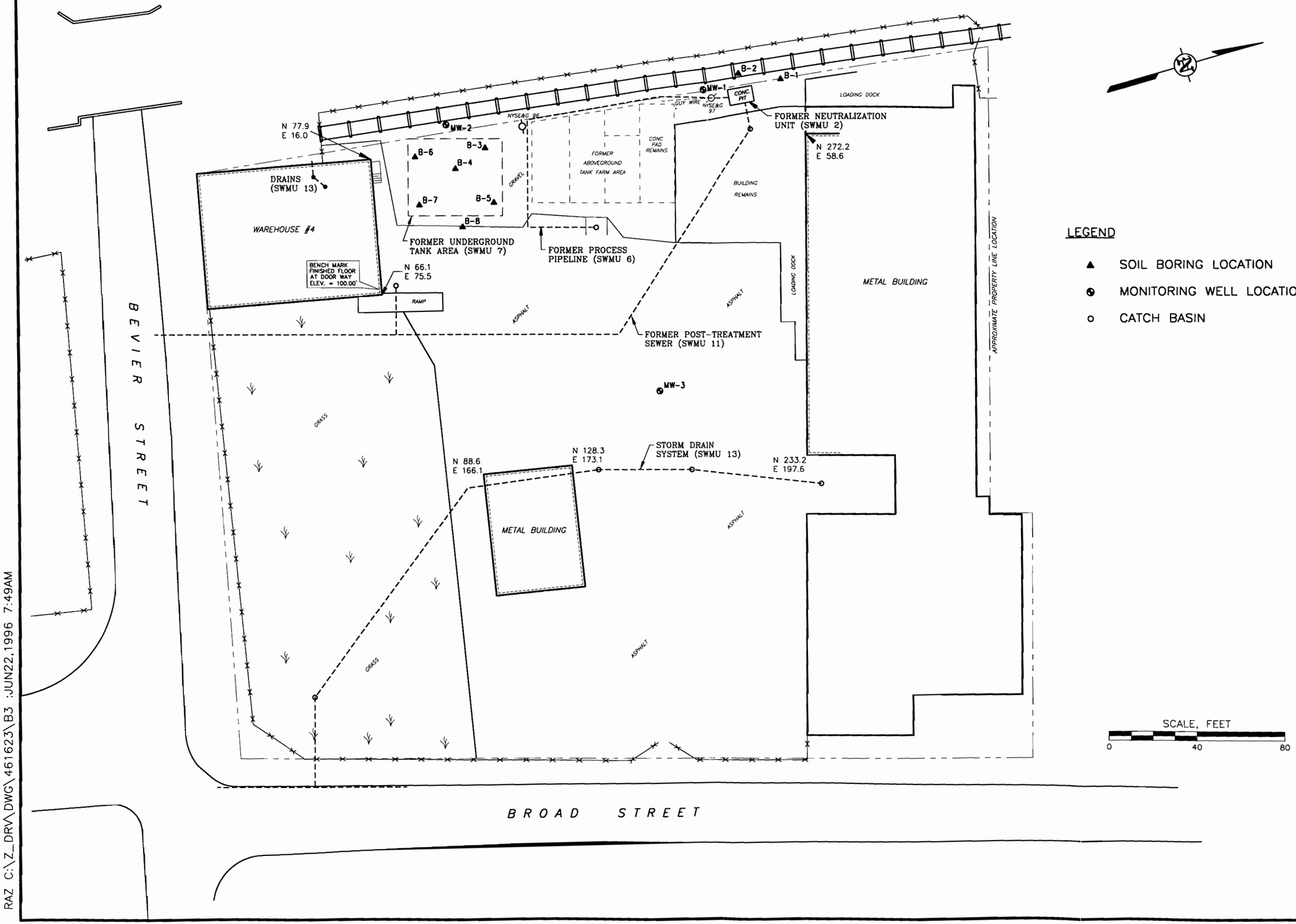
Pittsburgh, Pennsylvania 15276
(412) 787-5100

Figure 4
Wind Rose for Binghamton, New York
Ashland Chemical Company
Binghamton, New York

LOTUS\PA940\WPF-4.DRW



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Approved:
Drawing Number: 461623-B3

ASHLAND CHEMICAL COMPANY
BINGHAMTON, NEW YORK
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DUBLIN, OHIO

Figure 5

RFI SOIL BORING AND MONITORING WELL LOCATIONS

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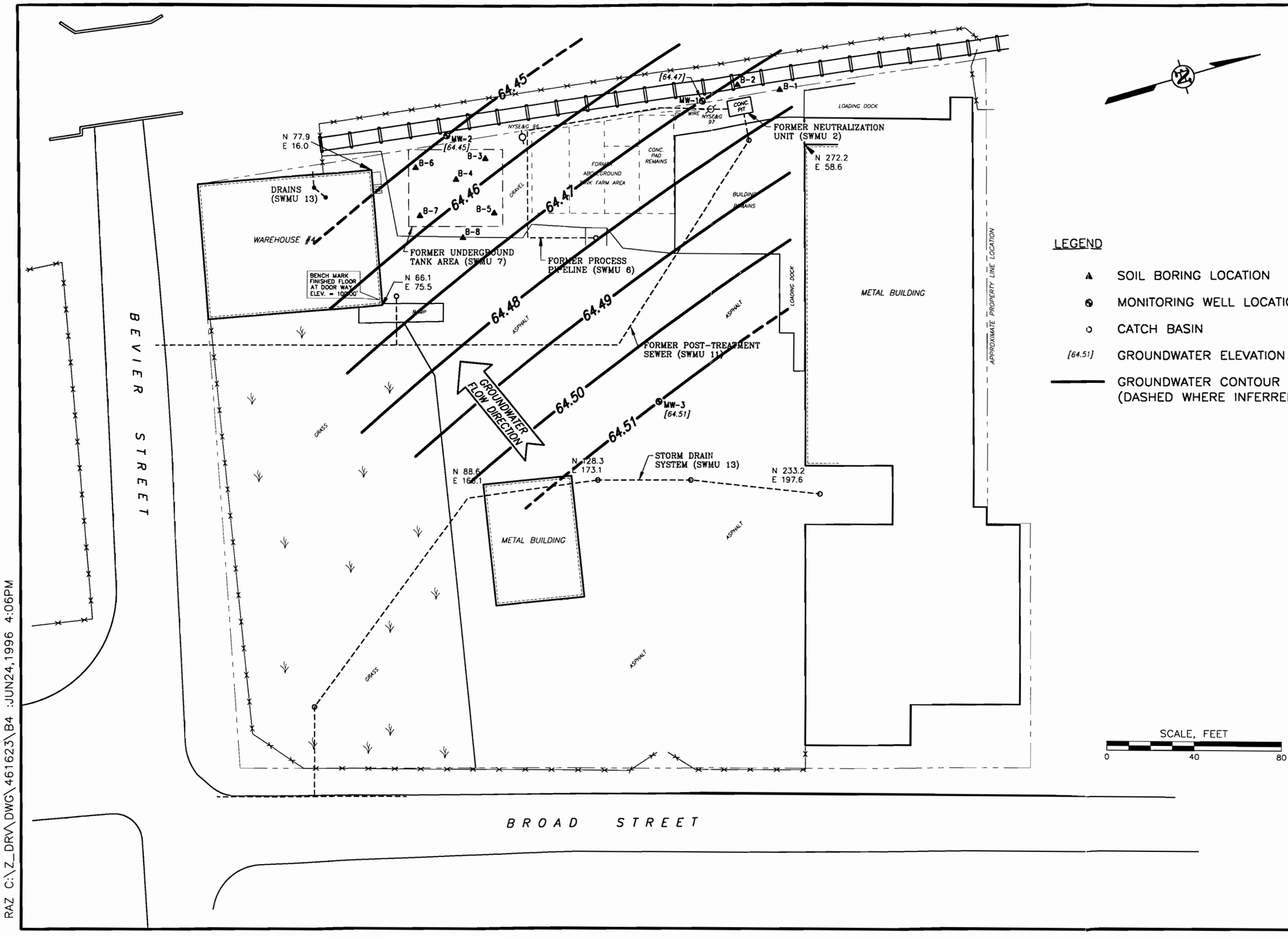

LEGEND

- ▲ SOIL BORING LOCATION
- ⊕ MONITORING WELL LOCATION
- o CATCH BASIN
- [64.51] GROUNDWATER ELEVATION
- ——— GROUNDWATER CONTOUR (DASHED WHERE INFERRED)

SCALE, FEET
0 40 80

Drawn By: RAZ 062296
Checked:
Approved:
Drawing Number: 461623-B4

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BINGHAMTON, NEW YORK
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DUBLIN, OHIO

Figure 6
GROUNDWATER CONTOUR MAP
APRIL 10, 1996

ENVIRONMENTAL STRATEGIES CORPORATION
Four Penn Center West, Suite 315
Pittsburgh, Pennsylvania 15276
(412) 787-5100

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Table 1

VOC and SVOC Soil Sampling Results
Ashland Chemical Company
Binghamton, New York
September 7 to 10, 1993 (mg/kg)(a)

Analyte	Cleanup Objective (b)	SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9
Volatile Organics										
Acetone	0.11	ND	ND	0.11 B	ND	ND	ND	ND	ND	ND
Methylene chloride	0.1	ND	ND	0.012 J	ND	ND	ND	ND	0.068 B	ND
Tetrachloroethene	1.4	0.012 J	0.017 J	0.007 J	ND	ND	ND	ND	0.01	0.024
Trichloroethene	0.7	0.012 J	0.017 J	0.01 J	ND	ND	ND	ND	0.023	ND
Toluene	1.5	ND	ND	ND J	ND	ND	ND	ND	0.007	0.007 J
Total VOCs		0.024 J	0.034 J	0.139	ND	ND	ND	ND	0.108	0.031 J
Alkane Hydrocarbons	NE	0.069	0.018 B	0.002 B	0.021 B	0.0026 B	0.0026 B	NA	NA	NA
Alcohols										
Methanol	NE	NA	NA	NA	ND	ND	ND	NA	NA	NA
Isopropanol	NE	NA	NA	NA	ND	ND	ND	NA	NA	NA
Semi-Volatile Organics										
Fluoranthene	1900	NA	NA	NA	NA	NA	NA	ND	ND	0.4
bis (2-Ethylhexyl) phthalate	438	NA	NA	NA	NA	NA	NA	ND	0.52	0.5
Formaldehyde	NE	ND	ND	ND	NA	NA	NA	ND	0.58	1.2

\461623\rfi\tab1

Table 1
(continued)

VOC and SVOC Soil Sampling Results
Ashland Chemical Company
Binghamton, New York
September 7 to 10, 1993 (mg/kg)(a)

Analyte	Cleanup Objective (b)	SS-10	SS-11	SS-12	SS-21 (c)	SS-13	SS-14
Volatile Organics							
Acetone	0.11	ND	ND	ND	ND	ND	ND
Methylene chloride	0.1	ND	ND	ND	ND	ND	0.013 B
Tetrachloroethene	1.4	ND	0.014	ND	ND	ND	0.048
Trichloroethene	0.7	ND	0.0086	ND	ND	ND	ND
Toluene	1.5	ND	ND	ND	ND	ND	ND
Total VOCs		ND	0.0226	ND	ND	ND	0.061
Alkane Hydrocarbons	NE	0.0081	0.019 B	0.008 B	0.016	0.008 B	0.0096
Alcohols							
Methanol	NE	ND	ND	ND	ND	ND	ND
Isopropanol	NE	ND	ND	ND	ND	ND	ND
Semi-Volatile Organics							
Fluoranthene	1900	ND	ND	ND	ND	ND	ND
bis (2-Ethylhexl) phthalate	438	ND	ND	ND	ND	ND	ND
Formaldehyde	NE	ND	ND	ND	ND	ND	ND

a/ ND = not detected; NA = not analyzed; B = probable blank contamination; J = estimated value; NE = not established. Only those analytes detected are included in this table.
b/ Cleanup Objective = NYSDEC Technical and Adminstrative Guidance Memorandum (January 24, 1994) recommended soil cleanup objective to protect groundwater quality.
c/ Duplicate sample of SS-12.

\461623\tab1a

Table 2

Inorganic Soil Sampling Results
Ashland Chemical Company
Binghamton, New York
September 7 to 10, 1993 (mg/kg)(a)

Analyte	Rec. Cleanup Objective	SS-1	SS-2	SS-3	SS-7	SS-8	SS-9	SS-10	SS-11	SS-12	BG-1	BG-2	SS-13	SS-14	SS-21 (c)
Sodium	SB (b)	110	88	140	130	93	56	160	130	77	56 U	56 U	58	ND	130
Chloride	NE	ND	46	ND	ND	ND	ND	ND	ND	ND	21 U	21 U	ND	ND	ND
Sulfate	NE	230	150	240	110	240	ND	ND	ND	ND	110 U	110 U	150	110	130
Nitrate	NE	7.6	14	10	ND	5.6	6.3	9.7	5.9	6.4	6.2	ND	0.56	ND	ND
T. phosphorus	NE	510	240	420	510	630	640	760	220	400	560	940	750	780	440
pH	NE	8.2	8.1	8.1	8.1	8.2	8.2	8.5	8.6	8.5	7.5	7.6	8.1	8.3	8.3

a/ ND = not detected; NE = not established; SB = site background. Only the analytes detected are included in this table.
U= not detected above method detection limit.
b/ Soil background levels for eastern USA range between 6,000 to 8,000 mg/kg (TAGM 4046).
c/ Duplicate sample of SS-12.

\461623\RFI\tab2

Table 3

Soil Headspace Results
Ashland Chemical Company
Binghamton, New York (ppm)(a)
February 2 to 15, 1996

MW-1		MW-2		MW-3		B-1		B-2		B-3	
Depth	FID	Depth	FID	Depth	FID	Depth	FID	Depth	FID	Depth	FID
1 – 3	2	1 – 3	3	0 – 15	NS	0 – 5	NS	0 – 5	NS	0 – 2	NS
3 – 5	0	3 – 5	1.5	15 – 17	2	5 – 7	0	5 – 7	0	2 – 4	3
5 – 7	0	5 – 7	3.5	17 – 19	0	10 – 12	1	10 – 12	4	4 – 6	3
7 – 9	0	7 – 9	1	19 – 21	0	15 – 17	1	15 – 17	1	6 – 8	4
9 – 11	1	9 – 11	0	21 – 23	0	20 – 22	2	20 – 22	0	8 – 10	4
11 – 13	1	11 – 13	4	23 – 25	0	25 – 27	1	25 – 27	5	10 – 12	3
13 – 15	0	13 – 15	1	25 – 27	1	27 – 29	0	30 – 32	6	12 – 14	2
15 – 17	2	15 – 17	1.5	27 – 29	0	29 – 31	2			14 – 16	2
17 – 19	1	17 – 19	1	29 – 31	3	31 – 33	1			16 – 18	1
19 – 21	9	19 – 21	0	31 – 33	2					18 – 20	1
21 – 23	2	21 – 23	0							20 – 22	2
23 – 25	2	23 – 25	2							22 – 24	0
25 – 27	1	25 – 27	0							24 – 26	0
27 – 29	19	27 – 29	3.5							26 – 28	3
29 – 31	0	29 – 31	0							28 – 30	9
31 – 33	1	31 – 33	2							30 – 32	2
33 – 35	9	33 – 35	10							32 – 34	2
35 – 37	58	35 – 37	320								
37 – 39	5	37 – 39	25								

Table 3
(continued)

Soil Headspace Results
Ashland Chemical Company
Binghamton, New York (ppm)(a)

B–4		B–5		B–6		B–7		B–8	
Depth	FID	Depth	FID	Depth	FID	Depth	FID	Depth	FID
1 – 2	1	0 – 2	NS	0 – 2	NS	1 – 2	NS	0 – 2	NS
2 – 4	1	2 – 4	1	2 – 4	3	2 – 4	0	2 – 4	1
4 – 6	3	4 – 6	1	4 – 6	1	4 – 6	0	4 – 6	1
6 – 8	7	6 – 8	0	6 – 8	0	6 – 8	0	6 – 8	1
8 – 10	4	8 – 10	0	8 – 10	2	8 – 10	1	8 – 10	3
10 – 12	3	10 – 12	0	10 – 10.5	1	10 – 12	1	10 – 12	2
12 – 13.5	5	12 – 13.5	0	10.5 – 13	0	12 – 13.4	30	12 – 14	1
13.5 – 15	0	13.5 – 15	0	13 – 15	0	13.4 – 15	0	14 – 16	1
15 – 17	2	15 – 17	7	15 – 17	0	15 – 17	1	16 – 18	1
17 – 19	3	17 – 19	0	17 – 19	2	17 – 19	1	18 – 20	0
19 – 21	0	19 – 21	0	19 – 21	6	19 – 21	0	20 – 22	0
21 – 23	0	21 – 23	0	21 – 23	10	21 – 23	0	22 – 24	1
23 – 25	2	23 – 25	2	23 – 25	8	23 – 25	2	24 – 26	0
25 – 27	1	25 – 27	1	25 – 27	8	25 – 27	1	26 – 28	0
27 – 29	6			27 – 29	1	27 – 29	2	28 – 30	1
29 – 31	0			29 – 31	0	29 – 31	1	30 – 32	0
31 – 33	0			31 – 33	8	31 – 33	8		

a/ Depth recorded in feet; NS = no sample collected.

f:\lotus\461623\rfi\tab3

Soil Sampling Results from SWMU 2
Ashland Chemical Company
Binghamton, New York
February 6 to 8, 1996 (mg/kg)(a)

Analyte	Cleanup Objective (b)	B-1 (5-7')	B-11 (c) (5-7')	B-1 (31-33')	B-2 (5-7')	B-2 (30-32')	MW-1 (5-7')	MW-1 (29-31')
Metals								
Arsenic	7.5 or SB	5.6	7.1	4	6.9	3.3	4.2	4.3
Barium	300 or SB	50.1	54.6	65.8	37.9	28.9	35.5	35.6
Chromium	10 or SB	11.8	13.4	9.1	15.3	5.8	5.1	24
Lead	200-500	10.8 J	11.1 J	8.1 J	9.3 J	6.9 J	5.7 J	8.3 J
Mercury	0.1	0.02	0.03	0.01	1	0.02	0.02	0.25
Sodium	SB	55.1	82.3	62.3	ND	58.2	ND	196
Inorganic Analytes								
Ammonia-Nitrogen	NE	ND	ND	ND	1.2	ND	ND	ND
Nitrate	NE	ND	ND	15	ND	15	ND	ND
Sulfate	NE	ND	ND	310	680	200	ND	2,700
pH (standard units)		6.15	6.59	6.47	6.47	6.58	6.63	6.22
Formaldehyde	NE	0.099 J	ND	0.1 J	0.12 J	ND	ND	0.16 J

a/ ND = not detected; J = estimated value; NE = standard not established; SB = site background. Only the analytes detected are included in this table
b/ Eastern USA background standards (ppm): Arsenic = 3 - 12; Barium = 5 - 600; Chromium = 1.5 - 40; Sodium 6,000 - 8,000.
c/ NYSDEC Technical and Administrative Guidance Memorandum (January 24, 1994) Recommended Soil Cleanup Objective.
d/ Duplicate of B-1 (5-7').

Table 5

Soil Sampling Results from SWMU 7
Ashland Chemical Company
Binghamton, New York
February 12 to 15, 1996 (mg/kg)(a)

Analyte	Cleanup Objective (b)	MW-2 (11-13')	MW-2 (27-29')	B-3 (8-10')	B-3 (26-28')	B-4 (6-8')	B-4 (27-29')	B-5 (15-17')	B-5 (27-29')
VOCs									
Methylene chloride	0.1	0.0054 B	0.0058 B	0.0016 J	0.012 B	0.0064 B	0.0054 B	0.0012 J	0.0054 B
Acetone	0.11	0.022 J	0.026 J	ND	ND	ND	0.014 J	0.026 J	0.046
trans-1,2-Dichloroethene	0.3	ND	ND	ND	ND	0.00039 J	ND	ND	ND
cis-1,2-Dichloroethene	0.25 (c)	ND	ND	0.0069 J	ND	0.03	ND	ND	ND
2-Butanone (MEK)	0.3	0.0088 J	ND	ND	0.011 J	ND	ND	ND	0.025 J
1,1,1-Trichloroethane	0.76	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	0.70	0.0016 J	ND	0.12	0.02	0.05	0.0028 J	0.0037 J	0.0044 J
4-Methyl-2-pentanone (MIBK)	1	0.025 J	0.013 J	ND	ND	ND	0.0094 J	0.0078 J	0.052
Tetrachloroethene	1.4	0.0095	0.001 J	0.25 D	0.022	0.089	0.004 J	0.0045 J	0.0052 J
Toluene	1.5	0.0022 J	0.00094 J	0.0014 J	ND	0.0011 J	0.001 J	0.0015 J	0.0013 J
Ethylbenzene	5.5	0.0013 J	0.00084 J	ND	0.0014 J	ND	0.0013 J	ND	0.001 J
Xylenes	1.2	0.00094 J	0.00064 J	ND	0.0011 J	0.00034 J	0.0009 J	0.00057 J	0.00074 J
Total VOCs		0.07674	0.04822	0.3799	0.0675	0.17723	0.0369	0.04527	0.14104
Alkane Hydrocarbons	NE	0.29	0.33	0.83	1.1	0.46	0.64	0.85	0.54
Alcohols									
Methanol	NE	ND	1.8	ND	ND	ND	ND	ND	ND
Isopropanol	NE	ND	ND	ND	ND	ND	ND	ND	ND

Table 5 (continued)

Soil Sampling Results from SWMU 7
Ashland Chemical Company
Binghamton, New York
February 12 to 15, 1996 (mg/kg)(a)

Analyte	Cleanup Objective (mg/kg)(b)	B-6 (21-23')	B-6 (25-27')	B-7 (12-14')	B-7 (23-25')	B-8 (8-10')	B-8 (10-12')	Equipment Blank	Trip Blank
VOCs									
Methylene chloride	0.1	0.0044 BJ	0.0054 B	0.0063 B	0.0054 B	0.0011	0.0052 BJ	0.44 E	ND
Acetone	0.11	0.018 J	0.0091 J	ND	0.021 J	ND	0.0073 J	ND	ND
trans-1,2-Dichloroethene	0.3	ND	ND	0.0023 J	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	0.25 (c)	ND	ND	0.09	ND	ND	0.002 J	ND	ND
2-Butanone (MEK)	0.3	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	0.76	ND	ND	0.0008 J	ND	ND	ND	ND	ND
Trichloroethene	0.70	0.0019 J	0.0021 J	0.054	0.0007 J	0.0076	0.026	ND	ND
4-Methyl-2-pentanone (MIBK)	1	0.0067 J	0.0066 J	ND	ND	0.018 J	ND	ND	ND
Tetrachloroethene	1.4	0.0035 J	0.0036 J	0.091	0.0016 J	0.01	0.03	ND	ND
Toluene	1.5	0.00091 J	0.001 J	0.00061 J	ND	ND	ND	ND	ND
Ethylbenzene	5.5	0.001 J	0.0014 J	0.00055 J	0.0009 J	0.00081	ND	ND	ND
Xylenes	1.2	0.00086 J	0.0013 J	0.0002 J	0.00088 J	0.00033	ND	ND	ND
Total VOCs		0.03727	0.0305	0.24576	0.03048	0.03748	0.07	0.440	0
Alkane Hydrocarbons	NE	0.65	0.86	9	0.75	0.86	2.5	0.019	NA
Alcohols									
Methanol	NE	1.1	ND	1.1	1.6	ND	ND	ND	NA
Isopropanol	NE	ND	ND	ND	ND	0.00026 J	ND	ND	NA

a/ J=estimated concentration; B=probable blank contamination; ND=not detected; NA=not analyzed; NE=not established; E=outside calibration range of instrument; D= sample dilution. Only the analytes detected are included in this table.
b/ NYSDEC Technical and Administrative Guidance Memorandum (January 24, 1994) Soil Cleanup Objective to Protect Groundwater Quality.
c/ Proposed cleanup objective – TAGM 4046 (rev. 4/95)

Table 6

Groundwater Elevation Measurements
Ashland Chemical Company
Binghamton, New York (a)

Well	Elevation (ft)	Total Depth (ft)	Depth to Water Feb 29, 1996	Water Table Elevation Feb 29, 1996	Depth to Water April 10, 1996	Water Table Elevation April 10, 1996
MW-1	95.85	38.30	31.43	64.42	31.38	64.47
MW-2	96.13	38.34	31.72	64.41	31.68	64.45
MW-3	94.98	35.16	30.51	64.47	30.47	64.51

a/ Elevations not measured relative to mean sea level.

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Table 7

Groundwater Field Measurements
Ashland Chemical Company
Binghamton, New York
February 29 and April 10, 1995 (a)

Well	Purge Volume	pH		Temperature (C)		Specific Cond. (uS/cm)		Turbidity (NTUs)	
		Feb 29	April 10	Feb 29	April 10	Feb 29	April 10	Feb 29	April 10
MW-1	Pre-purge	7.89	8.14	31.8	--	1,204	1,300	940	NA
	1	8.01	7.8	39.1	--	1,222	1,206	> 1,000	NA
	2	7.88	7.63	44.3	--	1,172	1,224	> 1,000	NA
	3	8.3	7.6	44.5	--	1,063	1,201	> 1,000	> 1,000
MW-2	Pre-purge	8.36	8.38	40.1	40	626	996	188	NA
	1	8.05	8.08	42.5	39.6	580	976	> 1,000	NA
	2	8.18	7.96	41.8	38.2	564	950	> 1,000	NA
	3	8.13	7.99	45.3	--	599	949	> 1,000	> 1,000
MW-3	Pre-purge	7.35	7.6	44.3	42.1	679	1,122	238	NA
	1	8.02	7.49	49.3	41.5	1,108	859	436	NA
	2	7.94	7.35	49.8	41	1,406	1,079	501	NA
	3	7.86	7.35	51.3	41.2	1,545	1,286	333	NA
	4	7.98	7.41	49.2	41.2	1,575	1,330	461	523

a/ -- = not collected due to meter malfunction; NA = not collected.

Table 8

Groundwater Sampling Results
Ashland Chemical Company
Binghamton, New York (a)(mg/l)
February 29 and April 10, 1996

Analyte	Quality Standards (mg/l)(b)	MW-1	MW-2	MW-20 (c)	MW-3	MW-30 (d)	Equipment Blank (e)	FB41096 (f)	Trip Blank
VOCs									
Methylene chloride	0.005	ND	0.002 JB	0.0023 JB	ND	NA	ND	NA	0.002 J
Acetone	0.05	ND	ND	ND	ND	NA	0.012 J	NA	ND
1,1-Dichloroethane	0.005	0.0024 J	ND	ND	ND	NA	ND	NA	ND
cis-1,2-Dichloroethene	0.005	0.024	0.0086	0.0094	0.022	NA	ND	NA	ND
1,1,1-Trichloroethane	0.005	0.011	0.0011 J	0.0012 J	0.046	NA	ND	NA	ND
Carbon tetrachloride	0.005	ND	ND	ND	0.0074	NA	ND	NA	ND
Trichloroethene	0.005	0.04	0.013	0.013	0.55 D	NA	0.0013 J	NA	ND
Tetrachloroethene	0.005	0.016	0.009	0.0089	0.36 D	NA	ND	NA	ND
Toluene	0.005	ND	0.0011 J	ND	ND	NA	ND	NA	ND
Total VOCs		0.0934	0.0348	0.0348	0.1664	0	0.033	0	0.002
Alcohols									
Methanol	18	21	4.7	ND	1.5	NA	1.4	NA	ND
Alkane Hydrocarbons	NE	0.068	0.14	0.12	0.012	NA	0.001	NA	ND
SVOCs									
Di-n-butylphthalate	0.05	ND	0.0011 J	NA	ND	ND	NA	ND	NA
bis(2-ethylhexyl)phthalate	0.05	ND	0.0036 J	NA	ND	ND	NA	ND	NA
Pesticides/PCBs									
Dieldrin	ND	ND	ND	NA	0.0000079 J	ND	NA	ND	NA
4,4'-DDE	ND	ND	ND	NA	0.0000034 J	ND	NA	ND	NA
Endrin	0.0002	ND	ND	NA	0.000005 J	ND	NA	ND	NA
Endosulfan sulfate	NE	ND	0.000015 J	NA	ND	ND	NA	ND	NA
4,4'-DDT	ND	ND	ND	NA	0.00001 J	ND	NA	ND	NA
gamma-Chlordane	0.00002	0.000016 J	0.000031 J	NA	ND	ND	NA	ND	NA

Table 8 (continued)

Groundwater Sampling Results
Ashland Chemical Company
Binghamton, New York (a)(mg/l)
April 10, 1996

	Quality Standards (mg/l)(b)	MW-1	MW-2	MW-20 (c)	MW-3	MW-30 (d)	Equipment Blank (e)	FB41096 (f)
Total Metals								
Aluminum	NE	65.2	130	NA	12.8	12.4	NA	ND
Arsenic	0.025	ND	0.0702	NA	0.0586	0.0447	NA	ND
Barium	1	0.59	1.06	NA	0.249	0.243	NA	ND
Beryllium	NE	ND	0.0051	NA	ND	ND	NA	ND
Cadmium	0.01	ND	0.0091	NA	ND	ND	NA	ND
Calcium	NE	451	763	NA	178	185	NA	ND
Chromium	0.05	0.178	0.218	NA	0.0297	0.0294	NA	ND
Cobalt	NE	0.0457	0.12	NA	0.0137	0.0125	NA	ND
Copper	0.2	0.178	0.358	NA	0.0458	0.0437	NA	ND
Iron	0.3	121	270	NA	29.2	27.9	NA	ND
Lead	0.025	0.108	0.194	NA	0.0154	0.0167	NA	ND
Magnesium	NE	97.1	247	NA	21.9	22.5	NA	ND
Manganese	0.3	2.88	8.78	NA	1.07	0.98	NA	ND
Mercury	0.002	0.00092	ND	NA	ND	ND	NA	ND
Nickel	NE	0.0877	0.258	NA	ND	ND	NA	ND
Potassium	NE	16.5	20.4	NA	5.48	5.64	NA	ND
Sodium	20	31.6	28.8	NA	52.3	58.5	NA	ND
Vanadium	NE	0.109	0.189	NA	0.0211	0.0192	NA	ND
Zinc	0.3	0.322	0.743	NA	0.0814	0.0905	NA	ND
Dissolved Metals								
Aluminum	NE	0.565	ND	NA	ND	ND	NA	ND
Arsenic	0.025	ND	ND	NA	0.0188	0.0164	NA	ND
Barium	1	0.0138	0.0546	NA	0.108	0.109	NA	ND
Calcium	NE	190	73.2	NA	152	155	NA	ND
Iron	0.3	0.276	ND	NA	0.421	0.362	NA	ND
Magnesium	NE	16	12.6	NA	13.6	13.9	NA	ND
Manganese	0.3	0.0426	0.518	NA	0.448	0.425	NA	ND
Potassium	NE	7.54	5.08	NA	3.78	3.82	NA	ND
Sodium	20	30.1	27.2	NA	47.1	49.5	NA	ND

a/ ND=not detected; NA = not analyzed; J=estimated concentration; B=probable blank contamination; D=result from a secondary dilution. Only the analytes detected are included in this table.
b/ Ambient Water Quality Standards and Guidance Values, NYSDEC, October 1993.
c/ Duplicate of MW-2 collected on 2/29/96.
d/ Duplicte of MW-3 collected on 4/10/96.
e/ Equipment blank collected on 2/29/96.
f/ Equipment blank collected on 4/10/96.

BORING LOG Environmental Strategies Corporation Four Penn Center West, Ste. 315 Pittsburgh, Pennsylvania 15276	PROJECT Ashland Chemical Company 3 Broad Street Binghamton, New York 13902 Project # 461623/502	Boring No. MW-1 Sheet 1 of 2 Date Drilled 02/08/96

Drilling Co. Empire Soils Inc.	Boring Location SWMU 2
Drillers Randy Bush and Ed Cole	Ground Elevation
ESC Geologist Blayne Diacont	TOC Elevation

Boring	Casing/Screen	Sampler
Method Hollow Stem Auger	Type PVC	Method 3" Split-spoon
Hole Diameter 8.25"	Diameter 2.0 inch	Length (ft) 2.0
Inside Diameter 4.25"	Screen Length 10.0 feet	Hammer (lb) 140
Total Depth 39.0'	Screen Slot Size 0.02 inch	Fall (in) 30

Depth	P.I.D. (ppm)	% Recov.	Sample Depth	Blows/6"	Sample Description
1.0'	2	50	1 - 3'	9/15/10/21	SANDY CLAY, with gravel, some brick, fill,
					medium density.
3.0'	0	60	3 - 5'	42/43/34/38	SANDY Gravel, some iron stained zones, moist,
					very dense.
5.0'	0	40	5 - 7'	17/13/13/20	GRAVEL, well sorted, trace sand, medium
					density.
7.0'	0	50	7 - 9'	33/32/30/46	SANDY GRAVEL, some cobbles, moist, trace
9.0'	1	40	9 - 11'	22/21/28/26	Same as above, medium density.
11.0'	1	40	11 - 13'	17/23/18/28	SANDY GRAVEL, medium density.
13.0'	0	50	13 - 15'	34/43/38/42	Same as above, very dense
15.0'	2	60	15 - 17'	26/26/18/22	GRAVEL and COBBLES, with some sand, moist,
					dense.
17.0'	1	60	17 - 19'	18/36/60/65	Same as above, very dense.
19.0'	9	20	19 - 21'	34/48/40/42	SAND, some fines, wet zone, very dense.
21.0'	2	70	21 - 23'	51/31/28/20	SANDY GRAVEL, and COBBLES, moist to wet
					very dense.
23.0'	2	50	23 - 25'	11/12/12/23	COBBLES and GRAVEL, and some sand, moist,
					medium density.
25.0'	1	50	25 - 27'	13/16/34/44	Same as above, very dense.

BORING LOG
Environmental Strategies Corporation
Four Penn Center West, Ste. 315
Pittsburgh, Pennsylvania 15276

PROJECT
Ashland Chemical Company
3 Broad Street
Binghamton, New York 13902
Project # 461623/502

Boring No. MW-1
Sheet 2 of 2
Date Drilled 02/08/96

Drilling Co. Empire Soils Inc.
Drillers Randy Bush and Ed Cole
ESC Geologist Blayne Diacont

Boring Location SWMU 2
Ground Elevation
TOC Elevation

Boring
Method Hollow Stem Auger
Hole Diameter 8.25"
Inside Diameter 4.25"
Total Depth 39.0'

Casing/Screen
Type PVC
Diameter 2.0 inch
Screen Length 10.0 feet
Screen Slot Size 0.02 inch

Sampler
Method 3" Split-spoon
Length (ft) 2.0
Hammer (lb) 140
Fall (in) 30

Depth	P.I.D. (ppm)	% Recov.	Sample Depth	Blows/6"	Sample Description
27.0'	19	50	27 - 29'	35/30/52/100	Same as above, very dense.
				for .3	
29.0'	0	60	29 - 31'	90/51/21/19	GRAVEL, red iron stained, some sand, moist to
					wet, wet at 31.0'.
31.0'	1	30	31 - 33'	14/12/51/26	GRAVEL and COBBLES, iron stained, sand at
					32.8', wet, very dense.
33.0'	9	10	33 - 35'	18/23/45/50	GRAVEL and COBBLES, brown, some sand, wet.
35.0'	58	10	35 - 37'	22/34/42/45	SANDY GRAVEL and COBBLES, brown, wet.
37.0	5	20	37 - 39'	34/37/39/48	SANDY GRAVEL, and Cobbles, brown, wet.
					B.O.B at 39.0' on 02/08/96

BORING LOG
Environmental Strategies Corporation
Four Penn Center West, Ste. 315
Pittsburgh, Pennsylvania 15276

PROJECT
Ashland Chemical Company
3 Broad Street
Binghamton, New York 13902
Project # 461623/502

Boring No. MW-2
Sheet 1 of 2
Date Drilled 02/12/96

Drilling Co. Empire Soils Inc.
Drillers Rodney Bush and Ed Cole
ESC Geologist Blayne Diacont

Boring Location SWMU 7
Ground Elevation
TOC Elevation

Boring
Method Hollow Stem Auger
Hole Diameter 8.25"
Inside Diameter 4.25"
Total Depth 39.0'

Casing/Screen
Type PVC
Diameter 2 inch
Screen Length 10 feet
Screen Slot Size 0.02 inch

Sampler
Method 3" Split-spoon
Length (ft) 2.0
Hammer (lb) 140
Fall (in) 30

Depth	P.I.D. (ppm)	% Recov.	Sample Depth	Blows/6"	Sample Description
1.0'	3	30	1 - 3'	12/12/10/11	CLAYEY SILT, light brown, upper 3" is black, with gravel and cobbles, dry, medium dense.
3.0'	1.5	60	3 - 5'	7/6/7/9	CLAYEY SILT, moderate brown, with abundant abundant gravel and cobbles small to large, moist to slightly moist, medium dense.
5.0'	3.5	30	5 - 7'	9/9/7/7	Poor retrieval, cobble in tip of spoon, same.
7.0'	1	60	7 - 9'	7/6/10/17	GRAVEL fragments and COBBLES, with some light brown silt, moist, medium dense.
9.0'	0	60	9 - 11'	22/36/39/28	COBBLES and rock fragments, large, with some dark brown silty sand, moist to slightly moist, very dense.
11.0'	3.75	60	11 - 13'	45/35/40/34	Same as above, more smaller cobbles, slightly moist, very dense.
13.0'	1	40	13 - 15'	22/30/15/12	Same as above, dry to slightly moist, dense.
15.0'	1.5	20	15 - 17'	12/10/11/12	COBBLES, small to large, poor retrieval, very little sand, slightly moist, medium dense.
17.0'	1	90	17 - 19'	16/29/29/34	COBBLES, large, with brick fragments, sandy silt lens at 15', 4" long, very moist in sandy silt lens, very dense.
19.0'	0	90	19 - 21'	34/27/50/50	Same as above, more sand, very dense.
21.0'	0	95	21 - 23'	64/44/42/34	Same as above, very dense.

BORING LOG Environmental Strategies Corporation Four Penn Center West, Ste. 315 Pittsburgh, Pennsylvania 15276	PROJECT Ashland Chemical Company 3 Broad Street Binghamton, New York 13902 Project # 461623/502	Boring No. MW-2 Sheet 2 of 2 Date Drilled 02/12/96

Drilling Co. Empire Soils Inc.	Boring Location SWMU 7
Drillers Randy Bush and Ed Cole	Ground Elevation
ESC Geologist Blayne Diacont	TOC Elevation

Boring	Casing/Screen	Sampler
Method Hollow Stem Auger	Type PVC	Method 3" Split-spoon
Hole Diameter 8.25"	Diameter 2 inch	Length (ft) 2.0
Inside Diameter 4.25"	Screen Length 10 feet	Hammer (lb) 140
Total Depth 39.0'	Screen Slot Size 0.02 inch	Fall (in) 30

Depth	P.I.D. (ppm)	% Recov.	Sample Depth	Blows/6"	Sample Description
23.0'	2	90	23 - 25'	37/32/44/34	Same as above, slightly moist, very dense.
25.0'	0	80	25 - 27'	27/39/38/42	Same as abvove, at 26' grades to SITLY SAND, dark brown, slightly moist, very dense.
27.0'	3.5	95	27 - 29'	30/32/30/29	Grades back to COBBLES and rock fragments, with some silt and sand, slight moist to dry.
29.0'	0	90	29 - 31'	23/25/12/14	Same as above, dense.
31.0'	2	90	31 - 33'	14/9/8/8	Same as above, water table at approximately 32.0', medium density.
33.0'	10	50	33 - 35'	7/12/12/15	Same as above, wet, medium density.
35.0'	320	60	35 - 37'	6/10/10/11	Same as above, wet, medium density
37.0'	25	95	37 - 39'	10/14/14/12	At 37.5' grades to well sorted SAND, coarse and dark brown to black, medium density.
					B.O.B at 39.0' on 02/12/96

BORING LOG
Environmental Strategies Corporation
Four Penn Center West, Ste. 315
Pittsburgh, Pennsylvania 15276

PROJECT
Ashland Chemical Company
3 Broad Street
Binghamton, New York 13902
Project # 461623/502

Boring No. MW-3
Sheet 1 of 1
Date Drilled 02/05/96

Drilling Co. Empire Soils Inc.
Drillers Randy Bush and Ed Cole
ESC Geologist Blayne Diacont

Boring Location Near SWMU 11
Ground Elevation
TOC Elevation

Boring
Method Hollow Stem Auger
Hole Diameter 8.25"
Inside Diameter 4.25"
Total Depth 39.0'

Casing/Screen
Type PVC
Diameter 2.0 inch
Screen Length 10.0 feet
Screen Slot Size 0.02 inch

Sampler
Method 3" Split-spoon
Length (ft) 2.0
Hammer (lb) 140
Fall (in) 30

Depth	P.I.D. (ppm)	% Recov.	Sample Depth	Blows/6"	Sample Description
0.0'		0	0 - 4"		Asphalt
4"		75	4" - 3'		CLAY, red-brown, some construction debris, fill.
3.0'		75	3 - 15'		SAND and GRAVEL, brown.
15.0'	2	80	15 - 17'	9/6/28/19	SAND and GRAVEL, moist, brown, trace fines, dense.
17.0'	0	80	17 - 19'	11/12/25/28	Same as above, cobble in spoon, dense.
19.0'	0	60	19 - 21'	20/25/45/40	Same as above, sand, gravel and cobble very dense.
21.0'	0	80	21 - 23'	24/19/18/11	Same as above, dense.
23.0'	0	100	23 - 25'	10/8/9/19	Same as above, moist to wet at 24', medium density.
25.0'	1	50	25 - 27'	25/20/21/25	Same as above, moist.
27.0'	0	80	27 - 29'	20/32/24/41	GRAVEL and COBLLES, some sand.
29.0'	3	75	29 - 31'	24/26/29/38	Same, sandy at 31', wet
31.0'	2	100	31 - 33'	32/36/34/45	SILT at 32 ', greenish brown, non-plastic.
33.0'		NA	33 - 39'		Same as above, augered to 39.0'
					Set well at 38.0'
					B.O.B. at 39.0' on 02/05/96

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PROJECT
Ashland Chemical Company
3 Broad Street
Binghamton, New York 13902
Project # 461623/502

Boring No. B-1
Sheet 1 of 1
Date Drilled 02/06/96

Drilling Co. Empire Soils Inc.
Drillers Randy Bush and Ed Cole
ESC Geologist Blayne Diacont

Boring Location SWMU 2
Ground Elevation
TOC Elevation

Boring
Method Hollow Stem Auger
Hole Diameter 8.25"
Inside Diameter 4.25"
Total Depth 33.0'

Casing/Screen
Type PVC
Diameter NA
Screen Length NA
Screen Slot Size NA

Sampler
Method 3" Split-spoon
Length (ft) 2.0
Hammer (lb) 140
Fall (in) 30

Depth	P.I.D. (ppm)	% Recov.	Sample Depth	Blows/6"	Sample Description
0	NA	NA	Auger	NA	SILTY GRAVEL, moist, well sorted.
5	0	70	5-7	19-13-6-6	SILTY GRAVEL, brown, moist, stiff, some cobbles.
6.5					SAND, dark brown, trace fines, moist, fill.
10	1	80	10-12	19-23-23-53	GRAVEL and COBBLES, with sand and trace fines, moist, very dense.
15	1	80	15-17	77-95-64-44	Same as above, increase in cobbles.
20	2	80	20-22	50-60-52-62	SAND and GRAVEL, some cobbles - fine to large, very dense, moist.
25	1	75	25-27	24-18-16-15	Same as above, less cobbles.
	0	75	27-29	20-20-18-20	Same as above.
	2	80	29-31	32-34-27-35	Same as above.
31	1	100	31-33	14-12-12-17	SAND, fine to coarse, some gravel and trace fines, brown, wet.
					B.O.B at 31.0' on 02/06/96

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PROJECT
Ashland Chemical Company
3 Broad Street
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Project # 461623/502

Boring No. B-2
Sheet 1 of 1
Date Drilled 02/07/96

Drilling Co. Empire Soils Inc.
Drillers Randy Bush and Ed Cole
ESC Geologist Blayne Diacont

Boring Location SWMU 7
Ground Elevation
TOC Elevation

Boring
Method Hollow Stem Auger
Hole Diameter 8.25"
Inside Diameter 4.25"
Total Depth 32.0'

Casing/Screen
Type N/A
Diameter N/A
Screen Length N/A
Screen Slot Size N/A

Sampler
Method 3" Split-spoon
Length (ft) 2.0
Hammer (lb) 140
Fall (in) 30

Depth	P.I.D. (ppm)	% Recov.	Sample Depth	Blows/6"	Sample Description
5.0'	0	40	5 - 7'	12/10/18/34	SITLY GRAVEL, and rock fragments, some sand,
					moist to wet, brown, medium density, fill.
10.0'	4	40	10 - 12'	8/9/26/75	10 - 11' GRAVEL and rock fragments, wet.
				for 3"	11 - 12' Sand and iron stained gravel, dry,
					fill, moist, dense.
15.0'	1		15 - 17'	34/67/75	GRAVEL and COBBLES, cobble wedged in tip.
				for 2"	
20.0'	0		20 - 22'	33/36/40/44	Same as above, very dense.
25.0'	5		25 - 27'	25/25/21/25	Same as above, dense.
30.0'	6		30 - 32'	10/8/9/10	COBBLES and GRAVEL, trace sand,
					Wet at 31.0'.
					B.O.B. at 32.0' on 02/07/96

BORING LOG
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Four Penn Center West, Ste. 315
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PROJECT
Ashland Chemical Company
3 Broad Street
Binghamton, New York 13902
Project # 461623/502

Boring No. B-3
Sheet 1 of 2
Date Drilled 02/15/96

Drilling Co. Empire Soils Inc.
Drillers Randy Bush and Ed Cole
ESC Geologist Blayne Diacont

Boring Location SWMU 7
Ground Elevation
TOC Elevation

Boring
Method Hollow Stem Auger
Hole Diameter 8.25"
Inside Diameter 4.25"
Total Depth 32.0'

Casing/Screen
Type N/A
Diameter N/A
Screen Length N/A
Screen Slot Size N/A

Sampler
Method 3" Split-spoon
Length (ft) 2.0
Hammer (lb) 140
Fall (in) 30

Depth	P.I.D. (ppm)	% Recov.	Sample Depth	Blows/6"	Sample Description
2.0'	3	50	2 - 4'	20/20/20/18	SILT, dark brown, moist, with large cobbles
					rock fragments, dense.
4.0'	3	60	4 - 6'	11/10/10/10	Same as above, medium density.
6.0'	4	20	6 - 8'	8/10/43/11	Poor retrieval, same as above, very dense.
8.0'	4	60	8 - 10'	8/7/6/7	Same as above.
10.0'	3	70	10 - 12'	5/7/7/6	Same as above, with brick fragments, medium
					density.
12.0'	2	70	12 - 14'	7/7/6/10	Same as above, with brick fragments, medium
					density.
14.0'	2	60	14 - 16'	6/6/6/6	COBBLE small well rounded, with some light
					brown silt, moist to wet, medium density.
16.0'	1	70	16 - 18'	14/24/23/34	Same as above, at 17' grades to large cobbles
					and rock fragments, with sandy silt, moist,
					dense.
18.0'	1	90	18 - 20'	34/60/34/36	COBBLES, small to large, well rounded, with
					rock fragments, and some silt and sand, moist
					to wet lenses, very dense.
20.0'	2	80	20 - 22'	36/44/38/40	Same as above.
22.0'	0	80	22 - 24'	48/18/19/20	COBBLES, small and rounded, with sand and
					little silt, slightly moist to moist, dense.
24.0'	3	10	24- 24.9'	24/100 for .4	Poor retrieval, encountered large cobble

BORING LOG
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Four Penn Center West, Ste. 315
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PROJECT
Ashland Chemical Company
3 Broad Street
Binghamton, New York 13902
Project # 461623/502

Boring No. B-3
Sheet 2 of 2
Date Drilled 02/15/96

Drilling Co. Empire Soils Inc.
Drillers Randy Bush and Ed Cole
ESC Geologist Blayne Diacont

Boring Location SWMU 7
Ground Elevation
TOC Elevation

Boring
Method Hollow Stem Auger
Hole Diameter 8.25"
Inside Diameter 4.25"
Total Depth 32.0'

Casing/Screen
Type N/A
Diameter N/A
Screen Length N/A
Screen Slot Size N/A

Sampler
Method 3" Split-spoon
Length (ft) 2.0
Hammer (lb) 140
Fall (in) 30

Depth	P.I.D. (ppm)	% Recov.	Sample Depth	Blows/6"	Sample Description
26.0'	9	5	26- 26.9'	38/100 for .4	Poor retrieval, same as above, slightly moist
					to dry.
28.0'	2	90	28 - 30'		COBBLES and rock fragments, some silty
					sand, slightly moist.
30.0	2	90	30 - 32		Same as above, groundwater at 31.8'.
					B.O.B at 32.0' at 12:15 on 02/15/96

BORING LOG Environmental Strategies Corporation Four Penn Center West, Ste. 315 Pittsburgh, Pennsylvania 15276	PROJECT Ashland Chemical Company 3 Broad Street Binghamton, New York 13902 Project # 461623/502	Boring No. B-4 Sheet 1 of 2 Date Drilled 02/13/96

Drilling Co. Empire Soils Inc.	Boring Location SWMU 7
Drillers Rodney Bush and Ed Cole	Ground Elevation
ESC Geologist Blayne Diacont	TOC Elevation

Boring	Casing/Screen	Sampler
Method Hollow Stem Auger	Type N/A	Method 3" Split-spoon
Hole Diameter 8.25"	Diameter N/A	Length (ft) 2.0
Inside Diameter 4.25"	Screen Length N/A	Hammer (lb) 140
Total Depth 33.0'	Screen Slot Size N/A	Fall (in) 30

Depth	P.I.D. (ppm)	% Recov.	Sample Depth	Blows/6"	Sample Description
1.0'	1	10	1 - 2'	125 for .5'	Refusal at 2', augered through, light brown
					SILT, with gravel, dry, very dense.
2.0'	1	70	2 - 4'	18/22/18/16	CLAYEY SILT, with large cobbles, brown,
					and some fractured rock, dry, dense.
4.0'	3	70	4 - 6'	15/12/10/9	Same as above, darker brown, slight
					moisture, medium dense.
6.0'	7	90	6 - 8'	12/14/12/10	CLAYEY SILT, dark brown with abundant, moist,
					large cobble and large rock fragments, trace
					black asphalt, medium dense, fill.
8.0'	4	15	8 - 10'	8/7/8/7	Poor retrieval, same as above, more asphalt,
					more fill, medium dense.
10.0'	3	20	10 - 12'	21/80/20/7	Poor retrieval, brick in tip of spoon, some
					silt, moist to wet, very dense.
12.0'	5	30	12- 13.5'	8/8/95 for .2'	FILL, asphalt, brick, cobble and rock
					fragments, with little silt, brown, v. dense.
13.5'		0	13.5- 15'		No sample, augered through concrete layer.
15.0'	2	25	15 - 17'	15/14/28/30	SILT, light brown, with cobbles and rock
					fragments, dry, dense.
17.0'	3	100	17 - 19'	35/30/18/30	ROCK FRAGMENTS and cobbles, granite,
					small rock fragments and little brown silt,
					small piece of re-bar, dry to slightly
					moist, dense, fill.

BORING LOG Environmental Strategies Corporation Four Penn Center West, Ste. 315 Pittsburgh, Pennsylvania 15276	PROJECT Ashland Chemical Company 3 Broad Street Binghamton, New York 13902 Project # 461623/502	Boring No. B-4 Sheet 2 of 2 Date Drilled 02/12/96

Drilling Co. Empire Soils Inc.	Boring Location SWMU 7
Drillers Rodney Bush and Ed Cole	Ground Elevation
ESC Geologist Blayne Diacont	TOC Elevation

Boring	Casing/Screen	Sampler
Method Hollow Stem Auger	Type N/A	Method 3" Split-spoon
Hole Diameter 8.25"	Diameter N/A	Length (ft) 2.0
Inside Diameter 4.25"	Screen Length N/A	Hammer (lb) 140
Total Depth 33.0'	Screen Slot Size N/A	Fall (in) 30

Depth	P.I.D. (ppm)	% Recov.	Sample Depth	Blows/6"	Sample Description
19.0'	0	90	19 - 21'	20/24/16/20	COBBLES, and rock fragments, some
					silt, light brown, dry, dense.
21.0'	0	70	21 - 23'	29/29/39/49	Same as above, moderate brown silt, v. dense.
23.0'	2	90	23 - 25'	21/37/30/40	Same as above, dry, very dense.
25.0'	1	80	25 - 27'	22/24/30/39	Same as above, dry, very dense.
27.0'	6	90	27 - 29'	44/28/24/19	Same as above, slightly moist, very dense.
29.0'	0	90	29 - 31'	12/16/17/21	Same as above, slightly moist to moist,
					orange staining on cobbles just above the
					moist zone, dense.
31.0'	0		31 - 33'		Same as above, groundwater at 32'.
					B.O.B. at 33.0' at 12:25 on 02/13/96

BORING LOG Environmental Strategies Corporation Four Penn Center West, Ste. 315 Pittsburgh, Pennsylvania 15276	PROJECT Ashland Chemical Company 3 Broad Street Binghamton, New York 13902 Project # 461623/502	Boring No. B-5 Sheet 1 of 2 Date Drilled 02/14/96

Drilling Co. Empire Soils Inc.	Boring Location SWMU 7
Drillers Rodney Bush and Ed Cole	Ground Elevation
ESC Geologist Blayne Diacont	TOC Elevation

Boring	Casing/Screen	Sampler
Method Hollow Stem Auger	Type N/A	Method 3" Split-spoon
Hole Diameter 8.25"	Diameter N/A	Length (ft) 2.0
Inside Diameter 4.25"	Screen Length N/A	Hammer (lb) 140
Total Depth 33.0'	Screen Slot Size N/A	Fall (in) 30

Depth	P.I.D. (ppm)	% Recov.	Sample Depth	Blows/6"	Sample Description
2.0'	1	70	2 - 4'	36/45/26/22	SILT, light to moderate brown, with cobbles and rock fragments, slightly moist to dry.
4.0'	1	80	4 - 6'	14/20/15/13	CLAYEY SILT, moderate to dark brown, slightly moist to moist, with cobbles, rock fragments and brick and asphalt chips, orange staining surrounding some of the cobbles, dense.
6.0'	0	0	6 - 8'	18/26/26/17	Poor retrieval, no sample collected, except for headspace, very dense.
8.0'	0	70	8 - 10'	11/10/9/7	SILT, dark brown, with cobbles and rock fragments, trace asphalt, moist, medium dense
10.0'	0	80	10 - 12'	13/11/11/10	Same as above, more asphalt, and brick fragments, medium dense.
12.0'	0	60	12- 13.4'	10/9/75 for 4"'	CLAYEY SILT, dark brown, moist to very moist, with cobble, rock fragments, brick fragments, and asphalt, very dense.
13.4'			13.4- 15'		No sample collected, augered down to 15.0'.
15.0'	7	20	15 - 17'	5/7/7/9	Poor retrieval, same as above, except no brick and trace asphalt, medium dense.
17.0'	0	0	17 - 19'	5/2/2/3	Very little retrieval, no sample collected, except for headspace, very loose.
19.0'	0	25	19 - 21'	4/6/8/8	Poor retrieval, same as above, no fill, very moist, medium dense.

BORING LOG Environmental Strategies Corporation Four Penn Center West, Ste. 315 Pittsburgh, Pennsylvania 15276	PROJECT Ashland Chemical Company 3 Broad Street Binghamton, New York 13902 Project # 461623/502	Boring No. B-5 Sheet 2 of 2 Date Drilled 02/14/96

Drilling Co. Empire Soils Inc.	Boring Location SWMU 7
Drillers Rodney Bush and Ed Cole	Ground Elevation
ESC Geologist Blayne Diacont	TOC Elevation

Boring	Casing/Screen	Sampler
Method Hollow Stem Auger	Type N/A	Method 3" Split-spoon
Hole Diameter 8.25"	Diameter N/A	Length (ft) 2.0
Inside Diameter 4.25"	Screen Length N/A	Hammer (lb) 140
Total Depth 33.0'	Screen Slot Size N/A	Fall (in) 30

Depth	P.I.D. (ppm)	% Recov.	Sample Depth	Blows/6"	Sample Description
21.0'	0	70	21 - 23'	19/21/13/15	COBBLES & rock fragments with silt matrix,
					dark brown, moist, dense.
23.0'	2	50	23 - 25'	15/12/11/17	COBBLES and rock fragments, with silt and
					little sand, medium dense.
25.0'	1	40	25 - 27'	32/34/30/27	SILTY SAND with cobbles and rock fragments
					slightly moist to moist, brown, very dense.
27.0'	3	70	27 - 29'	22/17/12/18	Same as above, moist.
29.0'	1	80	29 - 31'	50/49/51/37	SILTY SAND, with cobbles, some sandy zones,
					moist.
31.0'	4	50	31 - 33'	45/36/39/50	Same as above, water at 32'.
					B.O.BO at 33' at 1620 on 2/14/96.

BORING LOG Environmental Strategies Corporation Four Penn Center West, Ste. 315 Pittsburgh, Pennsylvania 15276	PROJECT Ashland Chemical Company 3 Broad Street Binghamton, New York 13902 Project # 461623/502	Boring No. B-6 Sheet 1 of 2 Date Drilled 02/14/96

Drilling Co. Empire Soils Inc.	Boring Location SWMU 7
Drillers Randy Bush and Ed Cole	Ground Elevation
ESC Geologist Blayne Diacont	TOC Elevation

Boring	Casing/Screen	Sampler
Method Hollow Stem Auger	Type N/A	Method 3" Split-spoon
Hole Diameter 8.25"	Diameter N/A	Length (ft) 2.0
Inside Diameter 4.25"	Screen Length N/A	Hammer (lb) 140
Total Depth 33.0'	Screen Slot Size N/A	Fall (in) 30

Depth	P.I.D. (ppm)	% Recov.	Sample Depth	Blows/6"	Sample Description
2.0'	3	90	2 - 4'	45/37/40/16	CLAYER SILT, light brown, with large cobbles, and abundant rock fragments, dry, very dense.
4.0'	1	40	4 - 6'	11/9/8/7	SILT, light brown, with large cobbles and abundant rock fragments, dry, medium dense.
6.0'	0	70	6 - 8'	6/6/5/5	Same as above, slightly moist, medium dense.
8.0'	2	15	8 - 10'	6/5/5/5	Poor retrieval, same as above, moist.
10.0'	1	5	10- 10.5'	11/50 for 0	Very poor retrieval, no sample collected, sampled for headspace only, very dense.
10.5'		0	10.5- 13'		Augered down to 13.0', through concrete and brick, fill material, refusal.
13.0'		0	13 - 15'	50 for 0	Encountered more impassible fill material, concrete with steel mesh, and re-bar.
15.0'	0	90	15 - 17'	24/34/54/75	SAND with silt, sand is medium to coarse, dark brown, with cobbles and rock fragments, moist, very dense.
17.0'	2	60	17 - 19'	90/65/100 for .4'	Same as above, slightly moist to moist, very dense.
19.0'	6	80	19 - 21'	26/20/22/36	Same as above, dense.
21.0'	10	80	21 - 23'	50/50/70/78	COBBLES and rock fragments, large, with well sorted sand, with little silt, slightly moist to dry, very dense

BORING LOG
Environmental Strategies Corporation
Four Penn Center West, Ste. 315
Pittsburgh, Pennsylvania 15276

PROJECT
Ashland Chemical Company
3 Broad Street
Binghamton, New York 13902
Project # 461623/502

Boring No. B-6
Sheet 2 of 2
Date Drilled 02/14/96

Drilling Co. Empire Soils Inc.
Drillers Rodney Bush and Ed Cole
ESC Geologist Blayne Diacont

Boring Location SWMU 7
Ground Elevation
TOC Elevation

Boring
Method Hollow Stem Auger
Hole Diameter 8.25"
Inside Diameter 4.25"
Total Depth 33.0'

Casing/Screen
Type N/A
Diameter N/A
Screen Length N/A
Screen Slot Size N/A

Sampler
Method 3" Split-spoon
Length (ft) 2.0
Hammer (lb) 140
Fall (in) 30

Depth	P.I.D. (ppm)	% Recov.	Sample Depth	Blows/6"	Sample Description
23.0'	8	80	23 - 25'	28/34/26/36	Same as above, slightly moist to dry, very dense.
25.0'	8	70	25 - 27'	12/20/42/40	Same as above, slightly moist, very dense.
27.0'	1	80	27 - 29'	50/46/42/36	Same as above, sand lenses are wet, remaining sample is moist to slightly moist, v. dense.
29.0'	0	50	29 - 31'	50/44/24/21	Same as above.
31.0'	8	10	31 - 33'	24/21/14/10	COBBLES and CLAYEY SILT, and rock fragments. Water table at approximately 32.0'
					B.O.B. at 33.0' at 12:10 on 02/14/96

BORING LOG Environmental Strategies Corporation Four Penn Center West, Ste. 315 Pittsburgh, Pennsylvania 15276	PROJECT Ashland Chemical Company 3 Broad Street Binghamton, New York 13902 Project # 461623/502	Boring No. B-7 Sheet 1 of 2 Date Drilled 02/13/96

Drilling Co. Empire Soils Inc.	Boring Location SWMU 7
Drillers Randy Bush and Ed Cole	Ground Elevation
ESC Geologist Blayne Diacont	TOC Elevation

Boring	Casing/Screen	Sampler
Method Hollow Stem Auger	Type N/A	Method 3" Split-spoon
Hole Diameter 8.25"	Diameter N/A	Length (ft) 2.0
Inside Diameter 4.25"	Screen Length N/A	Hammer (lb) 140
Total Depth 33.0'	Screen Slot Size N/A	Fall (in) 30

Depth	P.I.D. (ppm)	% Recov.	Sample Depth	Blows/6"	Sample Description
2.0'	0	100	2 - 4'	18/24/14/14	SILT, moderate brown, with small cobbles and rock fragments, dry, dense.
4.0'	0	80	4 - 6'	10/10/10/7	Same as above, slightly moist, medium dense.
6.0'	0	20	6 - 8'	9/8/9/8	Same as above, with some asphalt fragments, slightly moist to moist, medium dense, fill.
8.0'	1	20	8 - 10'	7/9/7/11	SILT, moderate brown with cobbles and rock fragments, moist to slightly moist, med dense.
10.0'	1	80	10 - 12'	9/11/9/8	CLAYEY SILT, moderate brown to dark brown, with cobbles and rock fragments, some orange staining around rock fragments, slightly moist to moist, fill material, medium dense.
12.0'	30	20	12- 13.4'	8/26/75 for .4	Large cobble in tip, poor retrieval, same as above, very dense.
13.4'		0	13.4- 15'		Augered through concrete layer.
15.0'	1	90	15 - 17'	9/26/44/31	SILT, brown, with large cobbles and rock fragments; at 16' 1 inch thick lens of silty clay with a thin layer of orange stain; 16.1 to 17' sand, dark brown, fine grained very dense.
17.0'	1	90	17 - 19'	30/22/28/24	Grades back to SILT, moderate brown, with large cobbles and rock fragments, dense
19.0'	0	80	19 - 21'	24/30/24/30	SILT and SAND, dark brown, with large cobbles and rock fragments, thin layers of moisture to dry, very dense.

BORING LOG
Environmental Strategies Corporation
Four Penn Center West, Ste. 315
Pittsburgh, Pennsylvania 15276

PROJECT
Ashland Chemical Company
3 Broad Street
Binghamton, New York 13902
Project # 461623/502

Boring No. B-7
Sheet 2 of 2
Date Drilled 02/13/96

Drilling Co. Empire Soils Inc.
Drillers Rodney Bush and Ed Cole
ESC Geologist Blayne Diacont

Boring Location SWMU 7
Ground Elevation
TOC Elevation

Boring
Method Hollow Stem Auger
Hole Diameter 8.25"
Inside Diameter 4.25"
Total Depth 33.0'

Casing/Screen
Type N/A
Diameter N/A
Screen Length N/A
Screen Slot Size N/A

Sampler
Method 3" Split-spoon
Length (ft) 2.0
Hammer (lb) 140
Fall (in) 30

Depth	P.I.D. (ppm)	% Recov.	Sample Depth	Blows/6"	Sample Description
21.0'	0	100	21 - 23'	44/62/39/30	Same as above, very dense.
23.0'	2	100	23 - 25'	24/22/21/29	Same as above, more thin layers of moisture in silty sand lenses, dense.
25.0'	1	90	25 - 27'	32/40/42/31	Same as above, more moisture throughout, very dense.
27.0'	2	80	27 - 29'	21/22/29/21	Same as above, dense.
29.0'	1	70	29 - 31'	18/29/37/32	SILTY SAND, dark brown, with cobbles and rock fragments, moist, very dense.
31.0'	8	10	31 - 33'	26/22/21/14	Poor retrieval, dense, groundwater at approximately 32.0'.
					B.O.B at 33.0' at 16:15 on 02/13/96

BORING LOG Environmental Strategies Corporation Four Penn Center West, Ste. 315 Pittsburgh, Pennsylvania 15276	PROJECT Ashland Chemical Company 3 Broad Street Binghamton, New York 13902 Project # 461623/502	Boring No. B-8 Sheet 1 of 2 Date Drilled 02/15/96

Drilling Co. Empire Soils Inc.	Boring Location SWMU 7
Drillers Randy Bush and Ed Cole	Ground Elevation
ESC Geologist Blayne Diacont	TOC Elevation

Boring	Casing/Screen	Sampler
Method Hollow Stem Auger	Type N/A	Method 3" Split-spoon
Hole Diameter 8.25"	Diameter N/A	Length (ft) 2.0
Inside Diameter 4.25"	Screen Length N/A	Hammer (lb) 140
Total Depth 32.0'	Screen Slot Size N/A	Fall (in) 30

Depth	P.I.D. (ppm)	% Recov.	Sample Depth	Blows/6"	Sample Description
2.0'	1	80	2 - 4'	40/24/18/8	SILT, moderate brown, with small rounded cobbles and rock fragments, dry to slightly moist, dense.
4.0'	1	15	4 - 6'	9/6/5/4	Poor retrieval, same as above, moist, medium dense.
6.0'	1	80	6 - 8'	5/3/3/3	SILT, with cobbles and rock fragments, slightly moist, loose.
8.0'	3	80	8 - 10'	12/11/10/15	COBBLES, small to large, with some silt, rock fragments, moist, medium dense.
10.0'	2	90	10 - 12'	20/27/24/27	COBBLES, large, rock fragments, and silty sand, slightly moist, very dense.
12.0'	1	90	12 - 14'	30/20/14/21	Same as above.
14.0'	1	100	14 -16'	16/17/11/11	Same as above, slightly moist; sand at 15 - 16' medium grained, dark brown to light brown, very little silt in the sand, moist, medium density.
16.0'	1	80	16 - 18'	10/28/37/34	16 - 17' SAND, slightly moist. 17 - 18' SAND and COBBLE, very dense.
18.0'	0	90	18 - 20'	28/38/28/36	SILTY SAND, and cobbles, and rock fragments very dense.
20.0'	0	80	20 - 22'	26/28/20/40	Same as above, dense.
22.0'	1	70	22 - 24'	34/48/37/24	Same as above, very dense.

BORING LOG Environmental Strategies Corporation Four Penn Center West, Ste. 315 Pittsburgh, Pennsylvania 15276	PROJECT Ashland Chemical Company 3 Broad Street Binghamton, New York 13902 Project # 461623/502	Boring No. B-8 Sheet 2 of 2 Date Drilled 02/15/96

Drilling Co. Empire Soils Inc.	Boring Location SWMU 7
Drillers Randy Bush and Ed Cole	Ground Elevation
ESC Geologist Blayne Diacont	TOC Elevation

Boring	Casing/Screen	Sampler
Method Hollow Stem Auger	Type N/A	Method 3" Split-spoon
Hole Diameter 8.25"	Diameter N/A	Length (ft) 2.0
Inside Diameter 4.25"	Screen Length N/A	Hammer (lb) 140
Total Depth 32.0'	Screen Slot Size N/A	Fall (in) 30

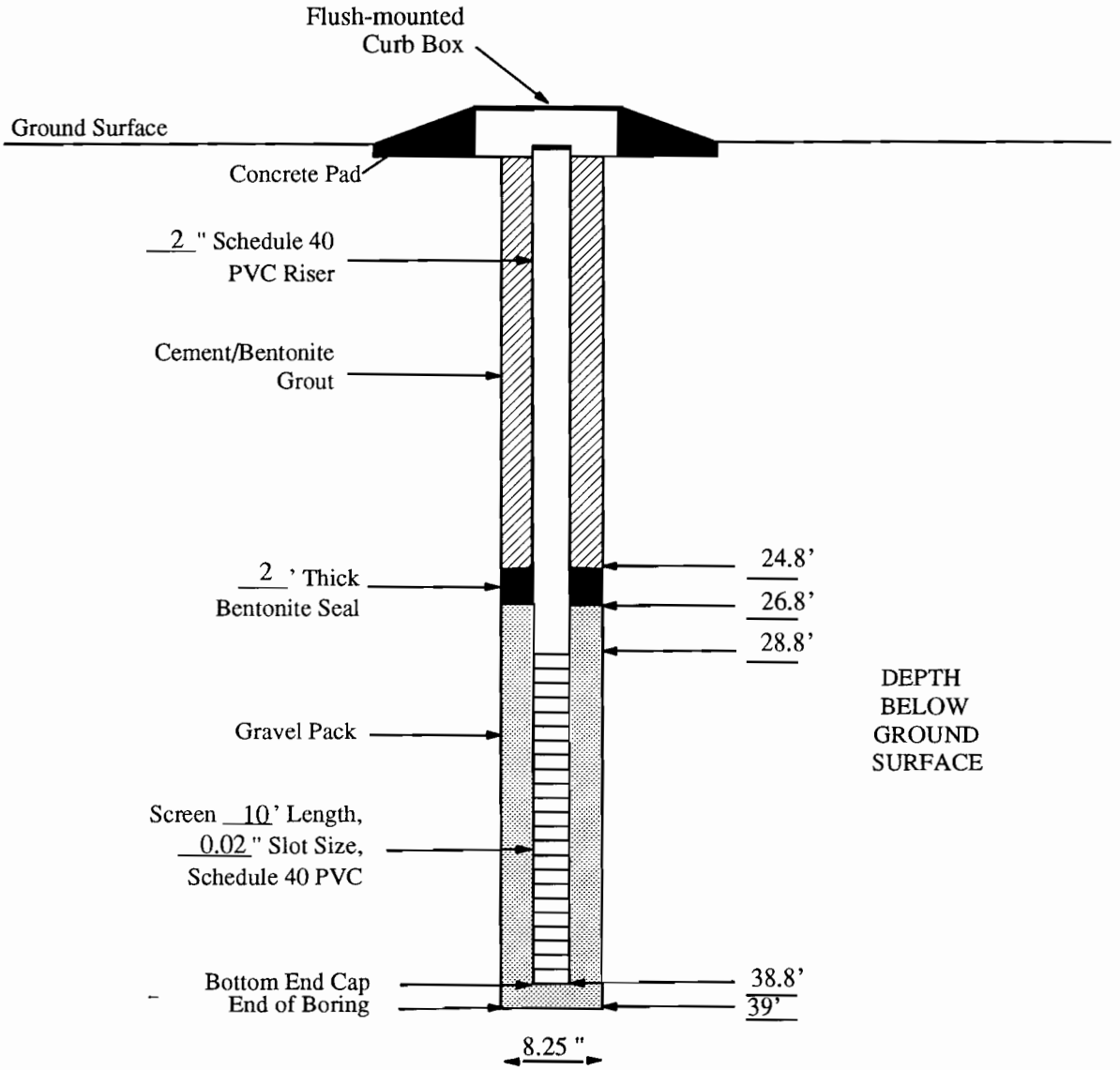
Depth	P.I.D. (ppm)	% Recov.	Sample Depth	Blows/6"	Sample Description
24.0'	0	80	24 - 26'	17/23/36/36	Same as above, dry, very dense.
26.0'	0	70	26 - 28'	50/54/44/50	COBBLES large to small, and rock fragments, with light brown silty sand, dry, very dense.
28.0'	1	80	28 - 30'		Same as above.
30.0'	0	90	30 - 32'		Same as above, groundwater encountered at 31.8'.
					B.O.B at 32.0' at 15:40 on 02/15/96

Appendix B - As-Built Well Diagrams

SITE NAME: Ashland Chemical Company

LOCATION: Binghamton, New York

DATE: February 8, 1996



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Pittsburgh, Pennsylvania 15276
(412) 787-5100

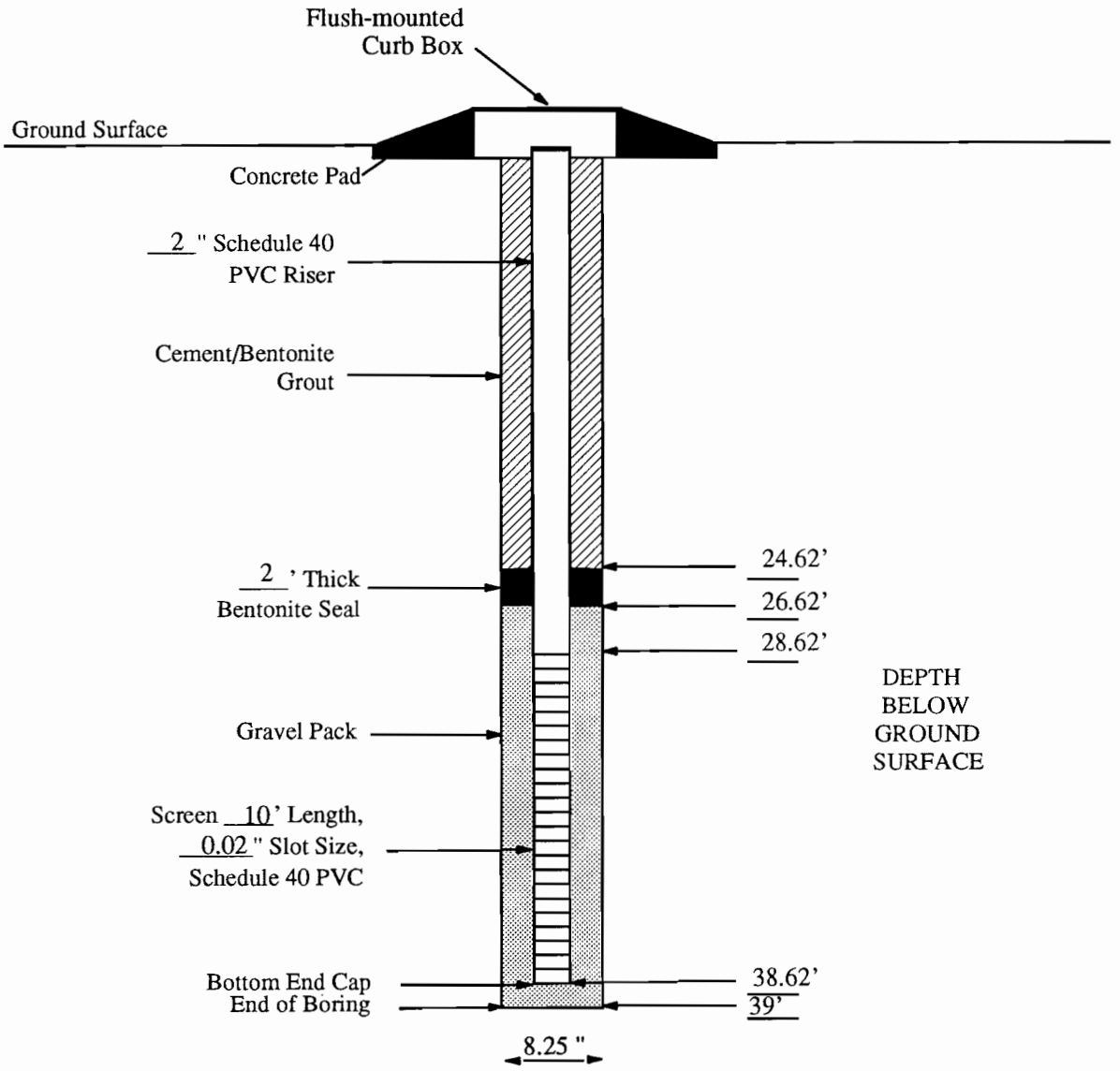
As-built Well Diagram for MW-1
Ashland Chemical Company
Binghamton, New York

f:\lotus\461962\mw-1

SITE NAME: Ashland Chemical Company

LOCATION: Binghamton, New York

DATE: February 8, 1996



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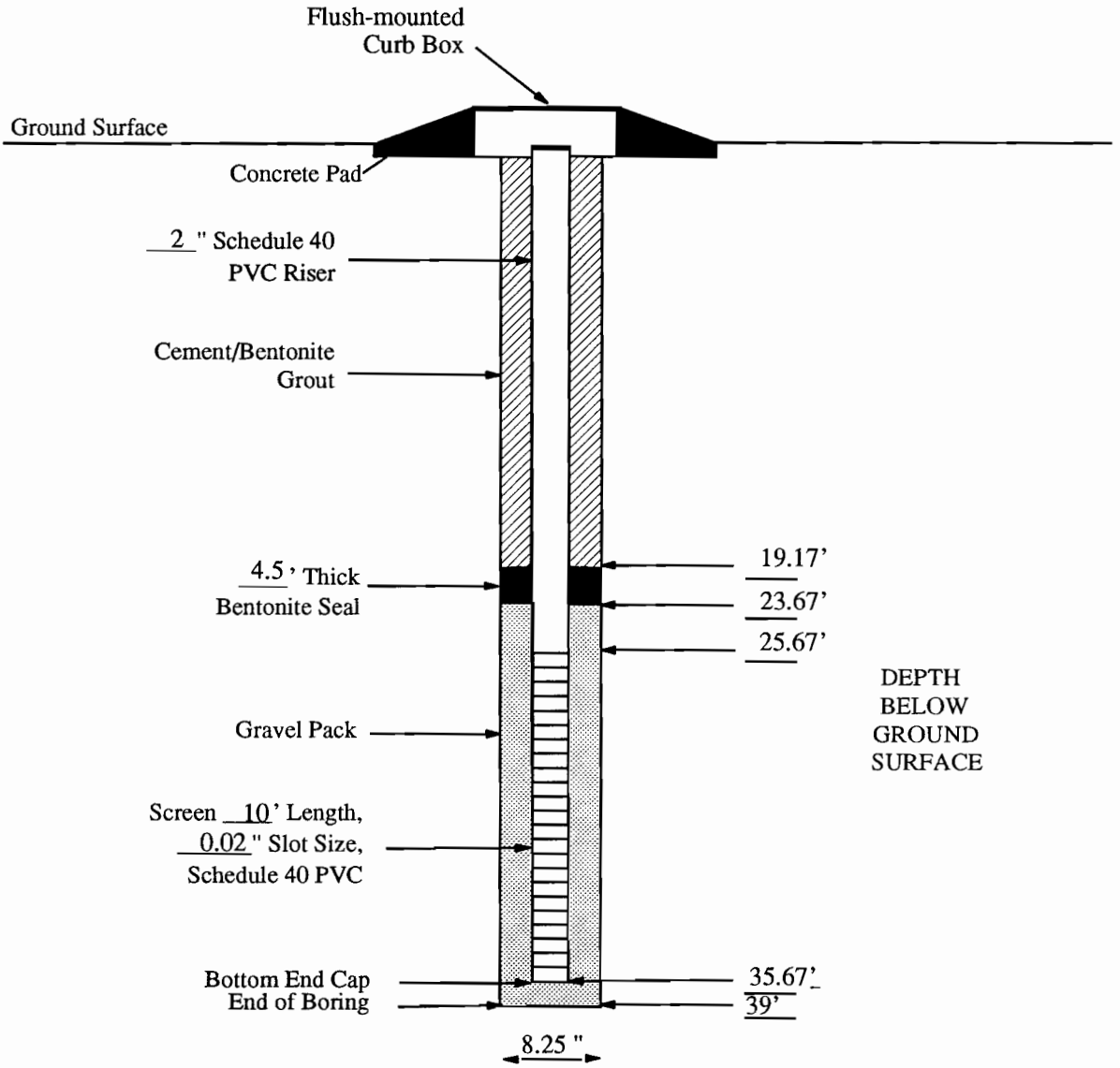
As-built Well Diagram for MW-2
Ashland Chemical Company
Binghamton, New York

f:\lotus\461962\mw-2

SITE NAME: Ashland Chemical Company

LOCATION: Binghamton, New York

DATE: February 8, 1996



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As-built Well Diagram for MW-3
Ashland Chemical Company
Binghamton, New York

f:\lotus\461962\mw-3

Appendix C - Soil Laboratory Analytical Data

SL ***SAVANNAH LABORATORIES***
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S6-80942
Received: 16 FEB 96
Reported: 22 MAR 96

Mr. Dave Blaushild
Environmental Strategies Corporation
Penn Center West, 4, Suite 315
Pittsburgh, PA 15276

CC: Mr. Ted Horton Project: BING02/461623.502/ACI-BINGHAMTON, NY
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED	SDG#
80942-1	MW-2 (11-13')	02-12-96/1100	BING02
80942-2	MW-2 (27-29')	02-12-96/1500	BING02
80942-3	B4 (6-8')	02-13-96/1000	BING02
80942-4	B4 (27-29')	02-13-96/1200	BING02
80942-5	B7 (12-14')	02-13-96/1400	BING02

PARAMETER	80942-1	80942-2	80942-3	80942-4	80942-5
Total Alkane Hydrocarbons (GC-MS/SIM)					
Alkane Hydrocarbons, ug/kg dw	290	330	460	640	9000
Surrogate - 1,2-Dichloroethane-d4	100 %	110 %	115 %	105 %	130 %
Date Analyzed	02.26.96	02.26.96	02.26.96	02.26.96	02.26.96
Dilution factor	1.0	1.0	1.0	1.0	1.0
Batch ID	0223C-I	0223C-I	0223C-I	0223C-I	0223C-I
Clock ID	1I0226	1I0226	1I0226	1I0226	1I0226
Alcohols (DAI)					
Isopropanol, mg/kg dw	1.1U	1.1U	1.1U	1.0U	1.0U
Methanol, mg/kg dw	1.1U	1.8	1.1U	1.0U	1.1
Date Extracted	02.26.96	02.26.96	02.26.96	02.26.96	02.26.96
Date Analyzed	02.26.96	02.26.96	02.26.96	02.26.96	02.26.96
Dilution factor	1.0	1.0	1.0	1.0	1.0
Batch ID	0226T-F	0226T-F	0226T-F	0226T-F	0226T-F
Clock ID	1F0226	1F0226	1F0226	1F0226	1F0226

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80942-2	MW-2 (27-29')	02-12-96/1500	BING02
80942-3	B4 (6-8')	02-13-96/1000	BING02
80942-4	B4 (27-29')	02-13-96/1200	BING02
80942-5	B7 (12-14')	02-13-96/1400	BING02

PARAMETER	80942-1	80942-2	80942-3	80942-4	80942-5
Volatiles by GC/MS (8240)					
Chloromethane, ug/kg dw	11U	11U	11U	10U	11U
Bromomethane, ug/kg dw	11U	11U	11U	10U	11U
Vinyl chloride, ug/kg dw	11U	11U	11U	10U	11U
Chloroethane, ug/kg dw	11U	11U	11U	10U	11U
Methylene chloride (Dichloromethane), ug/kg dw	5.4B	5.8B	6.4B	5.4B	6.3B
Acetone, ug/kg dw	22J	26J	28U	14J	28U
Carbon disulfide, ug/kg dw	5.3U	5.3U	5.6U	5.2U	5.6U
1,1-Dichloroethene, ug/kg dw	5.3U	5.3U	5.6U	5.2U	5.6U
1,1-Dichloroethane, ug/kg dw	5.3U	5.3U	5.6U	5.2U	5.6U
trans-1,2-Dichloroethylene, ug/kg dw	5.3U	5.3U	0.39J	5.2U	2.3J
cis-1,2-Dichloroethene, ug/kg dw	5.3U	5.3U	30	5.2U	90
Chloroform, ug/kg dw	5.3U	5.3U	5.6U	5.2U	5.6U
1,2-Dichloroethane, ug/kg dw	5.3U	5.3U	5.6U	5.2U	5.6U
2-Butanone (MEK), ug/kg dw	8.8J	26U	28U	26U	28U
1,1,1-Trichloroethane, ug/kg dw	5.3U	5.3U	5.6U	5.2U	0.80J
Carbon tetrachloride, ug/kg dw	5.3U	5.3U	5.6U	5.2U	5.6U
Vinyl acetate, ug/kg dw	11U	11U	11U	10U	11U

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80942-3	B4 (6-8')	02-13-96/1000	BING02
80942-4	B4 (27-29')	02-13-96/1200	BING02
80942-5	B7 (12-14')	02-13-96/1400	BING02

PARAMETER	80942-1	80942-2	80942-3	80942-4	80942-5
Bromodichloromethane, ug/kg dw	5.3U	5.3U	5.6U	5.2U	5.6U
1,1,2,2-Tetrachloroethane, ug/kg dw	5.3U	5.3U	5.6U	5.2U	5.6U
1,2-Dichloropropane, ug/kg dw	5.3U	5.3U	5.6U	5.2U	5.6U
trans-1,3-Dichloropropene, ug/kg dw	5.3U	5.3U	5.6U	5.2U	5.6U
Trichloroethene, ug/kg dw	1.6J	5.3U	50	2.8J	54
Dibromochloromethane, ug/kg dw	5.3U	5.3U	5.6U	5.2U	5.6U
1,1,2-Trichloroethane, ug/kg dw	5.3U	5.3U	5.6U	5.2U	5.6U
Benzene, ug/kg dw	5.3U	5.3U	5.6U	5.2U	5.6U
cis-1,3-Dichloropropene, ug/kg dw	5.3U	5.3U	5.6U	5.2U	5.6U
2-Chloroethylvinyl ether, ug/kg dw	53U	53U	56U	52U	56U
Bromoform, ug/kg dw	5.3U	5.3U	5.6U	5.2U	5.6U
2-Hexanone, ug/kg dw	26U	26U	28U	26U	28U
4-Methyl-2-pentanone (MIBK), ug/kg dw	25J	13J	28U	9.4J	28U
Tetrachloroethene, ug/kg dw	9.5	1.0J	89	4.0J	91
Toluene, ug/kg dw	2.2J	0.94J	1.1J	1.0J	0.61J
Chlorobenzene, ug/kg dw	5.3U	5.3U	5.6U	5.2U	5.6U
Ethylbenzene, ug/kg dw	1.3J	0.84J	5.6U	1.3J	0.55J

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REPORT OF RESULTS

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80942-3	B4 (6-8')	02-13-96/1000	BING02
80942-4	B4 (27-29')	02-13-96/1200	BING02
80942-5	B7 (12-14')	02-13-96/1400	BING02

PARAMETER	80942-1	80942-2	80942-3	80942-4	80942-5
Styrene, ug/kg dw	5.3U	5.3U	5.6U	5.2U	5.6U
Xylenes, ug/kg dw	0.94J	0.64J	0.34J	0.97J	0.20J
Surrogate - Toluene-d8	104 %	104 %	105 %	104 %	107 %
Surrogate - 4-Bromofluorobenzene	104 %	104 %	100 %	102 %	102 %
Surrogate - 1,2-Dichloroethane-d4	121 %	121 %	120 %	119 %	125 %
Date Analyzed	02.22.96	02.22.96	02.22.96	02.22.96	02.22.96
Dilution factor	1.0	1.0	1.0	1.0	1.0
Batch ID	0220A-L	0220A-L	0220A-L	0220A-L	0220A-L
Clock ID	1L0222	1L0222	1L0222	1L0222	1L0222
Percent Solids (160.3), %	94	94	89	96	89

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80942-6	B7 (23-25')	02-13-96/1500	BING02
80942-7	B6 (21-23')	02-14-96/1030	BING02
80942-8	B6 (25-27')	02-14-96/1100	BING02
80942-9	B5 (15-17')	02-14-96/1400	BING02
80942-10	B5 (27-29')	02-14-96/1600	BING02

PARAMETER	80942-6	80942-7	80942-8	80942-9	80942-10
Total Alkane Hydrocarbons (GC-MS/SIM)					
Alkane Hydrocarbons, ug/kg dw	750	650	860	850	540
Surrogate - 1,2-Dichloroethane-d4	105 %	110 %	110 %	115 %	110 %
Date Analyzed	02.26.96	02.26.96	02.26.96	02.26.96	02.27.96
Dilution factor	1.0	1.0	1.0	1.0	1.0
Batch ID	0223C-I	0223C-I	0223C-I	0223C-I	0223C-I
Clock ID	1I0226	1I0226	1I0226	1I0226	1I0226
Alcohols (DAI)					
Isopropanol, mg/kg dw	1.0U	1.0U	1.0U	1.2U	1.1U
Methanol, mg/kg dw	1.6	1.1	1.0U	1.2U	1.1U
Date Extracted	02.26.96	02.26.96	02.26.96	02.26.96	02.26.96
Date Analyzed	02.26.96	02.26.96	02.26.96	02.27.96	02.27.96
Dilution factor	1.0	1.0	1.0	1.0	1.0
Batch ID	0226T-F	0226T-F	0226T-F	0226T-F	0226T-F
Clock ID	1F0226	1F0226	1F0226	1F0226	1F0226

SL ***SAVANNAH LABORATORIES***
& ENVIRONMENTAL SERVICES, INC.

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED	SDG#
80942-6	B7 (23-25')	02-13-96/1500	BING02
80942-7	B6 (21-23')	02-14-96/1030	BING02
80942-8	B6 (25-27')	02-14-96/1100	BING02
80942-9	B5 (15-17')	02-14-96/1400	BING02
80942-10	B5 (27-29')	02-14-96/1600	BING02

PARAMETER	80942-6	80942-7	80942-8	80942-9	80942-10
Volatiles by GC/MS (8240)					
Chloromethane, ug/kg dw	10U	10U	10U	12U	11U
Bromomethane, ug/kg dw	10U	10U	10U	12U	11U
Vinyl chloride, ug/kg dw	10U	10U	10U	12U	11U
Chloroethane, ug/kg dw	10U	10U	10U	12U	11U
Methylene chloride (Dichloromethane), ug/kg dw	5.4B	4.4JB	5.4B	1.2J	5.4B
Acetone, ug/kg dw	21J	18J	9.1J	26J	46
Carbon disulfide, ug/kg dw	5.2U	5.2U	5.3U	5.9U	5.3U
1,1-Dichloroethene, ug/kg dw	5.2U	5.2U	5.3U	5.9U	5.3U
1,1-Dichloroethane, ug/kg dw	5.2U	5.2U	5.3U	5.9U	5.3U
trans-1,2-Dichloroethylene, ug/kg dw	5.2U	5.2U	5.3U	5.9U	5.3U
cis-1,2-Dichloroethene, ug/kg dw	5.2U	5.2U	5.3U	5.9U	5.3U
Chloroform, ug/kg dw	5.2U	5.2U	5.3U	5.9U	5.3U
1,2-Dichloroethane, ug/kg dw	5.2U	5.2U	5.3U	5.9U	5.3U
2-Butanone (MEK), ug/kg dw	26U	26U	26U	29U	25J
1,1,1-Trichloroethane, ug/kg dw	5.2U	5.2U	5.3U	5.9U	5.3U
Carbon tetrachloride, ug/kg dw	5.2U	5.2U	5.3U	5.9U	5.3U
Vinyl acetate, ug/kg dw	10U	10U	10U	12U	11U

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CC: Mr. Ted Horton Project: BING02/461623.502/ACI-BINGHAMTON, NY
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED	SDG#
80942-6	B7 (23-25')	02-13-96/1500	BING02
80942-7	B6 (21-23')	02-14-96/1030	BING02
80942-8	B6 (25-27')	02-14-96/1100	BING02
80942-9	B5 (15-17')	02-14-96/1400	BING02
80942-10	B5 (27-29')	02-14-96/1600	BING02

PARAMETER	80942-6	80942-7	80942-8	80942-9	80942-10
Bromodichloromethane, ug/kg dw	5.2U	5.2U	5.3U	5.9U	5.3U
1,1,2,2-Tetrachloroethane, ug/kg dw	5.2U	5.2U	5.3U	5.9U	5.3U
1,2-Dichloropropane, ug/kg dw	5.2U	5.2U	5.3U	5.9U	5.3U
trans-1,3-Dichloropropene, ug/kg dw	5.2U	5.2U	5.3U	5.9U	5.3U
Trichloroethene, ug/kg dw	0.70J	1.9J	2.1J	3.7J	4.4J
Dibromochloromethane, ug/kg dw	5.2U	5.2U	5.3U	5.9U	5.3U
1,1,2-Trichloroethane, ug/kg dw	5.2U	5.2U	5.3U	5.9U	5.3U
Benzene, ug/kg dw	5.2U	5.2U	5.3U	5.9U	5.3U
cis-1,3-Dichloropropene, ug/kg dw	5.2U	5.2U	5.3U	5.9U	5.3U
2-Chloroethylvinyl ether, ug/kg dw	52U	52U	53U	59U	53U
Bromoform, ug/kg dw	5.2U	5.2U	5.3U	5.9U	5.3U
2-Hexanone, ug/kg dw	26U	26U	26U	29U	26U
4-Methyl-2-pentanone (MIBK), ug/kg dw	26U	6.7J	6.6J	7.8J	52
Tetrachloroethene, ug/kg dw	1.6J	3.5J	3.6J	4.5J	5.2J
Toluene, ug/kg dw	5.2U	0.91J	1.0J	1.5J	1.3J
Chlorobenzene, ug/kg dw	5.2U	5.2U	5.3U	5.9U	5.3U
Ethylbenzene, ug/kg dw	0.90J	1.0J	1.4J	5.9U	1.0J

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REPORT OF RESULTS

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80942-7	B6 (21-23')	02-14-96/1030	BING02
80942-8	B6 (25-27')	02-14-96/1100	BING02
80942-9	B5 (15-17')	02-14-96/1400	BING02
80942-10	B5 (27-29')	02-14-96/1600	BING02

PARAMETER	80942-6	80942-7	80942-8	80942-9	80942-10
Styrene, ug/kg dw	5.2U	5.2U	5.3U	5.9U	5.3U
Xylenes, ug/kg dw	0.88J	0.86J	1.3J	0.57J	0.74J
Surrogate - Toluene-d8	104 %	102 %	106 %	103 %	104 %
Surrogate - 4-Bromofluorobenzene	102 %	102 %	102 %	105 %	100 %
Surrogate - 1,2-Dichloroethane-d4	121 %	121 %	119 %	119 %	121 %
Date Analyzed	02.22.96	02.22.96	02.22.96	02.23.96	02.22.96
Dilution factor	1.0	1.0	1.0	1.0	1.0
Batch ID	0220A-L	0220A-L	0220A-L	0220A-L	0220A-L
Clock ID	1L0222	1L0222	1L0222	2L0222	1L0222
Percent Solids (160.3), %	96	97	95	85	94

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED	SDG#
80942-11	B3 (8-10')	02-15-96/1000	BING02
80942-12	B3 (26-28')	02-15-96/1200	BING02
80942-13	B8 (8-10')	02-15-96/1430	BING02
80942-14	B8 (10-12')	02-15-96/1500	BING02

PARAMETER	80942-11	80942-12	80942-13	80942-14
Total Alkane Hydrocarbons (GC-MS/SIM)				
Alkane Hydrocarbons, ug/kg dw	830	1100	860	2500
Surrogate - 1,2-Dichloroethane-d4	125 %	210 %	115 %	115 %
Date Analyzed	02.27.96	02.27.96	02.27.96	02.27.96
Dilution factor	1.0	1.0	1.0	1.0
Batch ID	0223C-I	0223C-I	0223C-I	0223C-I
Clock ID	1I0226	1I0226	1I0226	1I0226
Alcohols (DAI)				
Isopropanol, mg/kg dw	1.1U	2.1U	0.26J	1.1U
Methanol, mg/kg dw	1.1U	2.1U	1.1U	1.1U
Date Extracted	02.26.96	02.26.96	02.26.96	02.26.96
Date Analyzed	02.27.96	02.27.96	02.27.96	02.27.96
Dilution factor	1.0	1.0	1.0	1.0
Batch ID	0226T-F	0226T-F	0226T-F	0226T-F
Clock ID	2F0226	2F0226	2F0226	2F0226

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80942-12	B3 (26-28')	02-15-96/1200	BING02
80942-13	B8 (8-10')	02-15-96/1430	BING02
80942-14	B8 (10-12')	02-15-96/1500	BING02

PARAMETER	80942-11	80942-12	80942-13	80942-14
Volatiles by GC/MS (8240)				
Chloromethane, ug/kg dw	22U	21U	11U	11U
Bromomethane, ug/kg dw	22U	21U	11U	11U
Vinyl chloride, ug/kg dw	22U	21U	11U	11U
Chloroethane, ug/kg dw	22U	21U	11U	11U
Methylene chloride (Dichloromethane), ug/kg dw	1.6J	12B	1.1J	5.2JB
Acetone, ug/kg dw	56U	52U	28U	7.3J
Carbon disulfide, ug/kg dw	11U	10U	5.6U	5.4U
1,1-Dichloroethene, ug/kg dw	11U	10U	5.6U	5.4U
1,1-Dichloroethane, ug/kg dw	11U	10U	5.6U	5.4U
trans-1,2-Dichloroethylene, ug/kg dw	11U	10U	5.6U	5.4U
cis-1,2-Dichloroethene, ug/kg dw	6.9J	10U	5.6U	2.0J
Chloroform, ug/kg dw	11U	10U	5.6U	5.4U
1,2-Dichloroethane, ug/kg dw	11U	10U	5.6U	5.4U
2-Butanone (MEK), ug/kg dw	56U	11J	28U	27U
1,1,1-Trichloroethane, ug/kg dw	11U	10U	5.6U	5.4U
Carbon tetrachloride, ug/kg dw	11U	10U	5.6U	5.4U
Vinyl acetate, ug/kg dw	22U	21U	11U	11U
Bromodichloromethane, ug/kg dw	11U	10U	5.6U	5.4U
1,1,2,2-Tetrachloroethane, ug/kg dw	11U	10U	5.6U	5.4U

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80942-11	B3 (8-10')	02-15-96/1000	BING02
80942-12	B3 (26-28')	02-15-96/1200	BING02
80942-13	B8 (8-10')	02-15-96/1430	BING02
80942-14	B8 (10-12')	02-15-96/1500	BING02

PARAMETER	80942-11	80942-12	80942-13	80942-14
1,2-Dichloropropane, ug/kg dw	11U	10U	5.6U	5.4U
trans-1,3-Dichloropropene, ug/kg dw	11U	10U	5.6U	5.4U
Trichloroethene, ug/kg dw	120	20	7.6	26
Dibromochloromethane, ug/kg dw	11U	10U	5.6U	5.4U
1,1,2-Trichloroethane, ug/kg dw	11U	10U	5.6U	5.4U
Benzene, ug/kg dw	11U	10U	5.6U	5.4U
cis-1,3-Dichloropropene, ug/kg dw	11U	10U	5.6U	5.4U
2-Chloroethylvinyl ether, ug/kg dw	110U	100U	56U	54U
Bromoform, ug/kg dw	11U	10U	5.6U	5.4U
2-Hexanone, ug/kg dw	56U	52U	28U	27U
4-Methyl-2-pentanone (MIBK), ug/kg dw	56U	52U	18J	27U
Tetrachloroethene, ug/kg dw	250	22	10	30
Toluene, ug/kg dw	1.4J	10U	5.6U	5.4U
Chlorobenzene, ug/kg dw	11U	10U	5.6U	5.4U
Ethylbenzene, ug/kg dw	11U	1.4J	0.81J	5.4U
Styrene, ug/kg dw	11U	10U	5.6U	5.4U
Xylenes, ug/kg dw	11U	1.1J	0.33J	5.4U
Surrogate - Toluene-d8	109 %	110 %	105 %	106 %
Surrogate - 4-Bromofluorobenzene	100 %	100 %	100 %	100 %
Surrogate - 1,2-Dichloroethane-d4	127 %	120 %	120 %	120 %
Date Analyzed	02.23.96	02.22.96	02.23.96	02.22.96
Dilution factor	2.0	1.0	1.0	1.0
Batch ID	0220A-L	0220A-L	0220A-L	0220A-L
Clock ID	2L0222	1L0222	2L0222	1L0222

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED	SDG#
80942-11	B3 (8-10')	02-15-96/1000	BING02
80942-12	B3 (26-28')	02-15-96/1200	BING02
80942-13	B8 (8-10')	02-15-96/1430	BING02
80942-14	B8 (10-12')	02-15-96/1500	BING02

PARAMETER	80942-11	80942-12	80942-13	80942-14
Percent Solids (160.3), %	89	48	89	93

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	DATE/ TIME SAMPLED	SDG#
80942-15	Matrix Spike (MW 2 11-13') Result	02-12-96/1100	BING02
80942-16	Matrix Spike Dup (MW 2 11-13') Result	02-12-96/1100	BING02

PARAMETER	80942-15	80942-16
Volatiles by GC/MS (8240)		
1,1-Dichloroethene, ug/kg dw	46	56
Trichloroethene, ug/kg dw	47	55
Benzene, ug/kg dw	47	56
Toluene, ug/kg dw	46	56
Chlorobenzene, ug/kg dw	46	54
Surrogate - Toluene-d8	104 %	106 %
Surrogate - 4-Bromofluorobenzene	100 %	94 %
Surrogate - 1,2-Dichloroethane-d4	121 %	132 %
Date Analyzed	02.22.96	02.22.96
Dilution factor	1.0	1.0
Batch ID	0220A-L	0220A-L
Clock ID	1L0222	1L0222
Alcohols (DAI)		
Isopropanol, mg/kg dw	20	20
Methanol, mg/kg dw	18	17
Date Extracted	02.26.96	02.26.96
Date Analyzed	02.28.96	02.28.96
Dilution factor	1.0	1.0
Batch ID	0226T-F	0226T-F
Clock ID	2F0226	2F0226

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LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	SDG#
80942-17	Matrix Spike (MS) Expected Value	BING02
80942-18	MS/MSD % Recovery	BING02
80942-19	MS % Recovery Limit	BING02
80942-20	MS % RPD (Limit)	BING02

PARAMETER	80942-17	80942-18	80942-19	80942-20
Volatiles by GC/MS (8240)				
1,1-Dichloroethene, ug/kg dw	53	87/106 %	36-161 %	50 %
Trichloroethene, ug/kg dw	53	86/101 %	43-140 %	27 %
Benzene, ug/kg dw	53	89/106 %	48-150 %	27 %
Toluene, ug/kg dw	53	83/102 %	51-141 %	27 %
Chlorobenzene, ug/kg dw	53	87/102 %	54-138 %	33 %
Alcohols (DAI)				
Isopropanol, mg/kg dw	21	95/95 %	50-150 %	0 %
Methanol, mg/kg dw	21	86/81 %	50-150 %	6 %

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LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
80942-21	Equipment Blank	02-15-96/0800	BING02

PARAMETER	80942-21
Volatiles by GC/MS (8240)	
Chloromethane, ug/l	10U
Bromomethane, ug/l	10U
Vinyl chloride, ug/l	10U
Chloroethane, ug/l	10U
Methylene chloride (Dichloromethane), ug/l	440E
Acetone, ug/l	25U
Carbon disulfide, ug/l	5.0U
1,1-Dichloroethene, ug/l	5.0U
1,1-Dichloroethane, ug/l	5.0U
trans-1,2-Dichloroethylene, ug/l	5.0U
cis-1,2-Dichloroethene, ug/l	5.0U
Chloroform, ug/l	5.0U
1,2-Dichloroethane, ug/l	5.0U
2-Butanone (MEK), ug/l	25U
1,1,1-Trichloroethane, ug/l	5.0U
Carbon tetrachloride, ug/l	5.0U
Vinyl acetate, ug/l	10U
Bromodichloromethane, ug/l	5.0U
1,1,2,2-Tetrachloroethane, ug/l	5.0U
1,2-Dichloropropane, ug/l	5.0U
trans-1,3-Dichloropropene, ug/l	5.0U
Trichloroethene, ug/l	5.0U
Dibromochloromethane, ug/l	5.0U

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LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
80942-21	Equipment Blank	02-15-96/0800	BING02

PARAMETER	80942-21				
1,1,2-Trichloroethane, ug/l	5.0U				
Benzene, ug/l	5.0U				
cis-1,3-Dichloropropene, ug/l	5.0U				
2-Chloroethylvinyl ether, ug/l	50U				
Bromoform, ug/l	5.0U				
2-Hexanone, ug/l	25U				
4-Methyl-2-pentanone (MIBK), ug/l	25U				
Tetrachloroethene, ug/l	5.0U				
Toluene, ug/l	5.0U				
Chlorobenzene, ug/l	5.0U				
Ethylbenzene, ug/l	5.0U				
Styrene, ug/l	5.0U				
Xylenes, ug/l	5.0U				
Surrogate - Toluene-d8	100 %				
Surrogate - 4-Bromofluorobenzene	98 %				
Surrogate - 1,2-Dichloroethane-d4	94 %				
Date Analyzed	02.24.96				
Dilution factor	1.0				
Batch ID	0219B-M				
Clock ID	2M0223				

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LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
80942-21	Equipment Blank	02-15-96/0800	BING02

PARAMETER	80942-21
Total Alkane Hydrocarbons (GC-MS/SIM)	
Alkane Hydrocarbons, ug/l	19
Surrogate - 1,2-Dichloroethane-d4	100 %
Date Analyzed	02.26.96
Dilution factor	1.0
Batch ID	0223C-I
Clock ID	1I0226
Alcohols (DAI)	
Isopropanol, mg/l	1.0U
Methanol, mg/l	1.0U
Date Extracted	02.26.96
Date Analyzed	02.27.96
Dilution factor	1.0
Batch ID	0226T-F
Clock ID	2F0226
Arsenic (7060)	
Arsenic (7060), ug/l	10.0UW
Date Analyzed	02.26.96
Barium (6010)	
Barium (6010), ug/l	10.0U
Date Analyzed	02.26.96
Cadmium (6010)	
Cadmium (6010), ug/l	5.0U
Date Analyzed	02.26.96

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LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
80942-21	Equipment Blank	02-15-96/0800	BING02

PARAMETER	80942-21
Chromium (6010)	
Chromium (6010), ug/l	10.0U
Date Analyzed	02.26.96
Lead (7421)	
Lead (7421), ug/l	5.0U
Date Analyzed	02.26.96
Selenium (7740)	
Selenium (7740), ug/l	10.0U
Date Analyzed	02.26.96
Silver (6010)	
Silver (6010), ug/l	10.0U
Date Analyzed	02.26.96
Mercury (7470/7471)	
Mercury (7470/7471), ug/l	0.20U
Date Analyzed	02.23.96
Sodium (6010)	
Sodium (6010), ug/l	500U
Date Analyzed	02.27.96
Sulfate as SO4	
Sulfate as SO4, mg/l	5.0U
Date Analyzed	03.05.96
Dilution factor	1.0
Batch ID	0305A

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& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S6-80942
Received: 16 FEB 96
Reported: 22 MAR 96

Mr. Dave Blaushild
Environmental Strategies Corporation
Penn Center West, 4, Suite 315
Pittsburgh, PA 15276

CC: Mr. Ted Horton Project: BING02/461623.502/ACI-BINGHAMTON, NY
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
80942-21	Equipment Blank	02-15-96/0800	BING02

PARAMETER	80942-21
Chloride (9251)	
Chloride (9251), mg/l	1.0U
Date Analyzed	03.05.96
Dilution factor	1.0
Batch ID	0305A
Nitrate-N (EPA CE)	
Nitrate-N (EPA CE), mg/l	0.050U
Date Analyzed	02.16.96
Dilution factor	1.0
Batch ID	0304A
Formaldehyde (8315)	
Formaldehyde, ug/l	50U
Date Extracted	02.18.96
Date Analyzed	02.18.96
Ammonia-N	
Ammonia-N (350.1), mg/l	0.030U
Date Analyzed	02.21.96
Dilution factor	1.0
Batch ID	0221A
pH (150.1)	
pH, units	6.8
Date Analyzed	02.16.96
Batch ID	0216A

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Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED	SDG#
80942-22	Trip Blank	02-12-96	BING02

PARAMETER	80942-22
Volatiles by GC/MS (8240)	
Chloromethane, ug/l	10U
Bromomethane, ug/l	10U
Vinyl chloride, ug/l	10U
Chloroethane, ug/l	10U
Methylene chloride (Dichloromethane), ug/l	5.0U
Acetone, ug/l	25U
Carbon disulfide, ug/l	5.0U
1,1-Dichloroethene, ug/l	5.0U
1,1-Dichloroethane, ug/l	5.0U
trans-1,2-Dichloroethylene, ug/l	5.0U
cis-1,2-Dichloroethene, ug/l	5.0U
Chloroform, ug/l	5.0U
1,2-Dichloroethane, ug/l	5.0U
2-Butanone (MEK), ug/l	25U
1,1,1-Trichloroethane, ug/l	5.0U
Carbon tetrachloride, ug/l	5.0U
Vinyl acetate, ug/l	10U
Bromodichloromethane, ug/l	5.0U
1,1,2,2-Tetrachloroethane, ug/l	5.0U
1,2-Dichloropropane, ug/l	5.0U
trans-1,3-Dichloropropene, ug/l	5.0U
Trichloroethene, ug/l	5.0U
Dibromochloromethane, ug/l	5.0U

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Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED	SDG#
80942-22	Trip Blank	02-12-96	BING02

PARAMETER	80942-22
1,1,2-Trichloroethane, ug/l	5.0U
Benzene, ug/l	5.0U
cis-1,3-Dichloropropene, ug/l	5.0U
2-Chloroethylvinyl ether, ug/l	50U
Bromoform, ug/l	5.0U
2-Hexanone, ug/l	25U
4-Methyl-2-pentanone (MIBK), ug/l	25U
Tetrachloroethene, ug/l	5.0U
Toluene, ug/l	5.0U
Chlorobenzene, ug/l	5.0U
Ethylbenzene, ug/l	5.0U
Styrene, ug/l	5.0U
Xylenes, ug/l	5.0U
Surrogate - Toluene-d8	100 %
Surrogate - 4-Bromofluorobenzene	96 %
Surrogate - 1,2-Dichloroethane-d4	96 %
Date Analyzed	02.24.96
Dilution factor	1.0
Batch ID	0219B-M
Clock ID	2M0223

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Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED	SDG#
80942-22	Trip Blank	02-12-96	BING02

PARAMETER	80942-22
Total Alkane Hydrocarbons (GC-MS/SIM)	
Alkane Hydrocarbons, ug/l	1.0U
Surrogate - 1,2-Dichloroethane-d4	100 %
Date Analyzed	02.26.96
Dilution factor	1.0
Batch ID	0223C-I
Clock ID	1I0226
Alcohols (DAI)	
Isopropanol, mg/l	0.20J
Methanol, mg/l	1.0U
Date Extracted	02.26.96
Date Analyzed	02.27.96
Dilution factor	1.0
Batch ID	0226T-F
Clock ID	2F0226

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CC: Mr. Ted Horton Project: BING02/461623.502/ACI-BINGHAMTON, NY
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	SDG#
80942-23	Method Blank Liquid	BING02

PARAMETER	80942-23
Volatiles by GC/MS (8240)	
Chloromethane, ug/l	10U
Bromomethane, ug/l	10U
Vinyl chloride, ug/l	10U
Chloroethane, ug/l	10U
Methylene chloride (Dichloromethane), ug/l	5.0U
Acetone, ug/l	25U
Carbon disulfide, ug/l	5.0U
1,1-Dichloroethene, ug/l	5.0U
1,1-Dichloroethane, ug/l	5.0U
trans-1,2-Dichloroethylene, ug/l	5.0U
cis-1,2-Dichloroethene, ug/l	5.0U
Chloroform, ug/l	5.0U
1,2-Dichloroethane, ug/l	5.0U
2-Butanone (MEK), ug/l	25U
1,1,1-Trichloroethane, ug/l	5.0U
Carbon tetrachloride, ug/l	5.0U
Vinyl acetate, ug/l	10U
Bromodichloromethane, ug/l	5.0U
1,1,2,2-Tetrachloroethane, ug/l	5.0U
1,2-Dichloropropane, ug/l	5.0U
trans-1,3-Dichloropropene, ug/l	5.0U
Trichloroethene, ug/l	5.0U
Dibromochloromethane, ug/l	5.0U

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Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	SDG#
80942-23	Method Blank Liquid	BING02

PARAMETER	80942-23
1,1,2-Trichloroethane, ug/l	5.0U
Benzene, ug/l	5.0U
cis-1,3-Dichloropropene, ug/l	5.0U
2-Chloroethylvinyl ether, ug/l	50U
Bromoform, ug/l	5.0U
2-Hexanone, ug/l	25U
4-Methyl-2-pentanone (MIBK), ug/l	25U
Tetrachloroethene, ug/l	5.0U
Toluene, ug/l	5.0U
Chlorobenzene, ug/l	5.0U
Ethylbenzene, ug/l	5.0U
Styrene, ug/l	5.0U
Xylenes, ug/l	5.0U
Surrogate - Toluene-d8	104 %
Surrogate - 4-Bromofluorobenzene	104 %
Surrogate - 1,2-Dichloroethane-d4	94 %
Date Analyzed	02.24.96
Dilution factor	1.0
Batch ID	0219B-M
Clock ID	2M0223

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	SDG#
80942-23	Method Blank Liquid	BING02

PARAMETER	80942-23
Total Alkane Hydrocarbons (GC-MS/SIM)	
Alkane Hydrocarbons, ug/l	1.0U
Surrogate - 1,2-Dichloroethane-d4	80 %
Date Analyzed	02.26.96
Dilution factor	1.0
Batch ID	0223C-I
Clock ID	1I0226
Alcohols (DAI)	
Isopropanol, mg/l	1.0U
Methanol, mg/l	1.0U
Date Extracted	02.26.96
Date Analyzed	02.27.96
Dilution factor	1.0
Batch ID	0226T-F
Clock ID	2F0226
Formaldehyde (8315)	
Formaldehyde, ug/l	4.4J
Date Extracted	02.18.96
Date Analyzed	02.18.96
Sulfate as SO4	
Sulfate as SO4, mg/l	5.0U
Date Analyzed	03.05.96
Dilution factor	1.0
Batch ID	0305A

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Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	SDG#
80942-23	Method Blank Liquid	BING02

PARAMETER	80942-23
Chloride (9251)	
Chloride (9251), mg/l	1.0U
Date Analyzed	03.05.96
Dilution factor	1.0
Batch ID	0305A
Nitrate-N (EPA CE)	
Nitrate-N (EPA CE), mg/l	0.050U
Date Analyzed	02.16.96
Dilution factor	1.0
Batch ID	0304A
Ammonia-N	
Ammonia-N (350.1), mg/l	0.030U
Date Analyzed	02.21.96
Dilution factor	1.0
Batch ID	0221A
Arsenic (7060)	
Arsenic (7060), ug/l	10.0U
Date Analyzed	02.26.96
Barium (6010)	
Barium (6010), ug/l	10.0U
Date Analyzed	02.26.96
Cadmium (6010)	
Cadmium (6010), ug/l	5.0U
Date Analyzed	02.26.96

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	SDG#
80942-23	Method Blank Liquid	BING02

PARAMETER	80942-23
Chromium (6010)	
Chromium (6010), ug/l	10.0U
Date Analyzed	02.26.96
Lead (7421)	
Lead (6010), ug/l	5.0U
Date Analyzed	02.26.96
Selenium (7740)	
Selenium (7740), ug/l	10.0U
Date Analyzed	02.26.96
Silver (6010)	
Silver (6010), ug/l	10.0U
Date Analyzed	02.26.96
Mercury (7470/7471)	
Mercury (7470/7471), ug/l	0.20U
Date Analyzed	02.23.96
Sodium (6010)	
Sodium (6010), ug/l	500U
Date Analyzed	02.27.96

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	SDG#
80942-24	Method Blank Soil	BING02
80942-25	Method Blank Soil	BING02

PARAMETER	80942-24	80942-25
Alcohols (DAI)		
Isopropanol, mg/kg dw	1.0U	1.0U
Methanol, mg/kg dw	1.0U	1.0U
Date Extracted	02.26.96	02.26.96
Date Analyzed	02.26.96	02.27.96
Dilution factor	1.0	1.0
Batch ID	0226T-F	0226T-F
Clock ID	1F0226	2F0226

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	SDG# .
80942-24	Method Blank Soil	BING02
80942-25	Method Blank Soil	BING02

PARAMETER	80942-24	80942-25
Volatiles by GC/MS (8240)		
Chloromethane, ug/kg dw	10U	10U
Bromomethane, ug/kg dw	10U	10U
Vinyl chloride, ug/kg dw	10U	10U
Chloroethane, ug/kg dw	10U	10U
Methylene chloride (Dichloromethane), ug/kg dw	1.3J	5.0U
Acetone, ug/kg dw	25U	25U
Carbon disulfide, ug/kg dw	5.0U	5.0U
1,1-Dichloroethene, ug/kg dw	5.0U	5.0U
1,1-Dichloroethane, ug/kg dw	5.0U	5.0U
trans-1,2-Dichloroethylene, ug/kg dw	5.0U	5.0U
cis-1,2-Dichloroethene, ug/kg dw	5.0U	5.0U
Chloroform, ug/kg dw	5.0U	5.0U
1,2-Dichloroethane, ug/kg dw	5.0U	5.0U
2-Butanone (MEK), ug/kg dw	25U	25U
1,1,1-Trichloroethane, ug/kg dw	5.0U	5.0U
Carbon tetrachloride, ug/kg dw	5.0U	5.0U
Vinyl acetate, ug/kg dw	10U	10U
Bromodichloromethane, ug/kg dw	5.0U	5.0U
1,1,2,2-Tetrachloroethane, ug/kg dw	5.0U	5.0U
1,2-Dichloropropane, ug/kg dw	5.0U	5.0U
trans-1,3-Dichloropropene, ug/kg dw	5.0U	5.0U
Trichloroethene, ug/kg dw	5.0U	5.0U

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	SDG#
80942-24	Method Blank Soil	BING02
80942-25	Method Blank Soil	BING02

PARAMETER	80942-24	80942-25
Dibromochloromethane, ug/kg dw	5.0U	5.0U
1,1,2-Trichloroethane, ug/kg dw	5.0U	5.0U
Benzene, ug/kg dw	5.0U	5.0U
cis-1,3-Dichloropropene, ug/kg dw	5.0U	5.0U
2-Chloroethylvinyl ether, ug/kg dw	50U	50U
Bromoform, ug/kg dw	5.0U	5.0U
2-Hexanone, ug/kg dw	25U	25U
4-Methyl-2-pentanone (MIBK), ug/kg dw	25U	25U
Tetrachloroethene, ug/kg dw	5.0U	5.0U
Toluene, ug/kg dw	5.0U	5.0U
Chlorobenzene, ug/kg dw	5.0U	5.0U
Ethylbenzene, ug/kg dw	5.0U	5.0U
Styrene, ug/kg dw	5.0U	5.0U
Xylenes, ug/kg dw	5.0U	5.0U
Surrogate - Toluene-d8	102 %	100 %
Surrogate - 4-Bromofluorobenzene	106 %	106 %
Surrogate - 1,2-Dichloroethane-d4	116 %	120 %
Date Analyzed	02.22.96	02.22.96
Dilution factor	1.0	1.0
Batch ID	0220A-L	0220A-L
Clock ID	1L0222	2L0222

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Pittsburgh, PA 15276

CC: Mr. Ted Horton Project: BING02/461623.502/ACI-BINGHAMTON, NY
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	SDG#
80942-26	Method Blank Soil	BING02

PARAMETER	80942-26
Total Alkane Hydrocarbons (GC-MS/SIM)	
Cyclohexane, ug/kg dw	1.0
Surrogate - 1,2-Dichloroethane-d4	100 %
Date Analyzed	02.26.96
Dilution factor	1.0
Batch ID	0223C-I
Clock ID	1I0226

Methods: EPA SW-846

Karri Derr/Lori McLeod
Karri L. Derr, Project Manager

Final Page Of Report

No. 004835

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME AND LOCATION:	
461623/502	ASHLAND CHEMICAL COMPANY	3 BROAD ST. BINGHAMTON, N.Y.

SAMPLERS: *(Signature)* B.C. Diacont

PRINT NAME: BLAYNE C. DIACONT

LINE	SAMPLE NO.	DATE	TIME	COMP.	GRAB	SAMPLE LOCATION	MATRIX	NO. OF CONTAINERS	VOC's 8240	ISOPROPANOL 8015 (D.A.I.)	METHANOL 8015 (D.A.I.)	ALKANE HYDROCARBONS * NOTE		REMARKS
1	MW-2 (11-13')	02/12/96	1100	X		SWMU 7	SOIL	2	X	X	X	X		(A) ARCHIVE B3 (6-8') TO BE
2	MW-2 (27-29')	02/12/96	1500	X		SWMU 7	SOIL	2	X	X	X	X		ANALYZED ONLY ON REQUEST
3	B4 (6-8')	02/13/96	1000	X		SWMU 7	SOIL	2	X	X	X	X		*NOTE:
4	B4 (27-29')	02/13/96	1200	X		SWMU 7	SOIL	2	X	X	X	X		ALKANE HYDROCARBONS
5	B7 (12-14')	02/13/96	1400	X		SWMU 7	SOIL	2	X	X	X	X		-SIM MASS 57
6	B7 (23-25')	02/13/96	1500	X		SWMU 7	SOIL	2	X	X	X	X		CALIBRATE AGAINST
7	B6 (21-23')	02/14/96	1030	X		SWMU 7	SOIL	2	X	X	X	X		HEXANE, PER
8	B6 (25-27')	02/14/96	1100	X		SWMU 7	SOIL	2	X	X	X	X		CONVERSATION WITH
9	B5 (15-17')	02/14/96	1400	X		SWMU 7	SOIL	2	X	X	X	X		DIB.
10	B5 (27-29')	02/14/96	1600	X		SWMU 7	SOIL	2	X	X	X	X		
11	B3 (6-8')	02/15/96	0930	X		SWMU 7	SOIL	2	X	X	X	X		- ESC LEVEL III
12	B3 (8-10')	02/15/96	1000	X		SWMU 7	SOIL	2	X	X	X	X		DATA PACKAGE
13	B3 (26-28')	02/15/96	1200	X		SWMU 7	SOIL	1	X	X	X	X		

Relinquished by: *(Signature)* Blayne C. Diacont	Date / Time 02/15/96 1830	Received by: *(Signature)*	LAB NAME: SAVANNAH LABORATORIES
			CITY: SAVANNAH GA.
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	COURIER: FED EX
			AIRBILL NO.: 8499502336
Received for Laboratory by: *(Signature)* L. Bonds	PRINT NAME: L. Bonds 8042	Date / Time 2-16-96 9:32 am	CUSTODY SEAL NOS: 2598 AND 2599
			COOLER NO: 1

ATTENTION LAB: SEND ANALYTICAL RESULTS TO THE FOLLOWING ESC STAFF MEMBER:

ENVIRONMENTAL STRATEGIES CORPORATION
11911 Freedom Drive
Reston, Virginia 22090
(703)709-6500

ESC

DISTRIBUTION: ORIGINAL ACCOMPANIES SHIPMENT; COPY TO ESC FILES

No. 004834

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME AND LOCATION:	NO. OF CONTAINERS
461623/502	ASHLAND BINGHAMTON CHEMICAL CO. 3 BROAD ST. BINGHAMTON, N.Y.	

SAMPLERS: (Signature) B.C. Diacont

PRINT NAME: BLAINE C. DIACONT

LINE	SAMPLE NO.	DATE	TIME	COMP.	GRAB	SAMPLE LOCATION	MATRIX	NO. OF CONTAINERS	VOCs 8240	ISOPROPANOL 8015 (D.A.I.)	METHANOL 8015 (D.A.I.)	ALKANE HYDROCARBONS ★NOTE			REMARKS
1	B8(8-10)	02/15/96	1430	X		SWMU 7	SOIL	2	X	X	X	X			
2	B8(10-12')	02/15/96	1500	X		SWMU 7	SOIL	2	X	X	X	X			
3	EQUIPT. BLANK	02/15/96	0800	X		SWMU 7	AQ	4	X	X	X	X			
4	TRIP BLANK	02/12/96		X			AQ	3	X	X	X	X			★ NOTE:
5															ALKANE HYDROCARBONS
6															- SIM MASS 57
7															CALIBRATE AGAINST
8															HEXANE, PER
9															CONVERSATION WITH
10															DIB.
11															
12															- ESC LEVEL III
13															DATA PACKAGE

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	LAB NAME:
Blaine C. Diacont	02/15/96 1830		SAVANNAH LABORATORIES
			CITY: SAVANNAH, GA.
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	COURIER: FED EX
			AIRBILL NO.: 8499502336
Received for Laboratory by: (Signature)	PRINT NAME:	Date / Time	CUSTODY SEAL NOS: 2598 AND 2599
L. Bonds	L. Bonds 80942	2-16-96 9:32 am	COOLER NO: 1

ATTENTION LAB: SEND ANALYTICAL RESULTS TO THE FOLLOWING ESC STAFF MEMBER:

ENVIRONMENTAL STRATEGIES CORPORATION
11911 Freedom Drive
Reston, Virginia 22090
(703)709-6500

ESC

DISTRIBUTION: ORIGINAL ACCOMPANIES SHIPMENT; COPY TO ESC FILES

No. 004833

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME AND LOCATION:	
461623/502	ASHLAND CHEM. CO.	3 BROAD ST BINGHAMTON, N.Y.

SAMPLERS: *(Signature)* B.C. DiacontA

PRINT NAME: BLAYNE C. DIACONT

LINE	SAMPLE NO.	DATE	TIME	COMP.	GRAB	SAMPLE LOCATION	MATRIX	NO. OF CONTAINERS	RCRA METALS PLUS SODIUM	SULFATE	FORMALDEHYDE 8315	AMMONIA, CHLORIDE, AND NITRATE	SOIL PH	REMARKS
1	EQUPT. BLANK	02/15/96	0800	X			AQ	5	X	X	X	X	X	
2														
3														* ESC LEVEL III
4														DATA PACKAGE
5														
6														
7														
8														
9														
10														
11														
12														
13														

Relinquished by: *(Signature)* B.C. DiacontA	Date / Time 02/15/96 1830	Received by: *(Signature)*	LAB NAME: SAVANNAH LABORATORIES
			CITY: SAVANNAH GA.
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	COURIER: FED EX
			AIRBILL NO.: 8499502336
Received for Laboratory by: *(Signature)* L. Bonds	PRINT NAME: L. Bonds 80942	Date / Time 2-16-96 9:32	CUSTODY SEAL NOS: 2598 AND 2599
			COOLER NO: 1

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SL ***SAVANNAH LABORATORIES***
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S6-80780
Received: 09 FEB 96
Reported: 26 FEB 96

Mr. Dave Blaushild
Environmental Strategies Corporation
Penn Center West, 4, Suite 315
Pittsburgh, PA 15276

CC: Mr. Ted Horton Project: BING01/461623.502/ACI-BINGHAMTON, NY
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED	SDG#
80780-1	B-1 (5-7')	02-06-96/1345	BING01
80780-2	B-11 (5-7')	02-06-96/1345	BING01
80780-3	B-2 (5-7')	02-07-96/1210	BING01
80780-4	B-2 (30-32')	02-07-96/1310	BING01
80780-5	MW-1 (5-7')	02-08-96/0815	BING01

PARAMETER	80780-1	80780-2	80780-3	80780-4	80780-5
Arsenic (7060)					
Arsenic (7060), mg/kg dw	5.6	7.1	6.9	3.3	4.2
Date Analyzed	02.19.96	02.19.96	02.19.96	02.19.96	02.19.96
Barium (6010)					
Barium (6010), mg/kg dw	50.1	54.6	37.9	28.9	35.5
Date Analyzed	02.16.96	02.21.96	02.16.96	02.16.96	02.16.96
Cadmium (6010)					
Cadmium (6010), mg/kg dw	0.54UN	0.54UN	0.57UN	0.53UN	0.52UN
Date Analyzed	02.16.96	02.21.96	02.16.96	02.16.96	02.16.96
Chromium (6010)					
Chromium (6010), mg/kg dw	11.8	13.4	15.3	5.8	5.1
Date Analyzed	02.16.96	02.21.96	02.16.96	02.16.96	02.16.96
Lead (7421)					
Lead (7421), mg/kg dw	10.8N*	11.1N*	9.3N*	6.9N*	5.7N*
Date Analyzed	02.19.96	02.19.96	02.15.96	02.19.96	02.15.96
Selenium (7740)					
Selenium (7740), mg/kg dw	2.1UWN	2.1UWN	2.3UWN	1.1UWN	1.0UWN
Date Analyzed	02.16.96	02.16.96	02.16.96	02.15.96	02.16.96
Mercury (7470/7471)					
Mercury (7470/7471), mg/kg dw	0.02	0.03	1.0	0.02	0.02
Date Analyzed	02.13.96	02.13.96	02.15.96	02.13.96	02.13.96

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED	SDG#
80780-1	B-1 (5-7')	02-06-96/1345	BING01
80780-2	B-11 (5-7')	02-06-96/1345	BING01
80780-3	B-2 (5-7')	02-07-96/1210	BING01
80780-4	B-2 (30-32')	02-07-96/1310	BING01
80780-5	MW-1 (5-7')	02-08-96/0815	BING01

PARAMETER	80780-1	80780-2	80780-3	80780-4	80780-5
Silver (6010)					
Silver (6010), mg/kg dw	1.1U	1.1U	1.1U	1.1U	1.0U
Date Analyzed	02.16.96	02.21.96	02.16.96	02.16.96	02.16.96
Sodium (6010)					
Sodium (6010), mg/kg dw	55.1	82.3	57.1U	58.2	51.8U
Date Analyzed	02.16.96	02.21.96	02.16.96	02.16.96	02.16.96
Sulfate as SO4 (9036)					
Sulfate as SO4 (9036), mg/kg dw	110U	110U	680	200	100U
Preparation Date	02.14.95	02.14.95	02.14.95	02.14.95	02.14.95
Date Analyzed	02.20.96	02.20.96	02.20.96	02.20.96	02.20.96
Dilution factor	1.0	1.0	1.0	1.0	1.0
Batch ID	0214A	0214A	0214A	0214A	0214A
Nitrate-N (EPA CE)					
Nitrate-N (EPA CE), mg/kg dw	5.4U	5.4U	5.7U	15	5.2U
Preparation Date	02.14.96	02.14.96	02.14.96	02.14.96	02.14.96
Date Analyzed	02.15.96	02.15.96	02.15.96	02.16.96	02.15.96
Dilution factor	1.0	1.0	1.0	1.0	1.0
Batch ID	0214A	0214A	0214A	0214A	0214A
Formaldehyde (8315)					
Formaldehyde, ug/kg dw	99J	270U	120J	260U	260U
Date Extracted	02.12.96	02.12.96	02.12.96	02.12.96	02.12.96
Date Analyzed	02.15.96	02.15.96	02.15.96	02.15.96	02.15.96

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED	SDG#
80780-1	B-1 (5-7')	02-06-96/1345	BING01
80780-2	B-11 (5-7')	02-06-96/1345	BING01
80780-3	B-2 (5-7')	02-07-96/1210	BING01
80780-4	B-2 (30-32')	02-07-96/1310	BING01
80780-5	MW-1 (5-7')	02-08-96/0815	BING01

PARAMETER	80780-1	80780-2	80780-3	80780-4	80780-5
Chloride (9251)					
Chloride (9251), mg/kg dw	21U	21U	23U	21U	21U
Preparation Date	02.14.96	02.14.96	02.14.96	02.14.96	02.14.96
Date Analyzed	02.19.96	02.19.96	02.19.96	02.19.96	02.19.96
Dilution factor	1.0	1.0	1.0	1.0	1.0
Batch ID	0214A	0214A	0214A	0214A	0214A
Ammonia-N					
Ammonia-N (350.1), mg/kg dw	0.54U	0.54U	1.2	0.53U	0.52U
Preparation Date	02.12.96	02.12.96	02.12.96	02.12.96	02.12.96
Date Analyzed	02.14.96	02.14.96	02.14.96	02.14.96	02.14.96
Dilution factor	1.0	1.0	1.0	1.0	1.0
Batch ID	0212A	0212A	0212A	0212A	0212A
Percent Solids (160.3), %	93	93	87	95	97

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED	SDG#
80780-6	MW-1 (29-31')	02-08-96/1145	BING01
80780-7	B-1 (31-33')	02-06-96	BING01

PARAMETER	80780-6	80780-7
Arsenic (7060)		
Arsenic (7060), mg/kg dw	4.3	4.0
Date Analyzed	02.19.96	02.19.96
Barium (6010)		
Barium (6010), mg/kg dw	35.6	65.8
Date Analyzed	02.16.96	02.16.96
Cadmium (6010)		
Cadmium (6010), mg/kg dw	0.55UN	0.54UN
Date Analyzed	02.21.96	02.16.96
Chromium (6010)		
Chromium (6010), mg/kg dw	24.0	9.1
Date Analyzed	02.16.96	02.16.96
Lead (7421)		
Lead (7421), mg/kg dw	8.3N*	8.1N*
Date Analyzed	02.19.96	02.15.96
Selenium (7740)		
Selenium (7740), mg/kg dw	1.1UWN	1.1UWN
Date Analyzed	02.16.96	02.16.96
Mercury (7470/7471)		
Mercury (7470/7471), mg/kg dw	0.25	0.01
Date Analyzed	02.13.96	02.13.96
Silver (6010)		
Silver (6010), mg/kg dw	1.1U	1.1U
Date Analyzed	02.16.96	02.16.96

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80780-6	MW-1 (29-31')	02-08-96/1145	BING01
80780-7	B-1 (31-33')	02-06-96	BING01

PARAMETER	80780-6	80780-7
Sodium (6010)		
Sodium (6010), mg/kg dw	196	62.3
Date Analyzed	02.16.96	02.16.96
Sulfate as SO4 (9036)		
Sulfate as SO4 (9036), mg/kg dw	2700	310
Preparation Date	02.14.95	02.14.95
Date Analyzed	02.20.96	02.20.96
Dilution factor	1.0	1.0
Batch ID	0214A	0214A
Nitrate-N (EPA CE)		
Nitrate-N (EPA CE), mg/kg dw	5.5U	15
Preparation Date	02.14.96	02.14.96
Date Analyzed	02.15.96	02.16.96
Dilution factor	1.0	1.0
Batch ID	0214A	0214A
Formaldehyde (8315)		
Formaldehyde, ug/kg dw	160J	100J
Date Extracted	02.12.96	02.12.96
Date Analyzed	02.15.96	02.15.96
Chloride (9251)		
Chloride (9251), mg/kg dw	22U	22U
Preparation Date	02.14.96	02.14.96
Date Analyzed	02.19.96	02.19.96
Dilution factor	1.0	1.0
Batch ID	0214A	0214A

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80780-6	MW-1 (29-31')	02-08-96/1145	BING01
80780-7	B-1 (31-33')	02-06-96	BING01

PARAMETER	80780-6	80780-7			
Ammonia-N					
Ammonia-N (350.1), mg/kg dw	0.55U	0.54U			
Preparation Date	02.12.96	02.12.96			
Date Analyzed	02.14.96	02.14.96			
Dilution factor	1.0	1.0			
Batch ID	0212A	0212A			
Percent Solids (160.3), %	90	92			

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	SDG#
80780-8	Matrix Spike (B-1 5-7') Result	BING01
80780-9	Matrix Spike Dup (B-1 5-7') Result	BING01

PARAMETER	80780-8	80780-9
Arsenic (7060)		
Arsenic (7060), mg/kg dw	6.10	5.09
Date Analyzed	02.19.96	02.19.96
Barium (6010)		
Barium (6010), mg/kg dw	195	198
Date Analyzed	02.16.96	02.16.96
Cadmium (6010)		
Cadmium (6010), mg/kg dw	3.16	3.17
Date Analyzed	02.16.96	02.16.96
Chromium (6010)		
Chromium (6010), mg/kg dw	18.9	20.2
Date Analyzed	02.16.96	02.16.96
Lead (7421)		
Lead (7421), mg/kg dw	5.50	1.84
Date Analyzed	02.19.96	02.19.96
Selenium (7740)		
Selenium (7740), mg/kg dw	3.35	3.60
Date Analyzed	02.16.96	02.16.96
Mercury (7470/7471)		
Mercury (7470/7471), mg/kg dw	0.0580	0.0594
Date Analyzed	02.13.96	02.13.96
Silver (6010)		
Silver (6010), mg/kg dw	4.68	4.79
Date Analyzed	02.16.96	02.16.96

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	SDG#
80780-8	Matrix Spike (B-1 5-7') Result	BING01
80780-9	Matrix Spike Dup (B-1 5-7') Result	BING01

PARAMETER	80780-8	80780-9
Sodium (6010)		
Sodium (6010), mg/kg dw	506	518
Date Analyzed	02.16.96	02.16.96
Sulfate as SO4 (9036)		
Sulfate as SO4 (9036), mg/kg dw	478	479
Preparation Date	02.14.95	02.14.95
Date Analyzed	02.20.96	02.20.96
Dilution factor	1.0	1.0
Batch ID	0214A	0214A
Nitrate-N (EPA CE)		
Nitrate-N (EPA CE), mg/kg dw	51.7	53.0
Preparation Date	02.14.96	02.14.96
Date Analyzed	02.15.96	02.15.96
Dilution factor	1.0	1.0
Batch ID	0214A	0214A
Formaldehyde (8315)		
Formaldehyde, ug/kg dw	873	921
Date Extracted	02.12.96	02.12.96
Date Analyzed	02.15.96	02.15.96
Chloride (9251)		
Chloride (9251), mg/kg dw	115	106
Preparation Date	02.14.96	02.14.96
Date Analyzed	02.19.96	02.19.96
Dilution factor	1.0	1.0
Batch ID	0214A	0214A

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	SDG#
80780-8	Matrix Spike (B-1 5-7') Result	BING01
80780-9	Matrix Spike Dup (B-1 5-7') Result	BING01

PARAMETER	80780-8	80780-9
Ammonia-N		
Ammonia-N (350.1), mg/kg dw	21.9	21.9
Preparation Date	02.12.96	02.12.96
Date Analyzed	02.14.96	02.14.96
Dilution factor	1.0	1.0
Batch ID	0212A	0212A

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	SDG#
80780-10	Matrix Spike (MS) Expected Value	BING01
80780-11	MS % Recovery/Duplicate	BING01
80780-12	MS % Recovery Limits	BING01
80780-13	MS % RPD (Limits)	BING01

PARAMETER	80780-10	80780-11	80780-12	80780-13
Arsenic (7060)				
Arsenic (7060)	5.35	114/95 %	75-125 %	18 (<30) %
Barium (6010)				
Barium (6010)	214	91/93 %	75-125 %	2.2(<30) %
Cadmium (6010)				
Cadmium (6010)	5.35	59/59 %	75-125 %	0(<30) %
Chromium (6010)				
Chromium (6010)	21.4	88/94 %	75-125 %	6.6(<30) %
Lead (7421)				
Lead (7421)	5.35	103/34 %	75-125 %	101(<30) %
Selenium (7740)				
Selenium (7740)	5.35	63/67 %	75-125 %	6.2(<30) %
Mercury (7470/7471)				
Mercury (7470/7471)	0.05	116/119 %	75-125 %	2.6(<30) %
Silver (6010)				
Silver (6010)	5.35	87/90 %	75-125 %	3.4(<30) %
Sodium (6010)				
Sodium (6010)	535	95/97 %	75-125 %	2.1(<30) %
Sulfate as SO4 (9036)				
Sulfate as SO4 (9036)	428	112/112 %	75-125 %	0.27(<30)%
Nitrate-N (EPA CE)				
Nitrate-N (EPA CE)	53.4	97/99 %	75-125 %	2.5(<30) %

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	SDG#
80780-10	Matrix Spike (MS) Expected Value	BING01
80780-11	MS % Recovery/Duplicate	BING01
80780-12	MS % Recovery Limits	BING01
80780-13	MS % RPD (Limits)	BING01

PARAMETER	80780-10	80780-11	80780-12	80780-13
Formaldehyde (8315)				
Formaldehyde	806	108/114 %	50-155 %	5.4(<40) %
Chloride (9251)				
Chloride (9251)	107	107/99 %	75-125 %	8.2(<30) %
Ammonia-N				
Ammonia-N (350.1)	26.8	82/82 %	75-125 %	0(<30) %

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& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S6-80780
Received: 09 FEB 96
Reported: 26 FEB 96

Mr. Dave Blaushild
Environmental Strategies Corporation
Penn Center West, 4, Suite 315
Pittsburgh, PA 15276

CC: Mr. Ted Horton Project: BING01/461623.502/ACI-BINGHAMTON, NY
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	SDG#
80780-14	Method Blank Soil	BING01

PARAMETER	80780-14
Arsenic (7060)	
Arsenic (7060), mg/kg dw	1.0U
Date Analyzed	02.19.96
Barium (6010)	
Barium (6010), mg/kg dw	1.0U
Date Analyzed	02.16.96
Cadmium (6010)	
Cadmium (6010), mg/kg dw	0.50U
Date Analyzed	02.16.96
Chromium (6010)	
Chromium (6010), mg/kg dw	1.0U
Date Analyzed	02.16.96
Lead (7421)	
Lead (7421), mg/kg dw	0.50U
Date Analyzed	02.15.96
Selenium (7740)	
Selenium (7740), mg/kg dw	1.0U
Date Analyzed	02.15.96
Mercury (7470/7471)	
Mercury (7470/7471), mg/kg dw	0.010U
Date Analyzed	02.13.96
Silver (6010)	
Silver (6010), mg/kg dw	1.0U
Date Analyzed	02.16.96

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Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	SDG#
80780-14	Method Blank Soil	BING01

PARAMETER	80780-14
Sodium (6010)	
Sodium (6010), mg/kg dw	50.0U
Date Analyzed	02.16.96
Sulfate as SO4 (9036)	
Sulfate as SO4 (9036), mg/kg dw	100U
Preparation Date	02.14.95
Date Analyzed	02.20.96
Dilution factor	1.0
Batch ID	0214A
Nitrate-N (EPA CE)	
Nitrate-N (EPA CE), mg/kg dw	5.0U
Preparation Date	02.14.96
Date Analyzed	02.15.96
Dilution factor	1.0
Batch ID	0214A
Formaldehyde (8315)	
Formaldehyde, ug/kg dw	250U
Date Extracted	02.12.96
Date Analyzed	02.15.96
Chloride (9251)	
Chloride (9251), mg/kg dw	20U
Preparation Date	02.14.96
Date Analyzed	02.19.96
Dilution factor	1.0
Batch ID	0214A

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Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID	SDG#
80780-14	Method Blank Soil	BING01

PARAMETER	80780-14
Ammonia-N	
Ammonia-N (350.1), mg/kg dw	0.50U
Preparation Date	02.12.96
Date Analyzed	02.14.96
Dilution factor	1.0
Batch ID	0212A

Methods: EPA SW-846

Karri Derr / R. Mac.
Karri L. Derr, Project Manager

Final Page Of Report

No. 004832

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME AND LOCATION:
461623/502	ASHLAND BINGHAMTON NEW YORK

SAMPLERS: *(Signature)* Pat Peterson

PRINT NAME: BLAYNE DIACONT, PAT PETERSON

LINE	SAMPLE NO.	DATE	TIME	COMP.	GRAB	SAMPLE LOCATION	MATRIX	NO. OF CONTAINERS	RCRA METALS PLUS SODIUM	SULFATE	FORMALDEHYDE 8315	AMMONIA, CHLORIDE, AND NITRATE	SOIL TH		REMARKS
1	B-1(5'-7')	02/06/96	1345		X	SWMU-2	SOIL	3	X	X	X	X	X		
2	B-11(5'-7')	02/06/96	1345		X	SWMU-2	SOIL	3	X	X	X	X	X		
3	B-2(5-7')	02/07/96	1210		X	SWMU-2	SOIL	3	X	X	X	X	X		
4	B-2(30-32')	02/07/96	1310		X	SWMU-2	SOIL	3	X	X	X	X	X		* ESC LEVEL III
5	MW-1(5-7')	02/08/96	0815		X	SWMU-2	SOIL	3	X	X	X	X	X		DATA PACKAGE
6	MW-1(29-31)	02/08/96	1145		X	SWMU-2	SOIL	3	X	X	X	X	X		
7															
8															
9															
10															
11															
12															
13															

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	LAB NAME: SAVANNAH LABORATORIES
Pat Peterson	2/8/96 1715		CITY: SAVANNAH, GA.
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	COURIER: FED EX
			AIRBILL NO.: 8499502314
Received for Laboratory by: *(Signature)*	PRINT NAME:	Date / Time	CUSTODY SEAL NOS: 2601 AND 2600
Beverly Neely	80780 Beverly Neely	2/9/96 9:13	COOLER NO: 1

ATTENTION LAB: SEND ANALYTICAL RESULTS TO THE FOLLOWING ESC STAFF MEMBER: DAVE BLAUSHILD

DISTRIBUTION: ORIGINAL ACCOMPANIES SHIPMENT; COPY TO ESC FILES

ENVIRONMENTAL STRATEGIES CORPORATION
~~11911 Freedom Drive~~ 4 PENN CENTER W
~~Reston, Virginia 22090~~ PGH. PA
~~(703)709-6500~~ 15276
(412) 787-5[illegible]

ESC

Rec'd B-1 (31-33') NOTED ON C.O.C - advised D. Blaushild 2-9-96 RH

Quality Assurance/Quality Control Report
for Soil and Groundwater Samples taken at
Ashland Chemical Facility
in Binghamton, New York
February 6-8, 12-15, 29, and April 10, 1996

Introduction

This Quality Assurance (QA) summary discusses the results for 21 soil and 4 groundwater samples and associated field and laboratory quality control (QC) samples collected at the Ashland Chemical Company facility in Binghamton, New York, February 6-8, 12-15, 29, and April 10, 1996. The samples were analyzed by Savannah Laboratories and Environmental Services, Inc. of Savannah, Georgia. The six soil samples collected from SWMU 2 were analyzed for RCRA metals plus sodium; formaldehyde; and the inorganic parameters ammonia, chloride, nitrate, sulfate, and pH by EPA Methods 6010/7000 series; 8315; 350.1, 9251, EPA CE, 9036, 9045, respectively. The 15 soil samples collected from SWMU 7 were analyzed for volatile organic compounds (VOCs); alcohols (methanol and isopropanol); and alkane hydrocarbons using EPA methods 8240, 8015 with direct aqueous injection (DAI), and GC/MS selected ion monitoring (SIM) mass 57, respectively. The groundwater samples were analyzed for VOCs; SVOCs; pesticides/PCBs; alcohols; alkane hydrocarbons; formaldehyde; target analyte list (TAL) total and filtered metals; by EPA Methods 8240, 8270, 8080, 8015 DAI, GC/MS SIM 57, and 6010/7000 series.

The laboratory data summaries have been reviewed to ensure adherence to analytical QC specified in the methods and chain of custody procedures. The results of the QA review and effect on the laboratory data are presented below.

SWMU 2

Formaldehyde

The samples were extracted, derivatized and analyzed within the required method holding times. All QC criteria reviewed including calibration, laboratory control sample (LCS) recoveries and precision, matrix spike (MS) recovery, laboratory blanks, and chromatographic data were within acceptable limits.

RCRA Metals

The samples were prepared and analyzed within the required method holding times. The matrix spike recovery for cadmium, lead, and selenium, and the laboratory duplicate precision for lead were outside of QC limits. Positive results for these analytes in samples B-1(5-7'), B-11(5-7'), B-2(5-7'), B-2(30-32'), MW-1(5-7'), MW-1(29-31'), and B-1(311-33') were qualified as estimated concentrations (J). All other QC criteria including initial and continuing calibration, blanks, CRDL standard, LCS, and serial dilution were within acceptable limits.

Inorganics (Sulfate, Chloride, Nitrate, Ammonia, and pH)

The samples were analyzed within the required method holding times. All QC parameters including initial and continuing calibration, blanks, MS/MSD, laboratory duplicate, and LCS were within acceptable QC limits.

SWMU 7

VOCs

All samples were analyzed within the required method holding times. Sample B-3(8-10') was analyzed at a dilution because the concentration of tetrachloroethene was outside the calibration range of the instrument. The detection limits of the undetected target compounds were raised accordingly. Methylene chloride was detected in one of the laboratory blanks. Results for methylene chloride in the associated samples were considered probable blank contamination (B) if the concentration detected in the samples was less than ten times the concentration detected in the blank. All other QC criteria reviewed

including GC/MS tune, initial and continuing calibration, surrogate recoveries, MS/MSD recoveries and precision, LCS recoveries and precision, internal standard areas and retention times, and chromatographic and mass spectral performance were within acceptable QC limits.

Alkane Hydrocarbons

All samples for GC/MS SIM 57 were analyzed as part of the VOC run. Gas chromatographic calibration against hexane and mass spectral quantitation were within acceptable limits.

Alcohols

All samples were analyzed within the required method holding times. All QC criteria including LCS, calibration, and chromatography were within acceptable QC limits.

Groundwater

VOCs

All samples were analyzed within the required method holding times. Sample MW-3 was analyzed at a dilution because the concentrations of trichloroethene (TCE) and tetrachloroethene was outside the calibration range of the instrument. Results for these compounds were reported from a secondary dilution (D). The detection limits of the undetected target compounds were raised accordingly. Methylene chloride was detected in the trip blank. Results for methylene chloride in the associated samples were considered probable blank contamination (B) if the concentration detected in the samples was less than ten times the concentration detected in the blank. All other QC criteria reviewed including GC/MS tune, initial and continuing calibration, surrogate recoveries, MS/MSD recoveries and precision, LCS recoveries and precision, internal standard areas and retention times, and chromatographic and mass spectral performance were within acceptable QC limits.

Alkane Hydrocarbons

All samples for GC/MS SIM 57 were analyzed as part of the VOC run. Gas chromatographic calibration against hexane and mass spectral quantitation were within acceptable limits.

Alcohols

All samples were analyzed within the required method holding times. All QC criteria including LCS, calibration, and chromatography were within acceptable QC limits.

Formaldehyde

The samples were extracted, derivatized and analyzed within the required method holding times. All QC criteria reviewed including calibration, laboratory control sample (LCS) recoveries and precision, matrix spike (MS) recovery, laboratory blanks, and chromatographic data were within acceptable limits.

SVOCs

All samples were extracted and analyzed within the required method holding times. All QC criteria including GC/MS tunes, laboratory blanks, calibration, surrogate recoveries, MS/MSD, internal standards, and chromatographic and mass spectral performance were within acceptable limits.

Pest/PCBs

All samples were extracted and analyzed within the required method holding times. Organochlorine pesticides were detected in samples MW-1, MW-2, and MW-3. The results were considered estimated concentrations (J) because the concentrations detected were below the practical quantitation limit (PQL) and the percent difference (%D) between the two analytical columns was greater than 25. The %D between the initial and continuing calibration for aldrin, heptachlor epoxide, endosulfan I, endrin aldehyde, alpha-chlordane, gamma-chlordane, and aroclor 1260 was greater than 15. No action was taken on the data because these compounds were not detected in the samples. The surrogate recovery for dibutylchlorendate was outside of QC limits in MW-2. Positive results in MW-2 were considered estimated concentrations (J). The MS/MSD recoveries for 4,4'-DDT were outside of QC limits. No action was taken. Data are not qualified on MS/MSD alone. All other QC limits including lab blanks and chromatographic data were within acceptable QC limits.

Total and Dissolved Metals

The samples were prepared and analyzed within the required method holding times. Post digestion spike recoveries were outside of QC limits for arsenic in FB41096; selenium and lead in MW-1; and selenium, and thallium in MW-2. No action was taken because these analytes were not detected in these samples. All other QC criteria including calibration, CRDL standards, ICP interference check, laboratory duplicate, LCS, and serial dilution were within acceptable limits.

Field Quality Control Samples

Field QC samples included one equipment blanks, trip blanks, and blind field duplicate.

The equipment blank is used to evaluate the effectiveness of decontamination procedures used during sampling. Methylene chloride was detected in the field blank collected with the samples from SWMU 7 and methylene chloride and TCE were detected in the equipment blank collected with the groundwater samples. Results for these compounds were qualified as probable blank contamination if the concentration in the associated samples was greater than five times the concentration in the blank for TCE and ten times for methylene chloride.

The trip blank is a sealed vial of organic free water that accompanies the containers to the field and the samples from the sampling event, and is designed to measure cross contamination, and laboratory water quality. Methylene chloride was detected in the trip blank sent with the groundwater samples. Results for methylene chloride in the associated samples were considered probable blank contamination (B) if the concentration detected in the samples was less than ten times the concentration detected in the blank.

The field duplicates are comprised of two samples taken from the same location which are blind to the laboratory. Relative percent differences (RPDs) are calculated between the pair and are designed to measure field sampling, laboratory precision and evaluate the homogeneity of the sample matrix. B-11(5-7') is a duplicate of B-1(5-7'). Arsenic, barium, chromium, lead, mercury, and sodium were detected in both samples. The RPDs between the pair were 23.6, 8.6, 12.7, 2.7, 40.0, and 39.6, respectively.

MW-20 was a duplicate of MW-2 for VOCs, alcohols, and alkane hydrocarbons. Analytes detected in both samples include methylene chloride, cis-1,2-dichloroethene, 1,1,1-trichloroethane, tetrachloroethene, and alkane hydrocarbons were detected in both samples. The RPDs between the pair were 14.0, 8.9, 8.7, 0.0, 1.1, 0.0, and 15.4, respectively. MW-30 was a duplicate of MW-3 for SVOCs, pest/PCBs, total and dissolved metals. Analytes detected in both samples included total aluminum, arsenic, barium, calcium, chromium, cobalt, copper, iron, lead, magnesium, potassium, sodium, vanadium, zinc, dissolved arsenic, barium, calcium, iron, magnesium, manganese, potassium, and sodium. The RPDs between the pair were 3.2, 26.9, 2.4, 3.9, 1.0, 9.2, 4.7, 4.6, 8.1, 2.7, 8.8, 2.9, 11.2, 9.4, 10.6, 13.6, .09, 2.0, 15.1, 2.2, 5.3, 1.1, and 5.0, respectively. RPDs greater than 30 for aqueous samples and 50 for soil samples indicate inconsistencies in field and lab precision and a heterogeneous sample matrix.

Overall Assessment of the Data

Based on the above review, with some qualification, the analytical data are valid and usable for the purpose of assessing contamination at the facility.

Appendix E - Groundwater Laboratory Analytical Data

SL *SAVANNAH LABORATORIES*
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S6-81203
Received: 01 MAR 96
Reported: 26 MAR 96

Mr. Dave Blaushild
Environmental Strategies Corporation
Penn Center West, 4, Suite 315
Pittsburgh, PA 15276

CC: Mr. Ted Horton Project: BING03/461623-502/ACI-Binghamton, NY
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
81203-1	Equipment Blank	02-29-96/1400	BING03
81203-2	MW-3 (Near SWMU 11)	02-29-96/1430	BING03
81203-3	MW-2 (SWMU 7)	02-29-96/1510	BING03
81203-4	MW-20 (SWMU 27)	02-29-96	BING03
81203-5	MW-1 (SWMU 2)	02-29-96/1610	BING03

PARAMETER	81203-1	81203-2	81203-3	81203-4	81203-5
Volatiles by GC/MS (8240)					
Chloromethane, ug/l	10U	10U	10U	10U	10U
Bromomethane, ug/l	10U	10U	10U	10U	10U
Vinyl chloride, ug/l	10U	10U	10U	10U	10U
Chloroethane, ug/l	10U	10U	10U	10U	10U
Methylene chloride (Dichloromethane), ug/l	5.0U	5.0U	2.0J	2.3J	5.0U
Acetone, ug/l	12J	25U	25U	25U	25U
Carbon disulfide, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,1-Dichloroethene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,1-Dichloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	2.4J
trans-1,2-Dichloroethylene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
cis-1,2-Dichloroethene, ug/l	5.0U	22	8.6	9.4	24
Chloroform, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,2-Dichloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
2-Butanone (MEK), ug/l	25U	25U	25U	25U	25U
1,1,1-Trichloroethane, ug/l	5.0U	46	1.1J	1.2J	11
Carbon tetrachloride, ug/l	5.0U	7.4	5.0U	5.0U	5.0U
Vinyl acetate, ug/l	10U	10U	10U	10U	10U
Bromodichloromethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U

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81203-1	Equipment Blank	02-29-96/1400	BING03
81203-2	MW-3 (Near SWMU 11)	02-29-96/1430	BING03
81203-3	MW-2 (SWMU 7)	02-29-96/1510	BING03
81203-4	MW-20 (SWMU 27)	02-29-96	BING03
81203-5	MW-1 (SWMU 2)	02-29-96/1610	BING03

PARAMETER	81203-1	81203-2	81203-3	81203-4	81203-5
1,1,2,2-Tetrachloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,2-Dichloropropane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
trans-1,3-Dichloropropene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Trichloroethene, ug/l	1.3J	550E	13	13	40
Dibromochloromethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,1,2-Trichloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Benzene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
cis-1,3-Dichloropropene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
2-Chloroethylvinyl ether, ug/l	50U	50U	50U	50U	50U
Bromoform, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
2-Hexanone, ug/l	25U	25U	25U	25U	25U
4-Methyl-2-pentanone (MIBK), ug/l	25U	25U	25U	25U	25U
Tetrachloroethene, ug/l	5.0U	360E	9.0	8.9	16
Toluene, ug/l	5.0U	5.0U	1.1J	5.0U	5.0U
Chlorobenzene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Ethylbenzene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Styrene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Xylenes, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Surrogate - Toluene-d8	96 %	94 %	94 %	94 %	94 %
Surrogate - 4-Bromofluorobenzene	96 %	98 %	108 %	118 %	96 %
Surrogate - 1,2-Dichloroethane-d4	90 %	88 %	92 %	88 %	92 %
Date Analyzed	03.04.96	03.04.96	03.05.96	03.06.96	03.06.96
Dilution factor	1.0	1.0	1.0	1.0	1.0
Batch ID	0304A-A	0304A-A	0304A-A	0304A-A	0304A-A
Clock ID	1A0304	1A0304	1A0305	2A0306	1A0306

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81203-4	MW-20 (SWMU 27)	02-29-96	BING03
81203-5	MW-1 (SWMU 2)	02-29-96/1610	BING03

PARAMETER	81203-1	81203-2	81203-3	81203-4	81203-5
Alcohols (DAI)					
Isopropanol, mg/l	1.0U	1.0U	1.0U	1.0U	1.0U
Methanol, mg/l	1.4	1.5	4.7	1.0U	21
Date Extracted	03.11.96	03.11.96	03.11.96	03.11.96	03.11.96
Date Analyzed	03.11.96	03.11.96	03.11.96	03.11.96	03.11.96
Dilution factor	1.0	1.0	1.0	1.0	1.0
Batch ID	308T-F	308T-F	308T-F	308T-F	308T-F
Clock ID	1F0311	1F0311	1F0311	1F0311	1F0311
Total Alkane Hydrocarbons (GC-MS/SIM)					
Alkane Hydrocarbons, ug/l	10	12	140	120	68
Surrogate - 1,2-Dichloroethane-d4	95 %	95 %	100 %	95 %	95 %
Date Analyzed	03.08.96	03.08.96	03.08.96	03.08.96	03.08.96
Dilution factor	1.0	1.0	1.0	1.0	1.0
Batch ID	0308A-I	0308A-I	0308A-I	0308A-I	0308A-I
Clock ID	1I0308	1I0308	1I0308	1I0308	1I0308
Formaldehyde (8315)					
Formaldehyde, ug/l	50U	50U	50U	50U	50U
Date Extracted	03.02.96	03.02.96	03.02.96	03.02.96	03.02.96
Date Analyzed	03.04.96	03.04.96	03.04.96	03.04.96	03.04.96

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Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	SDG#
81203-6	Matrix Spike (Batch) Result	BING03
81203-7	Matrix Spike Dup (Batch) Result	BING03
81203-8	Matrix Spike (MS) Expected Value	BING03
81203-9	MS/MSD % Recovery	BING03
81203-10	MS % Recovery Limits	BING03

PARAMETER	81203-6	81203-7	81203-8	81203-9	81203-10
Volatiles by GC/MS (8240)					
1,1-Dichloroethene, ug/l	61	56	50	122/112 %	26-155 %
Trichloroethene, ug/l	66	65	50	106/104 %	64-131 %
Benzene, ug/l	55	53	50	110/106 %	69-132 %
Toluene, ug/l	54	51	50	106/100 %	62-141 %
Chlorobenzene, ug/l	55	52	50	110/104 %	52-150 %
Surrogate - Toluene-d8	96 %	96 %	---	---	---
Surrogate - 4-Bromofluorobenzene	102 %	100 %	---	---	---
Surrogate - 1,2-Dichloroethane-d4	88 %	92 %	---	---	---
Date Analyzed	03.06.96	03.07.96	---	---	---
Dilution factor	1.0	1.0	---	---	---
Batch ID	0304A-A	0304A-A	---	---	---
Clock ID	2A0306	2A0306	---	---	---
Alcohols (DAI)					
Isopropanol, mg/l	19	18	20	95/90 %	50-150 %
Methanol, mg/l	21	20	20	105/100 %	50-150 %
Date Extracted	03.11.96	03.11.96	---	---	---
Date Analyzed	03.13.96	03.14.96	---	---	---
Dilution factor	1.0	1.0	---	---	---
Batch ID	308T-F	308T-F	---	---	---
Clock ID	1F0313	1F0313	---	---	---

SL ***SAVANNAH LABORATORIES***
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S6-81203
Received: 01 MAR 96
Reported: 26 MAR 96

Mr. Dave Blaushild
Environmental Strategies Corporation
Penn Center West, 4, Suite 315
Pittsburgh, PA 15276

CC: Mr. Ted Horton Project: BING03/461623-502/ACI-Binghamton, NY
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	SDG#
81203-6	Matrix Spike (Batch) Result	BING03
81203-7	Matrix Spike Dup (Batch) Result	BING03
81203-8	Matrix Spike (MS) Expected Value	BING03
81203-9	MS/MSD % Recovery	BING03
81203-10	MS % Recovery Limits	BING03

PARAMETER	81203-6	81203-7	81203-8	81203-9	81203-10
Formaldehyde (8315)					
Formaldehyde, ug/l	*F82	*F82	150	*F82	50-155 %
Date Extracted	03.02.96	03.02.96	---	---	---
Date Analyzed	03.04.96	03.04.96	---	---	---

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Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	SDG#
81203-11	MS % RPD (Limits)	BING03

PARAMETER	81203-11
Volatiles by GC/MS (8240)	
1,1-Dichloroethene	8(<16) %
Trichloroethene	2(<24) %
Benzene	4(<35) %
Toluene	6(<24) %
Chlorobenzene	6(<16) %
Alcohols (DAI)	
Isopropanol	5(<50) %
Methanol	5(<50) %
Formaldehyde (8315)	
Formaldehyde	*F82(<30)%

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Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	SDG#
81203-12	Trip Blank	BING03

PARAMETER	81203-12
Volatiles by GC/MS (8240)	
Chloromethane, ug/l	10U
Bromomethane, ug/l	10U
Vinyl chloride, ug/l	10U
Chloroethane, ug/l	10U
Methylene chloride (Dichloromethane), ug/l	2.0J
Acetone, ug/l	25U
Carbon disulfide, ug/l	5.0U
1,1-Dichloroethene, ug/l	5.0U
1,1-Dichloroethane, ug/l	5.0U
trans-1,2-Dichloroethylene, ug/l	5.0U
cis-1,2-Dichloroethene, ug/l	5.0U
Chloroform, ug/l	5.0U
1,2-Dichloroethane, ug/l	5.0U
2-Butanone (MEK), ug/l	25U
1,1,1-Trichloroethane, ug/l	5.0U
Carbon tetrachloride, ug/l	5.0U
Vinyl acetate, ug/l	10U
Bromodichloromethane, ug/l	5.0U
1,1,2,2-Tetrachloroethane, ug/l	5.0U
1,2-Dichloropropane, ug/l	5.0U
trans-1,3-Dichloropropene, ug/l	5.0U
Trichloroethene, ug/l	5.0U
Dibromochloromethane, ug/l	5.0U

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Received: 01 MAR 96
Reported: 26 MAR 96

Mr. Dave Blaushild
Environmental Strategies Corporation
Penn Center West, 4, Suite 315
Pittsburgh, PA 15276

CC: Mr. Ted Horton Project: BING03/461623-502/ACI-Binghamton, NY
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	SDG#
81203-12	Trip Blank	BING03

PARAMETER	81203-12
1,1,2-Trichloroethane, ug/l	5.0U
Benzene, ug/l	5.0U
cis-1,3-Dichloropropene, ug/l	5.0U
2-Chloroethylvinyl ether, ug/l	50U
Bromoform, ug/l	5.0U
2-Hexanone, ug/l	25U
4-Methyl-2-pentanone (MIBK), ug/l	25U
Tetrachloroethene, ug/l	5.0U
Toluene, ug/l	5.0U
Chlorobenzene, ug/l	5.0U
Ethylbenzene, ug/l	5.0U
Styrene, ug/l	5.0U
Xylenes, ug/l	5.0U
Surrogate - Toluene-d8	102 %
Surrogate - 4-Bromofluorobenzene	106 %
Surrogate - 1,2-Dichloroethane-d4	100 %
Date Analyzed	03.18.96
Dilution factor	1.0
Batch ID	0312C-H
Clock ID	1H0318

No. 007738

CHAIN OF CUSTODY RECORD

Page 1 of 1

PROJECT NO.	PROJECT NAME AND LOCATION: Binghamton N.Y.
4Ec16231502	Ashland Chemical Company

SAMPLERS: (Signature) Blayne C. Diacont

PRINT NAME: BLAYNE DIACONT

SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	NO. OF CONTAINERS	VOC's 8240	ISOPROPANOL 8015 (D.A.I.)	METHANOL 8015 (D.A.I.)	ALKANE HYDROCARBONS * SEE NOTE *	FORMALDEHYDE 8315	REMARKS
EQUIPMENT BLANK	2/29	1400	AQ	5	X	X	X	X	X	
MW-3 (NEAR SWMU 11)	2/29	1430	AQ	5	X	X	X	X	X	* NOTE:
MW-2 (SWMU 7)	2/29	1510	AQ	5	X	X	X	X	X	ALKANE HYDROCARBONS
MW-20 (SWMU 27)	2/29		AQ	5	X	X	X	X	X	- SIM MASS 57
MW-1 (SWMU 2)	2/29	1610	AQ	5	X	X	X	X	X	CALIBRATE AGAINST
TB +										HEXANE, PER
										CONVERSATION WITH
										DIB.
										ESC LEVEL III
										DATA PACKAGE

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Blayne C. Diacont	2/29/96 17:30	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Received for Laboratory by: (Signature)	PRINT NAME:	Date Time
L. Bonds	L. Bonds 81203	3-1-96 9:19

LAB NAME: SAVANNAH LABRATORIES
CITY: SAVANNAH GA
COURIER: FED EX
AIRBILL NO.: 849950237 3
CUSTODY SEAL NOS: 2303 AND 2304
COOLER NO: 1

ATTENTION LAB: SEND ANALYTICAL RESULTS TO THE FOLLOWING ESC STAFF MEMBER:

ENVIRONMENTAL STRATEGIES CORPORATION
11911 Freedom Drive
Reston, Virginia 22090
(703) 709-6500

ESC

+ Rec'd TB - not on C.o.C - analyze per B. Diacont 3/1/96 RW

CA MA PA MN ____

DISTRIBUTION: ORIGINAL ACCOMPANIES SHIPMENT · COPY TO ESC FILES

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LOG NO: S6-81203
Received: 01 MAR 96
Reported: 26 MAR 96

Mr. Dave Blaushild
Environmental Strategies Corporation
Penn Center West, 4, Suite 315
Pittsburgh, PA 15276

CC: Mr. Ted Horton Project: BING03/461623-502/ACI-Binghamton, NY
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	SDG#
81203-12	Trip Blank	BING03

PARAMETER	81203-12
Total Alkane Hydrocarbons (GC-MS/SIM)	
Alkane Hydrocarbons, ug/l	1.0U
Surrogate - 1,2-Dichloroethane-d4	95 %
Date Analyzed	03.08.96
Dilution factor	1.0
Batch ID	0308A-I
Clock ID	1I0308
Alcohols (DAI)	
Isopropanol, mg/l	1.0U
Methanol, mg/l	1.0U
Date Extracted	03.11.96
Date Analyzed	03.11.96
Dilution factor	1.0
Batch ID	308T-F
Clock ID	1F0311

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Environmental Strategies Corporation
Penn Center West, 4, Suite 315
Pittsburgh, PA 15276

CC: Mr. Ted Horton Project: BING03/461623-502/ACI-Binghamton, NY
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	SDG#
81203-13	Method Blank Liquid	BING03

PARAMETER	81203-13
Total Alkane Hydrocarbons (GC-MS/SIM)	
Alkane Hydrocarbons, ug/l	1.0U
Date Analyzed	03.08.96
Dilution factor	1.0
Batch ID	0308A-I
Clock ID	1I0308
Formaldehyde (8315)	
Formaldehyde, ug/l	4.4J
Date Extracted	03.02.96
Date Analyzed	03.04.96

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Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
81203-14	MW-3 (DL)	02-29-96/1510	BING03

PARAMETER	81203-14
Volatiles by GC/MS (8240)	
Chloromethane, ug/l	50U
Bromomethane, ug/l	50U
Vinyl chloride, ug/l	50U
Chloroethane, ug/l	50U
Methylene chloride (Dichloromethane), ug/l	25U
Acetone, ug/l	120U
Carbon disulfide, ug/l	25U
1,1-Dichloroethene, ug/l	25U
1,1-Dichloroethane, ug/l	25U
trans-1,2-Dichloroethylene, ug/l	25U
cis-1,2-Dichloroethene, ug/l	22DJ
Chloroform, ug/l	25U
1,2-Dichloroethane, ug/l	25U
2-Butanone (MEK), ug/l	120U
1,1,1-Trichloroethane, ug/l	40D
Carbon tetrachloride, ug/l	5.4DJ
Vinyl acetate, ug/l	50U
Bromodichloromethane, ug/l	25U
1,1,2,2-Tetrachloroethane, ug/l	25U
1,2-Dichloropropane, ug/l	25U
trans-1,3-Dichloropropene, ug/l	25U
Trichloroethene, ug/l	520D
Dibromochloromethane, ug/l	25U

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Environmental Strategies Corporation
Penn Center West, 4, Suite 315
Pittsburgh, PA 15276

CC: Mr. Ted Horton Project: BING03/461623-502/ACI-Binghamton, NY
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
81203-14	MW-3 (DL)	02-29-96/1510	BING03

PARAMETER	81203-14				
1,1,2-Trichloroethane, ug/l	25U				
Benzene, ug/l	25U				
cis-1,3-Dichloropropene, ug/l	25U				
2-Chloroethylvinyl ether, ug/l	250U				
Bromoform, ug/l	25U				
2-Hexanone, ug/l	120U				
4-Methyl-2-pentanone (MIBK), ug/l	120U				
Tetrachloroethene, ug/l	330D				
Toluene, ug/l	25U				
Chlorobenzene, ug/l	25U				
Ethylbenzene, ug/l	25U				
Styrene, ug/l	25U				
Xylenes, ug/l	25U				
Surrogate - Toluene-d8	96 %				
Surrogate - 4-Bromofluorobenzene	96 %				
Surrogate - 1,2-Dichloroethane-d4	92 %				
Date Analyzed	03.05.96				
Dilution factor	5.0				
Batch ID	0304A-A				
Clock ID	1A0305				

SL ***SAVANNAH LABORATORIES***
& ENVIRONMENTAL SERVICES, INC.

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Received: 01 MAR 96
Reported: 26 MAR 96

Mr. Dave Blaushild
Environmental Strategies Corporation
Penn Center West, 4, Suite 315
Pittsburgh, PA 15276

CC: Mr. Ted Horton Project: BING03/461623-502/ACI-Binghamton, NY
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	SDG#
81203-15	Method Blank Liquid	BING03
81203-16	Method Blank Liquid	BING03
81203-17	Method Blank Liquid	BING03
81203-18	Method Blank Liquid	BING03
81203-19	Method Blank Liquid	BING03

PARAMETER	81203-15	81203-16	81203-17	81203-18	81203-19
Volatiles by GC/MS (8240)					
Chloromethane, ug/l	10U	10U	10U	10U	10U
Bromomethane, ug/l	10U	10U	10U	10U	10U
Vinyl chloride, ug/l	10U	10U	10U	10U	10U
Chloroethane, ug/l	10U	10U	10U	10U	10U
Methylene chloride (Dichloromethane), ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Acetone, ug/l	25U	25U	10J	25U	25U
Carbon disulfide, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,1-Dichloroethene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,1-Dichloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
trans-1,2-Dichloroethylene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
cis-1,2-Dichloroethene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Chloroform, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,2-Dichloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
2-Butanone (MEK), ug/l	25U	25U	25U	25U	25U
1,1,1-Trichloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Carbon tetrachloride, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Vinyl acetate, ug/l	10U	10U	10U	10U	10U
Bromodichloromethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U

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Environmental Strategies Corporation
Penn Center West, 4, Suite 315
Pittsburgh, PA 15276

CC: Mr. Ted Horton Project: BING03/461623-502/ACI-Binghamton, NY
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	SDG#
81203-15	Method Blank Liquid	BING03
81203-16	Method Blank Liquid	BING03
81203-17	Method Blank Liquid	BING03
81203-18	Method Blank Liquid	BING03
81203-19	Method Blank Liquid	BING03

PARAMETER	81203-15	81203-16	81203-17	81203-18	81203-19
1,1,2,2-Tetrachloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,2-Dichloropropane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
trans-1,3-Dichloropropene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Trichloroethene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Dibromochloromethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
1,1,2-Trichloroethane, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Benzene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
cis-1,3-Dichloropropene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
2-Chloroethylvinyl ether, ug/l	50U	50U	50U	50U	50U
Bromoform, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
2-Hexanone, ug/l	25U	25U	25U	25U	25U
4-Methyl-2-pentanone (MIBK), ug/l	25U	25U	25U	25U	25U
Tetrachloroethene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Toluene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Chlorobenzene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Ethylbenzene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Styrene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Xylenes, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Surrogate - Toluene-d8	96 %	94 %	94 %	94 %	100 %
Surrogate - 4-Bromofluorobenzene	96 %	98 %	96 %	96 %	102 %
Surrogate - 1,2-Dichloroethane-d4	88 %	90 %	90 %	88 %	96 %
Date Analyzed	03.04.96	03.05.96	03.06.96	03.06.96	03.18.96
Dilution factor	1.0	1.0	1.0	1.0	1.0
Batch ID	0304A-A	0304A-A	0304A-A	0304A-A	0304A-H
Clock ID	1A0304	1A0305	1A0306	2A0306	1H0318

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LOG NO: S6-81203
Received: 01 MAR 96
Reported: 26 MAR 96

Mr. Dave Blaushild
Environmental Strategies Corporation
Penn Center West, 4, Suite 315
Pittsburgh, PA 15276

CC: Mr. Ted Horton Project: BING03/461623-502/ACI-Binghamton, NY
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	SDG#
81203-20	Method Blank Liquid	BING03
81203-21	Method Blank Liquid	BING03
81203-22	Method Blank Liquid	BING03

PARAMETER	81203-20	81203-21	81203-22
Alcohols (DAI)			
Isopropanol, mg/l	1.0U	1.0U	1.0U
Methanol, mg/l	1.0U	1.0U	1.0U
Date Extracted	03.11.96	03.13.96	03.13.96
Date Analyzed	03.11.96	03.13.96	03.13.96
Dilution factor	1.0	1.0	1.0
Batch ID	0308T-F	0308T-F	0308T-F
Clock ID	1F0311	1F0313	1F0313

Methods: EPA SW-846
*F82 = Insufficient sample volume was available to perform a batch-specific matrix spike. However, an LCS analyzed with the sample batch met control criteria.

Lisa McLeod
Lisa G. McLeod, Project Manager

Final Page Of Report

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5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S6-82079
Received: 12 APR 96
Reported: 25 APR 96

Mr. Dave Blaushild
Environmental Strategies Corporation
Penn Center West, 4, Suite 315
Pittsburgh, PA 15276

Requisition: ACI-462316

CC: Mr. Ted Horton

Project: BING04
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
82079-1	MW-3	04-10-96/1500	BING04
82079-2	MW-30	04-10-96/1730	BING04
82079-3	FB41096	04-10-96/1530	BING04
82079-4	MW-2	04-10-96/1615	BING04
82079-5	MW-1	04-10-96/1700	BING04

PARAMETER	82079-1	82079-2	82079-3	82079-4	82079-5
TCL Semivolatiles (8270)					
Phenol, ug/l	10U	10U	10U	10U	10U
bis(2-Chloroethyl)ether, ug/l	10U	10U	10U	10U	10U
2-Chlorophenol, ug/l	10U	10U	10U	10U	10U
1,3-Dichlorobenzene, ug/l	10U	10U	10U	10U	10U
1,4-Dichlorobenzene, ug/l	10U	10U	10U	10U	10U
1,2-Dichlorobenzene, ug/l	10U	10U	10U	10U	10U
2-Methylphenol (o-cresol), ug/l	10U	10U	10U	10U	10U
2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether), ug/l	10U	10U	10U	10U	10U
3-Methylphenol/4-Methylphen ol(m&p-cresol), ug/l	10U	10U	10U	10U	10U
N-Nitroso-di-n-propylamine, ug/l	10U	10U	10U	10U	10U
Hexachloroethane, ug/l	10U	10U	10U	10U	10U
Nitrobenzene, ug/l	10U	10U	10U	10U	10U
Isophorone, ug/l	10U	10U	10U	10U	10U
2-Nitrophenol, ug/l	10U	10U	10U	10U	10U
2,4-Dimethylphenol, ug/l	10U	10U	10U	10U	10U
bis(2-Chloroethoxy)methane, ug/l	10U	10U	10U	10U	10U

SL ***SAVANNAH LABORATORIES***
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S6-82079
Received: 12 APR 96
Reported: 25 APR 96

Mr. Dave Blaushild
Environmental Strategies Corporation
Penn Center West, 4, Suite 315
Pittsburgh, PA 15276

Requisition: ACI-462316

CC: Mr. Ted Horton

Project: BING04
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED	SDG#
82079-1	MW-3	04-10-96/1500	BING04
82079-2	MW-30	04-10-96/1730	BING04
82079-3	FB41096	04-10-96/1530	BING04
82079-4	MW-2	04-10-96/1615	BING04
82079-5	MW-1	04-10-96/1700	BING04

PARAMETER	82079-1	82079-2	82079-3	82079-4	82079-5
2,4-Dichlorophenol, ug/l	10U	10U	10U	10U	10U
1,2,4-Trichlorobenzene, ug/l	10U	10U	10U	10U	10U
Naphthalene, ug/l	10U	10U	10U	10U	10U
4-Chloroaniline, ug/l	20U	20U	20U	20U	20U
Hexachlorobutadiene, ug/l	10U	10U	10U	10U	10U
4-Chloro-3-methylphenol, ug/l	10U	10U	10U	10U	10U
2-Methylnaphthalene, ug/l	10U	10U	10U	10U	10U
Hexachlorocyclopentadiene, ug/l	10U	10U	10U	10U	10U
2,4,6-Trichlorophenol, ug/l	10U	10U	10U	10U	10U
2,4,5-Trichlorophenol, ug/l	10U	10U	10U	10U	10U
2-Chloronaphthalene, ug/l	10U	10U	10U	10U	10U
2-Nitroaniline, ug/l	50U	50U	50U	50U	50U
Dimethylphthalate, ug/l	10U	10U	10U	10U	10U
Acenaphthylene, ug/l	10U	10U	10U	10U	10U
3-Nitroaniline, ug/l	50U	50U	50U	50U	50U
Acenaphthene, ug/l	10U	10U	10U	10U	10U
2,4-Dinitrophenol, ug/l	50U	50U	50U	50U	50U
4-Nitrophenol, ug/l	50U	50U	50U	50U	50U
Dibenzofuran, ug/l	10U	10U	10U	10U	10U
2,4-Dinitrotoluene, ug/l	10U	10U	10U	10U	10U

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82079-5	MW-1	04-10-96/1700	BING04

PARAMETER	82079-1	82079-2	82079-3	82079-4	82079-5
2,6-Dinitrotoluene, ug/l	10U	10U	10U	10U	10U
Diethylphthalate, ug/l	10U	10U	10U	10U	10U
4-Chlorophenylphenyl ether, ug/l	10U	10U	10U	10U	10U
Fluorene, ug/l	10U	10U	10U	10U	10U
4-Nitroaniline, ug/l	50U	50U	50U	50U	50U
4,6-Dinitro-2-methylphenol, ug/l	50U	50U	50U	50U	50U
N-Nitrosodiphenylamine/Diphenylamine, ug/l	10U	10U	10U	10U	10U
4-Bromophenyl phenyl ether, ug/l	10U	10U	10U	10U	10U
Hexachlorobenzene, ug/l	10U	10U	10U	10U	10U
Pentachlorophenol, ug/l	50U	50U	50U	50U	50U
Phenanthrene, ug/l	10U	10U	10U	10U	10U
Anthracene, ug/l	10U	10U	10U	10U	10U
Di-n-butylphthalate, ug/l	10U	10U	10U	1.1J	10U
Fluoranthene, ug/l	10U	10U	10U	10U	10U
Pyrene, ug/l	10U	10U	10U	10U	10U
Butylbenzylphthalate, ug/l	10U	10U	10U	10U	10U
3,3'-Dichlorobenzidine, ug/l	20U	20U	20U	20U	20U
Benzo(a)anthracene, ug/l	10U	10U	10U	10U	10U
bis(2-Ethylhexyl)phthalate, ug/l	10U	10U	10U	3.6J	10U

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82079-5	MW-1	04-10-96/1700	BING04

PARAMETER	82079-1	82079-2	82079-3	82079-4	82079-5
Chrysene, ug/l	10U	10U	10U	10U	10U
Di-n-octylphthalate, ug/l	10U	10U	10U	10U	10U
Benzo(b)fluoranthene, ug/l	10U	10U	10U	10U	10U
Benzo(k)fluoranthene, ug/l	10U	10U	10U	10U	10U
Benzo(a)pyrene, ug/l	10U	10U	10U	10U	10U
Indeno(1,2,3-cd)pyrene, ug/l	10U	10U	10U	10U	10U
Dibenzo(a,h)anthracene, ug/l	10U	10U	10U	10U	10U
Benzo(g,h,i)perylene, ug/l	10U	10U	10U	10U	10U
Carbazole, ug/l	10U	10U	10U	10U	10U

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82079-5	MW-1	04-10-96/1700	BING04

PARAMETER	82079-1	82079-2	82079-3	82079-4	82079-5
Pesticides (8080)					
alpha-BHC, ug/l	0.050U	0.050U	0.050U	0.050U	0.050U
beta-BHC, ug/l	0.050U	0.050U	0.050U	0.050U	0.050U
delta-BHC, ug/l	0.050U	0.050U	0.050U	0.050U	0.050U
gamma-BHC, ug/l	0.050U	0.050U	0.050U	0.050U	0.050U
Heptachlor, ug/l	0.050U	0.050U	0.050U	0.050U	0.050U
Aldrin, ug/l	0.050U	0.050U	0.050U	0.050U	0.050U
Heptachlor epoxide, ug/l	0.050U	0.050U	0.050U	0.050U	0.050U
Endosulfan I, ug/l	0.050U	0.050U	0.050U	0.050U	0.050U
Dieldrin, ug/l	0.0079JP	0.10U	0.10U	0.10U	0.10U
4,4'-DDE, ug/l	0.0034JP	0.10U	0.10U	0.10U	0.10U
Endrin, ug/l	0.0050JP	0.10U	0.10U	0.10U	0.10U
Endrin aldehyde, ug/l	0.10U	0.10U	0.10U	0.10U	0.10U
Endosulfan II, ug/l	0.10U	0.10U	0.10U	0.10U	0.10U
4,4'-DDD, ug/l	0.10U	0.10U	0.10U	0.10U	0.10U
Endosulfan sulfate, ug/l	0.10U	0.10U	0.10U	0.015JP	0.10U
4,4'-DDT, ug/l	0.010JP	0.10U	0.10U	0.10U	0.10U
Endrin ketone, ug/l	0.10U	0.10U	0.10U	0.10U	0.10U
Methoxychlor, ug/l	0.50U	0.50U	0.50U	0.50U	0.50U
alpha-Chlordane, ug/l	0.050U	0.050U	0.050U	0.050U	0.050U

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82079-4	MW-2	04-10-96/1615	BING04
82079-5	MW-1	04-10-96/1700	BING04

PARAMETER	82079-1	82079-2	82079-3	82079-4	82079-5
gamma-Chlordane, ug/l	0.050U	0.050U	0.050U	0.031JP	0.016J
Toxaphene, ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Aroclor-1016, ug/l	1.0U	1.0U	1.0U	1.0U	1.0U
Aroclor-1221, ug/l	2.0U	2.0U	2.0U	2.0U	2.0U
Aroclor-1232, ug/l	1.0U	1.0U	1.0U	1.0U	1.0U
Aroclor-1242, ug/l	1.0U	1.0U	1.0U	1.0U	1.0U
Aroclor-1248, ug/l	1.0U	1.0U	1.0U	1.0U	1.0U
Aroclor-1254, ug/l	1.0U	1.0U	1.0U	1.0U	1.0U
Aroclor-1260, ug/l	1.0U	1.0U	1.0U	1.0U	1.0U
Aluminum (6010) , ug/l	12800	12400	200U	130000	65200
Antimony (6010), ug/l	50.0U	50.0U	50.0U	50.0U	50.0U
Arsenic (7060), ug/l	58.6	44.7	10.0UW	70.2	50.0U
Barium (6010), ug/l	249	243	10.0U	1060	590
Beryllium (6010), ug/l	5.0U	5.0U	5.0U	5.1	5.0U
Cadmium (6010), ug/l	5.0U	5.0U	5.0U	9.1	5.0U
Calcium (6010), ug/l	178000	185000	500U	763000	451000
Chromium (6010), ug/l	29.7	29.4	10.0U	218	178
Cobalt (6010), ug/l	13.7	12.5	10.0U	120	45.7
Copper (6010), ug/l	45.8	43.7	25.0U	358	178
Iron (6010), ug/l	29200	27900	50.0U	270000	121000
Lead (7421), ug/l	15.4	16.7	5.0U	194	108
Magnesium (6010), ug/l	21900	22500	500U	247000	97100

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82079-3	FB41096	04-10-96/1530	BING04
82079-4	MW-2	04-10-96/1615	BING04
82079-5	MW-1	04-10-96/1700	BING04

PARAMETER	82079-1	82079-2	82079-3	82079-4	82079-5
Manganese (6010), ug/l	1070	980	10.0U	8780	2880
Mercury (7470/7471), ug/l	0.20U	0.20U	0.20U	0.20U	0.92
Nickel (6010), ug/l	40.0U	40.0U	40.0U	258	87.7
Potassium (6010), ug/l	5480	5640	1000U	20400	16500
Selenium (7740), ug/l	10.0UW	10.0UW	10.0U	50.0UW	10.0UW
Silver (6010), ug/l	10.0U	10.0U	10.0U	10.0U	10.0U
Sodium (6010), ug/l	52300	58500	500U	28800	31600
Thallium (7841), ug/l	10.0U	10.0UW	10.0U	20.0UW	20.0U
Vanadium (6010), ug/l	21.1	19.2	10.0U	189	109
Zinc (6010), ug/l	81.4	90.5	20.0U	743	322
Aluminum (Dissolved) (6010), ug/l	200U	200U	200U	200U	565
Antimony (Dissolved) (6010), ug/l	50.0U	50.0U	50.0U	50.0U	50.0U
Arsenic (Dissolved) (7060), ug/l	18.8	16.4	10.0UW	10.0UW	10.0U
Barium (Dissolved) (6010), ug/l	108	109	10.0U	54.6	13.8
Beryllium (Dissolved) (6010), ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Cadmium (Dissolved) (6010), ug/l	5.0U	5.0U	5.0U	5.0U	5.0U
Calcium (Dissolved) (6010), ug/l	152000	155000	500U	73200	190000
Chromium (Dissolved) (6010), ug/l	10.0U	10.0U	10.0U	10.0U	10.0U
Cobalt (Dissolved) (6010), ug/l	10.0U	10.0U	10.0U	10.0U	10.0U
Copper (Dissolved) (6010), ug/l	25.0U	25.0U	25.0U	25.0U	25.0U
Iron (Dissolved) (6010), ug/l	421	362	50.0U	50.0U	276
Lead (Dissolved) (7421), ug/l	5.0U	5.0U	5.0U	5.0U	5.0UW

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82079-3	FB41096	04-10-96/1530	BING04
82079-4	MW-2	04-10-96/1615	BING04
82079-5	MW-1	04-10-96/1700	BING04

PARAMETER	82079-1	82079-2	82079-3	82079-4	82079-5
Magnesium (Dissolved) (6010), ug/l	13600	13900	500U	12600	16000
Manganese (Dissolved) (6010), ug/l	448	425	10.0U	518	42.6
Mercury (Dissolved) (7470), ug/l	0.20U	0.20U	0.20U	0.20U	0.20U
Nickel (Dissolved) (6010), ug/l	40.0U	40.0U	40.0U	40.0U	40.0U
Potassium (Dissolved), ug/l	3780	3820	1000U	5080	7540
Selenium (Dissolved) (7740), ug/l	10.0U	10.0UW	10.0U	10.0UW	10.0U
Silver (Dissolved) (6010), ug/l	10.0U	10.0U	10.0U	10.0U	10.0U
Sodium (Dissolved) (6010), ug/l	47100	49500	500U	27200	30100
Thallium (Dissolved) (7841), ug/l	10.0U	10.0U	10.0U	10.0UW	10.0U
Vanadium (Dissolved) (6010), ug/l	10.0U	10.0U	10.0U	10.0U	10.0U
Zinc (Dissolved) (6010), ug/l	20.0U	20.0U	20.0U	20.0U	20.0U

Methods: EPA SW-846

Lisa G. McLeod, Project Manager

Final Page Of Report

IEA
An Aquarion Company

3000 WESTON PKWY.
CARY, N.C. 27513
PH # 919-677-0090
FAX # 919-677-0427

CHAIN OF CUSTODY RECORD

NO. 60952

REGULATORY CLASSIFICATION - PLEASE SPECIFY

☐ NPDES ☐ DRINKING WATER ☐ RCRA ☐ OTHER _____

COMPANY: ENVIRONMENTAL Strategies

Page 1 of 1

PROJECT #	PROJECT NAME
46.2316	ASHLAND BINGHAMPTON

SAMPLERS: *(SIGNATURE)* Brian E. Sullivan

SAMPLE I.D.	DATE	TIME	COMP	GRAB	STATION LOCATION	# OF CONTAINERS	MATRIX: SOIL	MATRIX: WATER	REQUESTED PARAMETERS: TAL METALS (TOTAL)	TAL METALS (FILTERED)	SVOCs 8270 *	PEST/PCBs 8080 *
MW-3	4-10-96	1500		X	MW-3	6		X	1	1	2	2
MW-30	4-10-96	1730		X	MW-30	6		X	1	1	2	2
FB-041096	4-10-96	1530		X	FIELD BLANK	6		X	1	1	2	2
MW-2	4-10-96	1615		X	MW-2	6		X	1	1	2	2
MW-1	4-10-96	1700		X	MW-1	6		X	1	1	2	2

RELINQUISHED BY *(SIGNATURE)*	DATE	TIME	RECEIVED BY	DATE	TIME
Brian E. Sullivan	4-11-96	1500			
RELINQUISHED BY *(SIGNATURE)*	DATE	TIME	RECEIVED FOR LAB BY	DATE	TIME
			P. Bonds 82079	4-12-96	9:20

IEA QUOTE NO.	IEA RUSH NO.
PROJECT MANAGER (PLEASE PRINT)	**P.O. NO.**

REMARKS ON SAMPLE RECEIPT

☑ BOTTLE INTACT ☐ CUSTODY SEALS
☐ PRESERVED ☐ SEALS INTACT
☑ CHILLED ☐ SEE REMARKS

IEA REMARKS

FIELD REMARKS

*8270-8080 TCL - Std PQL's
per D. Blanchard 4-12-96 RW
Batch MS/MSD MAY be used if insufficient
volume for client sample(s).*

Appendix F - June 27, 1994, First Phase RFI Report Letter

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233-7251
518-457-9253 FAX 518-457-9240

Langdon Marsh
Acting Commissioner

JUN 27 1994

Mr. David L. Anderson
Sr. Environmental Engineer
Ashland Chemical, Inc.
PO Box 2219
Columbus, OH 43216

Dear Mr. Anderson:

RE: First Phase - RFI Report (HSWA Permit)
RFA Sampling Visit Report (Part 373 Permit)
Ashland Chemical, Inc. Binghamton, NY
EPA ID No. NYD94253719

The New York State Department of Environmental Conservation (NYSDEC) and the United States Environmental Protection Agency (USEPA) have reviewed the Sampling Visit Report dated November 19, 1993. Both EPA and DEC disagree with the conclusions reached by your consultant ESC Corporation for this site. As stated in the executive summary of the Report, the RFA-SV investigation was performed to assess the presence and extent of soil contaminants at SWMU's 6, 8, 11, and 13, that may have been impacted by potential release(s) of hazardous waste or hazardous constituents. Although several analytical results were dismissed in the report as being "below action levels", we have found that when the data is evaluated with the stated purpose of the investigation as the benchmark for data evaluation, the data clearly indicates that SWMU's 6, 11, and 13 should be included in the RFI investigation.

Because of the limited scope of this investigation, QA/QC concerns which would normally invalidate data from consideration are of lesser importance in this investigation. For example, samples taken for volatiles analysis from borings SS-3, and SS-9 were analyzed outside of the required 7 days of holding time. However, review of the data as a whole indicates that volatile organics (including hydrocarbons) were detected at levels well above the respective quantitation limits for those chemicals. In addition, the sample from SS-3 was found to contain inorganics at levels well above those found in the background samples(nitrate and phosphate excluded), and soil from sample SS-9 contained formaldehyde at 1200 µg/Kg (characterized as "minute" by ESC). Even though the data was not "perfect" it clearly showed effects from facility operations on the surrounding soils, with the potential to effect the shallow groundwater, typically found 18 to 20 feet below ground surface. Other QA/QC factors such as matrix spikes, sample duplicates, laboratory control samples, and blank analyses were found to be adequate.

An additional factor used in evaluating the data was the timing of the investigation. Several years have passed between the last time these SWMU's were actively used, and the onset of the soil investigations in September, 1993. Review of the soil boring logs, along with a description of the general geologic characteristics of the area indicates the bulk of the soils in the area are characterized as sandy to sandy gravel. The combination of chemicals managed at the site, the length of time from the cessation of operations to sampling, and the generally non-retentive nature of the soils, coupled with the shallow depth to groundwater would generally lead one to conclude that any contamination found in the surface soils could only be interpreted as minimum reflections of impacts that would quickly be flushed to the groundwater. This, combined with the lack of groundwater information in the area, also indicates a need to include SWMU's 6, 11, and 13 in the RFI.

While we agree that results of the soil sampling indicate that semi-volatile organics are not a concern for this site based on the current shallow soil sample results, the following review of VOC, formaldehyde, and inorganic data clearly shows the need for additional investigation contained in the RFI.

The VOC evaluation was done in three steps. First the TCL volatiles were evaluated for these samples. For the purposes of the evaluation, acetone was excluded from the evaluation because of the occurrence of relatively high concentrations of acetone in the field blanks associated with the samples. Methylene chloride was included in the evaluation of VOC's however, because a large portion of the samples exhibited non-detects for this chemical, thus indicating the unlikeliness of non indigenous sources as the source for this chemical. The concentrations for all detected VOC's with the exception of acetone were summed for each sample. Next, the alkane hydrocarbon data was evaluated by summing the estimated concentrations of m/z 57 from the 8240 runs over the entire time of the run. Despite numerous references in the report, blank contamination was not found to be a factor in the evaluation of the data. As the attached plots clearly show, the number and distribution of m/z 57 peaks differed markedly between the samples and the blanks. To be objective, m/z 57 peaks found to be common in both blanks and associated samples were subtracted from the associated samples prior to the total m/z 57 concentrations being summed up. Finally, the formaldehyde concentrations were added to determine the total VOC concentration for each sample. The samples were then ranked in order from lowest to highest VOC concentration.

A similar approach was taken for the analysis of the inorganic analysis results. Only chloride, sulfate, and sodium were evaluated. Nitrate and phosphate were not evaluated because the concentrations for these constituents found in the background samples are above, or similar to those found in the site samples.

For chloride, sulfate, and sodium the background samples were all non-detect for these constituents, which made data evaluation a simple task. The concentrations for chloride, sulfate, and sodium were summed for the soil samples, and the samples were then ranked in order from lowest to highest concentration.

The soil sampling locations and their respective volatile organic, and inorganic totals are as follows:

ID	TOTAL ORGANICS	ID	Total Inorganics
S S - 5*	0	SS-4*	0
S S - 6*	0	SS-5*	0
SS-7	0	SS-6*	0
S S - 12	6	SS-9	56
S S - 10	8.1	SS-12	77
S S - 21	16	SS-14	110
S S - 13	21	SS-11	130
S S - 4*	22	SS-10	160
S S - 11	37	SS-13	218
SS-2	49	SS-7	240
SS-3	61.8	SS-21	260
S S - 14	70.7	SS-2	284
SS-1	91	SS-8	333
SS-8	604.8	SS-1	340
SS-9	1254	SS-3	380

*Formaldehyde and Inorganics Analysis Not Done

When one examines this table, it is clearly shown that the top 6 sampling locations for the organics analysis also contain the top 4 locations for the inorganics totals.

Examination of the site sampling map with regard to these values shows that the sampling locations with the highest results are clustered about the western half of the investigation area. The SWMU's contained in this area are SWMU 6, SWMU 11, and SWMU 13. These three areas account for nearly all of the contamination found in the investigation area.

In conclusion, the scope of the investigation at SWMU's 6, 8, 11, and 13 reveals that soil contaminants are present at SWMU's 6, 11, and 13. These contaminants are assumed to be present due to previous facility operations, as no other sources for these contaminants were presented in the report. The combination of shallow groundwater in the area, generally sandy soil conditions, and the length of time between the end of facility operations and the start of this investigation dictates that even though the concentrations found are below action levels additional investigation must be done to determine if the groundwater in the area has been impacted. Please submit the RFI Workplan for these SWMUs as well as other units that require RFI as per the permit, by September 30, 1994.

If you have any questions, please contact Mr. Ravi Pilar of the NYSDEC at 518/457-9253 or Mr. Wilfredo Palomino of the USEPA at 212/264-9631.

Sincerely,

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Enclosure

cc: S. Eidt, Region 7
J. Reidy, USEPA
W. Palomino, USEPA
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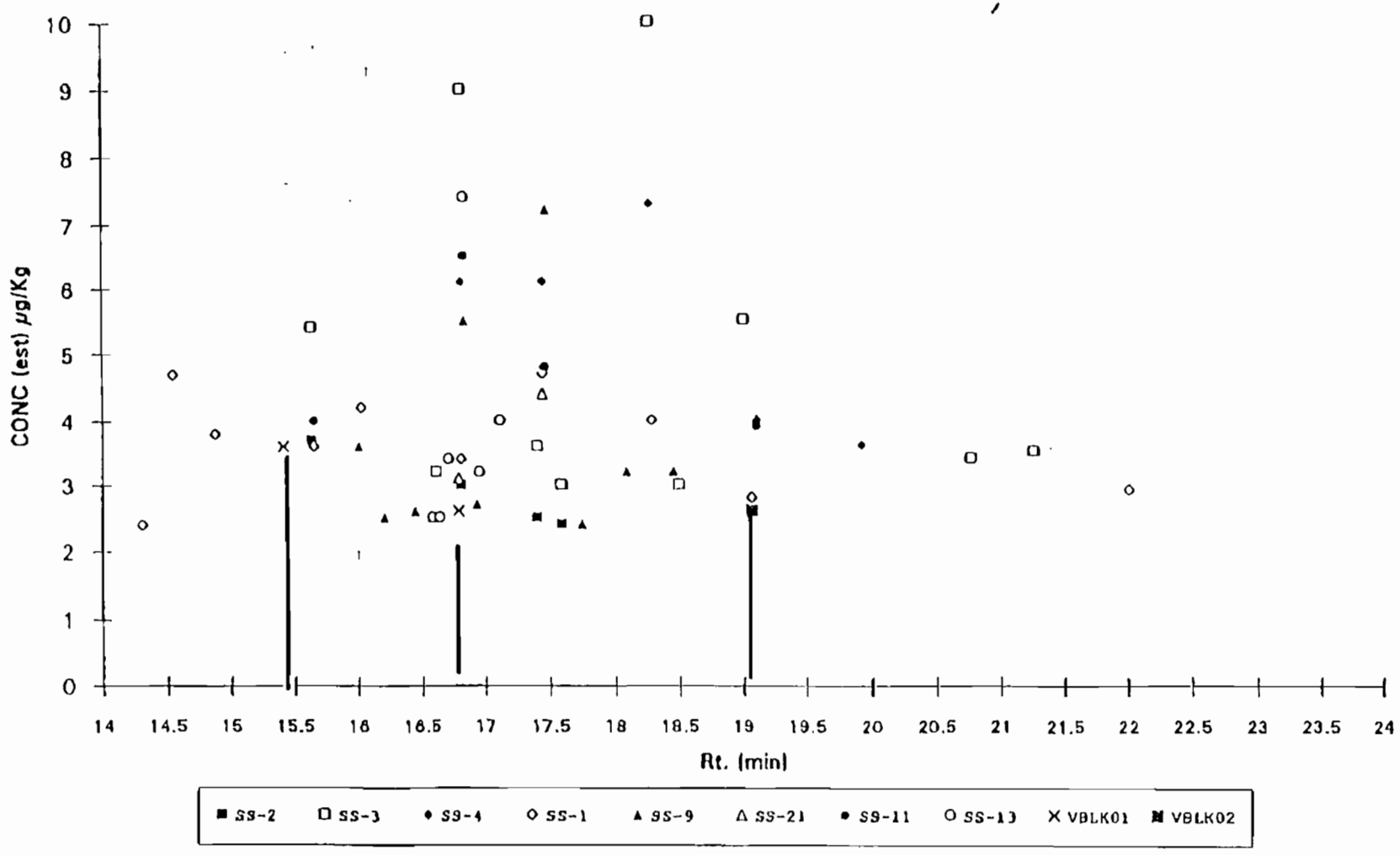
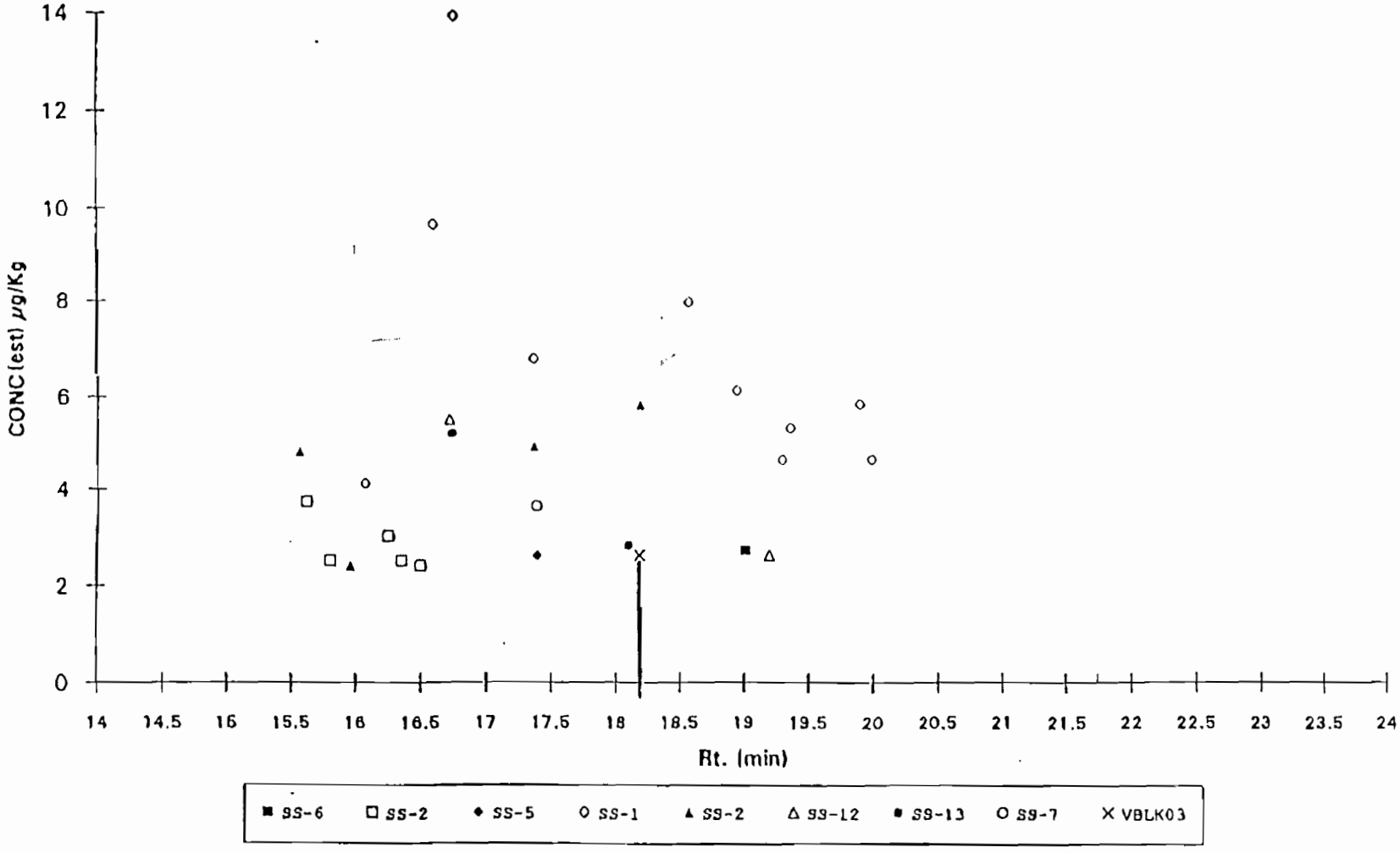
Distribution of m/z 57 - Ashland Chemical, Binghampton - 9/14/93 Assay Date



Distribution of m/z 57 - Ashland Chemical, Binghampton - 9/15/93 Assay Date



Distribution of m/z 57 - Ashland Chemical, Binghampton - 9/16/93 Assay Date