

Data Summary Report for:

**PHASE II SITE CHARACTERIZATION
AT
EKONOL POLYESTER RESINS
WHEATFIELD, NEW YORK**

Submitted to:



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SECTION 1 INTRODUCTION

1.1 INTRODUCTION

The former Ekonol Polyester Resins facility is located on the west side of Walmore Road, approximately one-half mile north of Niagara Falls Boulevard (Route 62) in the Town of Wheatfield, New York (Figure 1). A former concrete secondary containment tank for process water was removed from service at the facility in October 1999. Following removal of the tank and surrounding soils, soil sampling of the walls and floor of the excavation was conducted. Results of the sampling indicated the presence of several organic compounds. Among those detected, and later included on the target parameter list, were trichloroethene (TCE), tetrachloroethene (PCE), cis-1,2-dichloroethene (cis-1,2 DCE), phenol, and metals including lead and zinc. Because some of the sample results exceeded New York State Department of Environmental Conservation (NYSDEC) Technical and Administrative Guidance Memorandum (TAGM) 4046 values, a site characterization was required.

The Phase I Site Characterization determined the extent of the target organic compounds and metals in soil and groundwater in the vicinity of the former containment tank. The Phase I Site Characterization activities included soil borings, temporary well installations, soil and groundwater sampling, and surveying. The Phase I work was summarized and presented to the NYSDEC in a report, dated March 2001. The NYSDEC reviewed the report and requested further characterization of soil and groundwater.

To address the NYSDEC's request for further characterization, a Work Plan for Phase II Site Characterization was prepared and submitted for approval. The objective of the Phase II Site Characterization was to define the extent of impacts related to the former containment tank. The NYSDEC approved the Phase II Work Plan on September 6, 2001. The Phase II Site Characterization work included soil borings, soil sampling with groundwater field screening, overburden and bedrock monitoring well installation, two groundwater sampling events, and an investigation of site sewers. Field activities associated with this NYSDEC-approved Phase II work were completed in December 2001. Preliminary field and analytical data from this Phase II investigation showed impacts to groundwater including a dense non-aqueous phase liquid (DNAPL). The data further indicated that additional investigation activities were warranted to fully define the extent of impacts to groundwater in both the shallow water-bearing zone in overburden and the deep water-bearing zone in bedrock. In January 2002, after reviewing the preliminary Phase II data, NYSDEC concurred that additional work, similar to the Phase II work already completed, was warranted for groundwater.

To address the need for further characterization of groundwater, a Work Plan for a second stage of Phase II Site Characterization was prepared and submitted to NYSDEC for approval. The objective of the second stage of Phase II Site Characterization was to further define the extent of impacts to groundwater in both the shallow water-bearing zone in overburden and the deep water-bearing zone in bedrock. The NYSDEC approved the Additional Phase II Work Plan on May 13, 2002. The NYSDEC-approved scope of work included groundwater screening at

anticipated overburden well locations followed by overburden well installation. In bedrock, proposed investigation included groundwater screening from temporary borings, followed by installation of bedrock monitoring wells. The field activities associated with the second stage of Phase II work were completed in November 2002.

This Report presents the findings of all the Phase II Site Characterization work completed to date. The intent of the report is to combine the results of the Phase II work completed in December 2001, and November 2002 and present a summary of the data collected during both stages of the Phase II work. The report includes a description of the site, a summary of the site history, a discussion of all Phase II Site Characterization work completed through November 2002, a summary of the analytical results for all Phase II work, and conclusions drawn from the Phase II work completed to date.

1.2 SITE DESCRIPTION

The Ekonol Polyester Resins facility is located on the west side of Walmore Road, approximately 0.5 mile north of Niagara Falls Boulevard (Route 62) in the Town of Wheatfield, New York (see Figure 1). The facility is situated at the northeast end of the Saint-Gobain Performance Plastics Corporation facility. Properties adjacent to this facility include Bell Aerospace Textron to the south, Niagara Falls Air Force Base to the north, and Niagara Falls International Airport to the west. Properties to the east of Walmore Road are primarily industrial and commercial; however, residential properties do exist east of Walmore Road, adjacent to the road.

The topography at the facility is relatively flat, and located at an approximate elevation of 600 feet above mean sea level (AMSL). The investigation area, immediately south of the main building, is paved with asphalt and concrete, and is primarily used for vehicle parking and equipment storage. The facility receives its potable water supply from the Town of Wheatfield, New York. The nearest groundwater supply well for domestic use is approximately one-mile east-southeast of the facility (EDR, 2000).

1.3 SITE HISTORY

The former secondary containment tank at the facility received wastewater rinsates from floor drains inside the process area of the Ekonol plant. The tank was installed prior to 1977, and remained in use until October 1999. According to Frontier (2000), the tank was constructed of reinforced concrete walls, approximately 9.5 inches thick. The interior dimensions were approximately 18 feet long, 6 feet wide, and 9 feet deep (Frontier, 2000). At capacity, the maximum volume was 7,794 gallons (Frontier, 2000). The tank was an open top, rinsate collection point covered with large steel plates. The walls and floor were sound, with no obvious cracking or fractures. At the time the tank was removed, there was no protective coating visible on the inside walls or floor (Frontier, 2000).

Following the October 1999 tank removal, TCE was detected in concentrations ranging from 1.2 mg/kg to 200 mg/kg in soil samples collected from the excavation walls (Frontier, 2000). Cis-1,2-DCE was detected at levels ranging from 2.9 mg/kg to 100 mg/kg. Phenols were detected at concentrations ranging from 4.5 to 12 mg/kg.

The Phase I site characterization to determine the extent of the target organic compounds and metals in soil and groundwater in the vicinity of the former containment tank was completed in March 2001 (see March 2001 Site Characterization Report). The Phase II Site Characterization field activities at the Ekonol site commenced in November 2001 and were completed in November 2002. The results of the Phase II Site Characterization are presented herein.

SECTION 2

PHASE II SITE CHARACTERIZATION ACTIVITIES

2.1 INTRODUCTION

The Phase II field investigation program was completed in two stages. The first stage of field activities was completed in December 2001. The preliminary field and analytical data from this stage showed the presence of organic chemicals in groundwater including a dense non-aqueous phase liquid (DNAPL). The data further indicated that additional investigation activities would be necessary to fully characterize the site.

After reviewing the preliminary data, NYSDEC concurred that additional work of similar scope to the first stage of Phase II was warranted for groundwater. Thus, the second stage of investigation in Phase II commenced in June 2002. The first stage of work included soil borings, well installation, soil and groundwater sampling, and a sewer investigation. The second stage of Phase II work included groundwater screening at anticipated overburden and bedrock well locations followed by overburden and bedrock well installation. Packer testing and discrete-zone water quality sampling were also completed in the second stage of Phase II. Over the course of the Phase II work, groundwater samples were collected and analyzed after well installation.

The field methodologies necessary to complete stage one of the Phase II work were described in the NYSDEC-approved Phase II Work Plan (August 2001). Field methodologies completed during the second stage of the Phase II investigation were completed in accordance with the NYSDEC-approved Additional Phase II Site Investigation Work Plan (May 2002). The work tasks performed in both stages of the Phase II investigation are described below.

2.2 SOIL BORINGS

To define the horizontal extent of soil impacts, six soil borings were advanced in the vicinity of the former containment tank location. The soil borings were advanced using direct-push methodology (Geoprobe™), at the locations shown on Figure 2. These locations were selected to better define the extent of soil impacts. The actual boring locations were based on underground utility locations, previous field screening results, and visual observations.

Each soil boring was advanced to the top of bedrock, approximately 12 to 16 feet below ground surface (bgs). After reaching the top of rock, all six soil borings were converted to temporary monitoring points. The temporary piezometer was installed to collect a groundwater sample. Using a peristaltic pump, a groundwater sample was collected from each borehole. The groundwater sample was field screened for volatile organic halides (VOH), using EPA Method 8535. This colorimetric screening procedure is not specific to any one halogenated hydrocarbon compound. Based on the groundwater screening results, the borehole may have been abandoned, and an alternate location chosen. Alternate borehole locations were considered when screening results revealed an elevated VOH concentration in groundwater that was significantly greater

than the method detection limit (typically greater than 50 $\mu\text{g/L}$). Groundwater screening results are summarized on Table 1.

At each final soil boring location, a soil sample was collected for laboratory analysis based on photoionization detector (PID) headspace readings and visual observations. Analytical parameters included 1,2-dichloroethene (1,2-DCE), 1,1-dichloroethane (1,1-DCA), trichloroethene (TCE), and 1,1,1-trichloroethane (1,1,1-TCA) by EPA Method 8260; phenol and aniline by EPA Method 8270; and zinc and lead using Method 6010B. A total of six soil samples were collected and analyzed. Analysis of these samples, in conjunction with the results of the field screening, was used to confirm the extent of soil impacts from the former containment tank. Once the soil sample was retained and the groundwater sample collected, each piezometer was removed and the boring abandoned. A drilling record for each of the soil borings is presented in Attachment A. Analytical results for the soil samples collected are provided on Table 2.

2.3 MONITORING WELL INSTALLATION

A total of 17 monitoring wells were installed during the entire Phase II investigation. These wells consisted of 9 overburden wells and 8 bedrock wells.

During the first stage of the Phase II investigation, eight monitoring wells (4 overburden and 4 bedrock) were installed as well pairs consisting of one overburden well and one bedrock well at each location. The locations of these wells are shown in Figure 2. One well pair was installed upgradient of the former containment tank. A second well pair was installed adjacent to the former containment tank location and its service lines. The remaining two pairs were installed hydraulically downgradient of the service tank location. Placement of the well pairs was determined following completion of the soil boring program and receipt of soil analytical results from the laboratory.

In the second stage of Phase II, an additional 5 overburden and 4 bedrock monitoring wells were installed. The five overburden wells included one upgradient well and four wells located downgradient or sidegradient in the overburden water-bearing zone. To define the extent of impacts to groundwater in bedrock, the four additional bedrock monitoring wells were installed (see Figure 3). To determine the horizontal extent of groundwater impacts and appropriate locations for the bedrock monitoring wells, temporary borings were installed, enabling the collection of bedrock groundwater samples for screening purposes. Once a suitable location for each bedrock monitoring well was selected using the screening results, a bedrock monitoring well was installed at a location adjacent to the screening hole.

Overburden Wells

The four overburden monitoring wells (MW-1S through MW-4S) installed during the first stage of the Phase II investigation were installed using 4.25-inch inside diameter (ID), hollow-stem augers (HSAs). Each well was advanced to the top of bedrock (approximately 10 to 15 feet bgs). After the total depth of the boring was reached, a two-inch ID, schedule-40 PVC well screen with a 0.010-inch slot size was installed. Well screen length was five feet, with the

exception of MW-1S, where the well screen length was ten feet. Screen length was dependent upon the observed depth to water in the boring.

The annulus around the outside of the screen was backfilled with sand, extending to two feet above the screen, followed by a bentonite seal above the sand pack. The seal was allowed to hydrate, prior to the placement of grout above it. Each well was completed with a flush-mount protective casing.

During the second stage of the Phase II investigation, five more overburden monitoring wells were installed. Their installation was preceded by soil borings and groundwater screening at the selected overburden well locations. To complete the delineation downgradient of the former containment tank, the locations of the soil borings were selected using the groundwater analytical results from the overburden monitoring wells installed during the first stage of Phase II work.

After the soil boring reached its total depth, a temporary piezometer was installed. Using a peristaltic pump, a groundwater sample was collected from each borehole. The groundwater sample was field screened for VOHs, using EPA Method 8535. The screening of overburden groundwater continued until an overburden well location was selected. Borings used to collect groundwater samples were backfilled with bentonite holeplug and cement bentonite grout. Overburden groundwater screening results are included on Table 1. The groundwater screening results from the soil borings ultimately defined the final well locations.

Once an overburden well location was selected, overburden monitoring wells MW-5S through MW-9S were installed. One of these wells (MW-5S) was installed upgradient, and the remaining four wells were installed downgradient or sidegradient in the overburden water-bearing zone.

The shallow, overburden monitoring wells were installed using 4.25-inch inside diameter (ID), hollow-stem augers (HSAs). Each boring was advanced to the top of bedrock (approximately 10 to 15 feet bgs). After the total depth of the boring was reached, a two-inch ID, stainless steel well screen with a 0.010-inch slot size was installed. Well screens in these five wells were five feet in length. Overburden monitoring wells MW-5S through MW-9S were constructed of stainless steel rather than PVC. The switch to stainless steel was approved by NYSDEC in the Additional Phase II Site Characterization Work Plan (May 2002).

Bedrock Wells

Four bedrock wells (MW-1D through MW-4D) were installed in the first stage of Phase II by advancing 6.25-inch HSAs to the top of bedrock. After reaching the top of bedrock, a tri-cone roller bit was used to drill a rock socket approximately two feet into the competent bedrock. After drilling the rock socket, a four-inch steel casing was grouted in-place by tremie grouting from the bottom up. After allowing the grout to set for a minimum of 24 hours, an HQ-sized (nominal 4-inch) core barrel was advanced into bedrock. The core barrel was advanced a maximum of 20 feet into competent bedrock or until a water-bearing zone was encountered in bedrock, whichever occurred first. A two-inch ID, schedule 40 PVC well screen and riser were then installed in the boring. The screens were 10 feet in length with 0.010-inch slots (10-slot).

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The annular space outside of the PVC was tremied with filter pack sand, up to a minimum of three feet above the top of the screen. The annular space around the two-inch casing was completed above the filter pack with a minimum of a three-foot bentonite seal. The bentonite seal was allowed to set for a minimum of two hours, prior to placing grout. Grout was tremied from above the bentonite seal to the surface. Below the screen, a two-foot portion of casing was installed as a sump to collect any DNAPL, if present. The bedrock wells were completed with a flush-mount protective casing.

During the second stage of the Phase II investigation, work included groundwater screening at selected locations followed by the installation of four bedrock monitoring wells. The locations of the bedrock groundwater screening holes were selected using the groundwater analytical results from the four bedrock monitoring wells installed during the first stage of Phase II. The groundwater screening results from the temporary bedrock groundwater screening borings were then used to determine the actual well locations.

Initially, temporary borings were installed at proposed locations by advancing 4-inch inner diameter spin casing to the top of rock. After reaching the top of bedrock, spin casing, equipped with a diamond shoe, was seated 6 to 12 inches into competent bedrock. After seating the casing, a pneumatic rock hammer was used to advance the boring. Using filtered compressed air as the drilling lubricant, the hammer was advanced a maximum of 20 feet into competent bedrock or until a water-bearing zone was encountered, whichever occurred first. Once the total depth of the boring was reached, the drill stem was removed, and groundwater was allowed to recharge to the boring.

After groundwater had recharged sufficiently, a groundwater screening sample was collected from the open borehole. The groundwater sample was field-screened for VOHs, using EPA Method 8535. Alternate borehole locations were considered if the screening results revealed a VOH concentration in groundwater that was greater than 50 $\mu\text{g/L}$. If, based on the screening results, an alternate borehole location was selected; the screening was repeated at the alternate location. Unless limited by building or property boundaries, alternate boring locations were located up to 100 feet from the original boring (see Figure 3). The screening of bedrock groundwater continued until a well location that potentially defined the extent of impacts was selected. Temporary borings used to collect groundwater screening samples were backfilled with bentonite holeplug and cement bentonite grout. Bedrock groundwater screening results are provided on Table 1.

In the second stage of the Phase II investigation, the four bedrock monitoring wells (MW-10D through MW-13D) were installed by advancing 6.25-inch HSAs to the top of bedrock. After reaching the top of bedrock, a tri-cone roller bit was used to drill a rock socket approximately two feet into the competent bedrock. After drilling the rock socket, a four-inch steel casing was placed to the bottom of the boring. The casing was sealed in place by tremie grouting with cement-bentonite grout from the bottom up. After allowing the grout to set for a minimum of 24 hours, an HQ-sized core barrel (nominal 4-inch outside diameter) was advanced a maximum of 20 feet into competent bedrock or until a water-bearing zone was encountered, whichever occurred first.

After each core run, typically five-feet in length, packer testing was performed on that section of the boring (total of three tests per borehole). A single rubber packer assembly was placed in the corehole, inflated with nitrogen, and used to seal off the bottom five feet of the corehole. Five-foot sections of corehole were tested during each individual packer test. The packer test used water withdrawal methods to estimate the hydraulic conductivity of that section of the corehole. Packer testing in the open bore hole with periodic water level monitoring in adjacent borings or wells enabled identification of higher permeability zones and connectivity of fractures between holes. Packer testing results are provided in Attachment B. During the withdrawal packer testing, discrete-zone water quality samples were collected and submitted for laboratory analysis for the target parameters (See Groundwater Sampling and Analysis below for details). The groundwater was also checked for the presence of DNAPL using a hydrophobic dye.

At the completion of packer testing, a 2-inch ID, stainless steel well screen and riser was installed in the boring. The screen length was a maximum of ten feet with 0.010-inch slots. The well was screened over the most permeable section of the bedrock. Below the screen, a 2-foot section of casing was installed as a sump to collect DNAPL, if present. Bedrock monitoring wells MW-10D through MW-13D were constructed of stainless steel rather than PVC. The switch to stainless steel was approved by NYSDEC in the Additional Phase II Site Characterization Work Plan (May 2002).

Drilling records for all of the wells installed during the Phase II activities are provided in Attachment A. Following the additional monitoring well installations, all groundwater field screening borings and well locations were surveyed for location and elevation. The locations of the additional borings and monitoring wells are presented on Figure 3.

2.4 GROUNDWATER SAMPLING AND ANALYSIS

During the Phase II investigation, groundwater samples were collected from the monitoring wells. In the first stage of work, two rounds of groundwater samples were collected from the eight wells installed. In the second stage of work, two rounds of groundwater sampling were completed from all 17 wells installed. To date, the eight wells installed in the first stage of Phase II have been sampled four times, and the wells installed in the second stage of Phase II have been sampled twice. Analytical results for groundwater samples from monitoring wells are summarized on Tables 3 and 4. Analytical results for samples collected during packer testing are included on Table 5.

Screening for DNAPL was also completed during the Phase II investigation. The groundwater sampling and analysis and the separate-phase liquid monitoring and testing completed during the Phase II work is described below.

Dissolved Phase Sampling and Testing

In accordance with the August 2001 NYSDEC-approved Work Plan, two rounds of groundwater sampling were completed during the first stage of the Phase II investigation. Sampling was consistent with the methodology described in the NYSDEC-approved Work Plan (May 2001). The first round was conducted on November 2, 2001, following the installation and

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development of the monitoring wells. The second round of groundwater samples was obtained on December 6, 2001. All eight of the monitoring wells (four shallow, four deep) were sampled during each round. Three volumes of water were purged from each well prior to sampling using a dedicated, disposable bailer. Field parameters including pH, specific conductance, and temperature were documented. During the first round of sampling, separate-phase liquids were not observed. Sampling records for both rounds of sampling are presented in Attachment C.

Groundwater samples collected during the first stage of Phase II were submitted for laboratory analysis. In accordance with the NYSDEC-approved Work Plan, analytical parameters included TCE; 1,2-DCE; 1,1-DCA; and 1,1,1-TCA; phenol and aniline; and zinc and lead.

After the overburden and bedrock monitoring wells were installed during the second stage of the Phase II investigation, the new wells were developed and purged following standard NYSDEC guidelines as approved in the May 2002 Additional Phase II Work Plan. Groundwater samples were collected in accordance with NYSDEC protocols and guidance using a peristaltic pump. During development and purging, field parameters including pH, temperature, conductivity, dissolved oxygen (DO), and oxidation reduction potential (ORP) were collected. Colorimetric field test kits were utilized to test for nitrate, ferrous iron, and sulfate. In addition to the newly installed monitoring wells, the monitoring wells installed during the first stage of Phase II field activity were sampled. This round of sample collection was completed on October 2, 2002.

Seventeen groundwater samples (9 overburden, 8 bedrock) were collected and submitted for laboratory analysis. Groundwater samples were analyzed using EPA Method 8260 for the target VOC parameters (TCE, 1,2-DCE, 1,1-DCA, and 1,1,1-TCA). Target SVOC parameters, phenol and aniline, were analyzed using EPA Method 8270. Analysis for zinc and lead was performed using EPA Method 6010B.

Approximately one month following the October 2002 round, a second set of 17 groundwater samples was collected (November 7, 2002). Purging and sampling procedures were identical to the first round. The seventeen samples were collected and analyzed for the target parameters as indicated above. Well sampling records for both rounds of sampling are included in Attachment C.

Separate-Phase Liquid Monitoring

After reviewing the analytical results from the November 2, 2001 sampling event, a grab sample was collected from each of the overburden wells and each of the bedrock well sumps. These samples were used to screen for the presence of a separate phase liquid. A hydrophobic dye, Sudan IV, was mixed with each sample. The sample from MW-2D was stained red, while all other samples remained clear. This result indicated the possible presence of a separate phase liquid. A sample of the liquid in the sump from MW-2D was collected and submitted to the laboratory for chemical analysis.

During the sampling round completed October 2, 2002, the purged water was screened during purging for the presence of DNAPL using visual observation and a hydrophobic dye. If

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DNAPL was observed or confirmed using Sudan IV in any of the existing or newly installed monitoring wells during groundwater sampling, the DNAPL was sampled and submitted for physical and chemical analysis. Physical properties determined for the separate-phase liquid included surface tension, density and viscosity. In addition to physical properties, samples of the DNAPL were submitted for chemical analysis. Chemical analysis included the full suite of VOCs and SVOCs by EPA Methods 8260 and 8270. The analytical results for the physical and chemical testing of DNAPL are provided on Table 6 and Table 7.

Where DNAPL samples were collected, any remaining DNAPL in the well was removed. Following removal, the recovery of DNAPL into the monitoring well was measured over time.

All investigation-derived waste (IDW) including excess soils, decontamination rinsates, well development water, purge water, and personal protective equipment, was placed in Department of Transportation (DOT)-approved 55-gallon, 17-H type drums. The IDW was characterized, and disposed of in accordance with the appropriate regulations.

2.5 SEWER INVESTIGATION

To evaluate potential preferential pathways for offsite migration of contaminants, the sewers in the vicinity of the site were investigated. Invert elevations of the storm and sanitary sewer lines in the vicinity of the containment tank were measured to establish direction of flow in the pipes. This information was used to determine the best areas to advance test pits and evaluate the condition of the sewer bedding, if any, and determine if the pipelines are above or below the water table. The location of the test pits is shown on Figure 2.

After the test pits were completed in accordance with the September 2001 NYSDEC-approved Work Plan, a soil sample was collected from beneath the pipeline, at each test pit. Each soil sample was collected from the native soil, not the pipeline bedding. Each soil sample was analyzed by EPA Method 8260 for the target VOC parameters (TCE, 1,2-DCE, 1,1-DCA, and 1,1,1-TCA). Target SVOC parameters included phenol and aniline, analyzed for using EPA Method 8270. Analysis for zinc and lead was performed using EPA Method 6010B. The analytical results for the test pit soil samples are included on Table 8.

2.6 HISTORICAL REVIEW

A review of historical data was completed during the Phase II investigation. Following review of the information sources, including tax maps, aerial photographs, reports for adjacent sites, and communications with employees on site, and using recently collected field data, a general site plan was created (see Figure 4).

SECTION 3 PHASE II SITE CHARACTERIZATION RESULTS

3.1 GEOLOGY AND HYDROGEOLOGY

The overburden deposits encountered in the Phase II soil borings consisted of silty red-brown clay, with gray silty clay lenses. A fine sand and gravel was found at the interface with bedrock. Thickness of overburden ranges from 3 feet to 19 feet throughout the region (Ecology and Environment 2000). At the Ekonol facility, the overburden thickness ranged from 12.5 feet to 15.0 feet. A description of the overburden encountered can be found on the boring logs in Attachment A.

Given the nature of the overburden and slow recharge rates observed during well development, the soil drainage is expected to be poor, and hydraulic conductivity is low. Based on data from an adjacent site, regional groundwater flow direction is to the south-southwest, at a hydraulic gradient of approximately 0.01 feet/foot (Golder, 1991). The depth to groundwater at the site varied substantially between monitoring locations (Table 9). Groundwater velocities are expected to be very low based on the high percentage of clay in the overburden, and the low regional hydraulic gradient.

The depth to bedrock, estimated as the depth to auger refusal during monitoring well installation, was approximately 12.5 to 18.7 feet bgs. This is consistent with the depth to bedrock reported in the UST Closure Report (Frontier, 2000). The bedrock observed at the Ekonol facility during the Phase II well installation consists of light to dark gray dolomite of the Lockport Group. The formation is consistent throughout, containing weathered bedding planes, vugs, stylolitic horizons, and fossiliferous corals. A fracture/rubble zone was encountered at depths ranging from 20.25 feet to 29.70 feet bgs. A loss of drilling fluid circulation was encountered in this zone. Circulation of drilling fluid did not recover once loss was encountered. A separate phase liquid was not observed during coring activities.

Background information suggests that the formation has an east-west strike, and dips to the south at approximately 25 ft./mi. The Lockport Group has been divided into four zones; the Guelph Formation (Zone 1), the upper part of the Eramosa Formation (Zone 2), and the lower portions of the Eramosa Formation (Zones 3 and 4).

Zone 1 (10-20 feet thick) of the Lockport formation contains weathered bedding planes, vugs, and a horizontal fracture zone in stratigraphic contact with Zone 2. Zone 1 is a water-bearing zone. Core samples collected during drilling were largely from Zone 1 of the Lockport. Zone 2 is primarily massive and relatively unfractured; however, high angle vertical fractures do penetrate Zone 2. The top portion of Zone 2 was penetrated during coring. Zones 3 and 4 were not penetrated during the Phase II investigation. A description of the bedrock core obtained during the Phase II investigation is provided on the drilling records in Attachment A.

The major surface water feature in the area is the Niagara River, located approximately three miles south of the facility. Bergholtz Creek, a tributary of the Niagara River, is located approximately 0.5 miles south of the facility.

Three water supply wells identified as being for domestic use were reported to exist within 1.5 miles of the site (EDR 2000). The nearest of these three wells is approximately one mile east-southeast of the facility. None of these wells are located hydraulically downgradient of the facility. The depth to groundwater in these wells at the time of drilling (1950s) ranged from 7 to 11 feet bgs (EDR, 2000).

3.2 SOIL SAMPLING RESULTS

Soil Borings

Using the results of the field screening, including PID readings, field observations, and on-site groundwater analysis, a total of six soil samples were submitted for laboratory analysis from locations presented on Figure 2. Soil samples were analyzed for target volatile organic compounds (VOCs), including TCE, cis-1,2 DCE, 1,1-DCA, and 1,1,1-TCA, using EPA Method 8260. Target semi-volatile organic compounds (SVOCs) include phenol and aniline. Analysis for target SVOCs was performed using EPA Method 8270. Concentrations of zinc and lead in soil were determined using EPA Method 6010B. Analysis of these samples, in conjunction with the results of the field screening, confirms the extent of soil impacts from the former containment tank.

A summary of the analytical results from the soil sampling is presented in Table 2. There were no exceedences of NYSDEC Technical and Administrative Guidelines Memorandum No. 4046 (TAGM 4046) recommended soil cleanup objectives for the parameters analyzed for using EPA Method 8260 or 8270. Lead detections were below anticipated site background levels. Total zinc concentrations exceeded the state standard of 20 mg/kg in all of the borings. The concentration of zinc ranged from 44.8 mg/kg to 104 mg/kg.

Sewer Investigation

On December 3 through December 6, 2001 the sewers beneath the site were investigated. Three test pits were excavated to evaluate the condition of the sewer bedding, and determine if the pipelines were above or below the water table. The test pit locations are shown on Figure 2.

The sewer bedding material beneath the pipe was found to be comprised of a thin layer (1 to 3-inch) of sandy pea-gravel. The bedding material was above the native red, silty clay at each location. The backfill material around the pipe consisted of sand and cobbles. The backfill material above the pipe at TP-2 and TP-3 was saturated at three feet bgs. After each test pit was completed, a soil sample was collected from the native soil beneath the bedding material, but above the water table.

The soil samples were submitted for laboratory analysis for target VOCs, SVOCs, and metals. At TP-2, 1,1-DCA was detected at 24 µg/kg. There were no detections of aniline or phenol. Lead concentrations ranged from 9.7 mg/kg to 15.1 mg/kg. Zinc concentrations ranged from 70.8 mg/kg to 87.2 mg/kg. The analytical results from the sewer investigation samples are

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presented in Table 8. There were no exceedences of the TAGM 4046 recommended soil cleanup objectives in the samples collected from the test pits.

3.3 GROUNDWATER ANALYTICAL RESULTS

Groundwater Screening

Total VOH concentrations from groundwater screening samples collected during the first stage of the Phase II characterization ranged from 0.0 µg/L in SB-1 to 143 µg/L in SB-3. The detection of 143 µg/L in SB-3 prompted the completion of a soil boring 20 feet further south, denoted as SB-3A. The screening concentration for the groundwater sample from SB-3A was 10.6 µg/L. To investigate the validity of field screening results, groundwater samples were collected from the eight monitoring wells installed during the first stage of Phase II and compared to the laboratory analytical results from these wells.

Prior to the installation of overburden monitoring wells during the second stage of Phase II fieldwork, a second round of overburden field screening was conducted. There were no total VOH detections at any of the screening locations (SBA series). The second round of overburden field screening locations are shown on Figure 3.

During the second stage of Phase II work, groundwater field screening in bedrock was conducted prior to the installation of the bedrock monitoring wells. Field screening locations were based on property boundaries, utility clearances, and field observations. The bedrock field screening locations are presented on Figure 3. The results from the entire Phase II field screening effort are presented in Table 1. Bedrock groundwater screening locations are alphabetically listed on Table 1.

Groundwater Sampling from Packer Testing

Analytical results for groundwater collected from bedrock monitoring wells are summarized in Table 5. Except at MW-12D, the samples were collected in three discrete intervals as the boring was advanced. In MW-10D, the concentration of TCE decreased with depth. Only TCE and 1,2-DCE were detected in MW-10D during packer testing. The concentration of 1,1,1-TCA and TCE increased slightly with depth in MW-11D. In MW-12D only one sample could be obtained in the first interval of coring. For MW-13D, the indicator VOCs decreased in concentration with depth.

Groundwater Sampling from Monitoring Wells - Overburden

Analytical results for groundwater collected from overburden monitoring wells are summarized in Table 3. The concentrations of the indicator analytes for all sampling rounds completed to date are plotted on Figure 5. The ranges of concentrations for the most recent round of sampling (November 2002) are summarized below.

- TCE concentrations ranged from not detected (ND) at MW-5S to 9,000 µg/L at MW-4S.
- 1,1,1-TCA was detected only in MW-4S at a concentration of 150 µg/L.

- 1,2-DCE concentrations ranged from 0.58 µg/L at MW-3S to 780,000 µg/L at MW-2S.
- 1,1-DCA ranged from ND at MW-2S to 13 µg/L at MW-4S.
- Aniline was detected only in MW-4S at a concentration of 400 µg/L.
- Phenol was detected in MW-4S at 32 µg/L and in MW-2S at 53,000 µg/L.
- Lead was detected in MW-7S and MW-9S at concentrations of 0.013 mg/L and 0.014 mg/L respectively.
- Zinc concentrations ranged from ND to 0.086 mg/L at MW-7S.

Groundwater Sampling from Monitoring Wells - Bedrock

Analytical results for groundwater collected from bedrock monitoring wells are summarized in Table 4. The concentrations of the indicator analytes for all sampling rounds completed to date are plotted on Figure 6. The ranges of concentrations for the most recent round of sampling (November 2002) are summarized below.

- TCE concentrations ranged from ND at MW-12D to 400,000 µg/L at MW-2D.
- 1,1,1-TCA concentration ranged from ND at MW-2D and MW-12D to 16,000 µg/L at MW-13D.
- 1,2-DCE concentrations ranged from ND at MW-12D to 28,000 µg/L at MW-13D.
- 1,1-DCA concentration ranged from ND at MW-1D, MW-2D, MW-4D, MW-10D, and MW-12D to 110 µg/L at MW-3D.
- Aniline and Phenol concentrations ranged from ND at MW-1D, MW-10D, MW-11D, MW-12D, and MW-13D to 3,800 µg/L (aniline) and 710 µg/L (phenol) at MW-2D.
- Lead was not detected.
- Zinc was not detected.

3.4 SEPARATE-PHASE LIQUID RESULTS

Physical Testing

The physical characteristics of the DNAPL samples collected during the Phase II investigation are summarized on Table 6. The sample collected from MW-2D contained two distinct layers stainable with hydrophobic dye. The sample collected from MW-2S and MW-3D were observed to contain a single layer of discolored water that tested negative with the hydrophobic dye. The density of all samples collected was greater than the density of water. The lower layer in sample MW-2DP was the most viscous. The least viscous sample was collected from shallow well MW-2S. Surface tension ranged from 32.5 to 48.0 dynes per second.

During the Phase II investigation, the presence of DNAPL was confirmed with the use of Sudan IV biological stain. No physical testing of DNAPL was performed during the first stage of Phase II work.

Chemical Analytical Results

During the first stage of Phase II work the concentration of TCE was 440,000 mg/Kg in DNAPL collected from MW-2D. Aniline was detected in MW-2D at concentration of 4,400 mg/Kg. 1,1-DCA and 1,2-DCE were detected in the sample at a concentration of 24,000 mg/Kg. 1,1,1-TCA was detected at a concentration of 48,000 mg/Kg. Phenol was detected at a concentration of 50 mg/Kg. Only one sample was collected during this stage of the Phase II investigation. Analysis was for the indicator parameters only. Results were reported in mg/Kg by the laboratory due to difficulties in analyzing the viscous sample matrix.

During the second stage of Phase II work, three samples of DNAPL were collected for chemical analysis. The full suite of analytical results for the samples collected is summarized on Table 7. The samples were collected from the sumps in monitoring wells MW-2D, MW-2S, and MW-3D. In the sample collected from MW-2D, the majority of the sample consisted of TCE. The concentration of TCE was 924,000,000 $\mu\text{g/L}$. In the sample collected from MW-3D the concentration of TCE was 110 $\mu\text{g/L}$. In the DNAPL sample from MW-2S, TCE was not detected, and 1,1,1-TCA was detected at 590 $\mu\text{g/L}$. Other analytes were also detected in the DNAPL samples (see Table 7).

3.5 SITE HYDROGEOLOGY

Water levels in the seventeen monitoring wells installed during Phase II work have been collected monthly. The last three months of water level data are provided on Table 9.

Water levels were measured in the overburden and bedrock wells and used with survey elevation data to determine the local direction of groundwater flow. The November 18, 2002 groundwater contour maps of the overburden and bedrock water-bearing zones are presented in Figures 7 and 8. Only the November 2002 groundwater contour maps have been included in this report.

Shallow Groundwater

In November 2002, the shallow groundwater flow direction appears to be radial from high water level elevations seen at MW-7S and MW-2S. Variability in the elevation of top of rock, the type of subsurface material, clays and silt, and the location of MW-2S and MW-7S adjacent to buildings may have an influence on the groundwater elevations observed and gradients determined. The average gradient calculated from the water levels measured in the shallow water-bearing zone is 0.028 feet per foot. Gradient determined from groundwater level measurements made in December 2002 was consistent with November 2002. The groundwater gradient appears to flatten out moving away from MW-2S and MW-7S. Regionally, groundwater flow direction in the shallow water-bearing zone is to the southwest. On a regional scale, flow gradients are relatively shallow.

Bedrock Groundwater

In the bedrock water-bearing zone, the groundwater gradient suggests groundwater flow southeast from the western portion of the facility. From the north, the overall flow direction was

south-southeast. On the east side of the site, the flow direction appears to be southwest with a gradient of 0.01 ft./ft. In bedrock, the gradients are low and dependent upon the interconnection of fractures in bedrock. Variability in flow direction may be due to the fractures intercepted and the hydraulic conductivity of the bedrock.

Bedrock Packer Testing

Hydraulic conductivity was determined for each interval tested in the bedrock monitoring wells installed during the second stage of Phase II work. Calculated hydraulic conductivities are provided in Attachment B. Packer testing was not performed in MW-12D due to a drilling problem related to a collapsing borehole.

SECTION 4 CONCLUSIONS

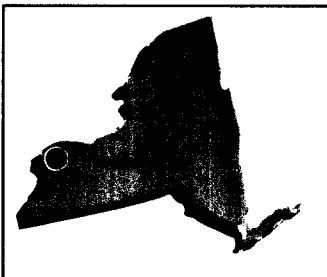
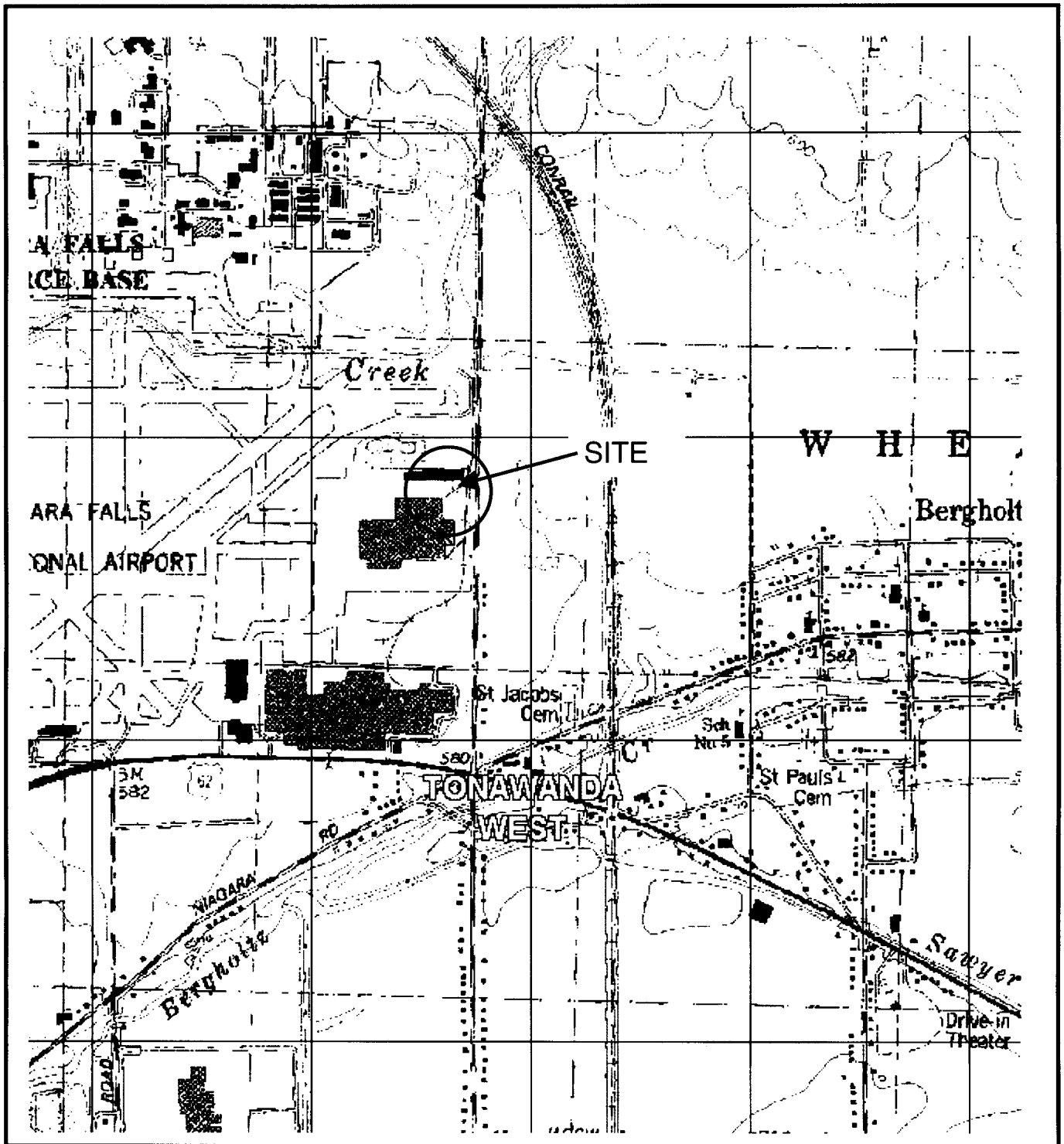
4.1 CONCLUSIONS

The objective of this Phase II investigation, to fully define the extent of impacts in soil and groundwater related to the former containment tank has been partially achieved. The following conclusions can be drawn from the existing data:

- Characterization of site soils indicates that the extent of impacts is largely confined to the immediate vicinity of the former containment tank.
- The sewer investigation analytical results indicate that the sewer bedding at the site does not appear to be acting as a preferential pathway.
- The western and southwestern extent of dissolved-phase constituents in the shallow water-bearing zone is generally defined by MW-8S and MW-9S and MW-7S. To the northeast, the extent of shallow groundwater impacts is generally defined at MW-5S.
- Northwest of the former containment tank near MW-1S, south of the former containment tank near MW-6S, and east of the former containment tank near MW-3S, the concentration of contaminants in overburden water-bearing zone indicates that the wells are close to the limit of overburden groundwater impacts.
- In the bedrock water-bearing zone, dissolved-phase impacts on the western side of the site are generally defined by MW-12D. Dissolved-phases of the indicator parameters exist at elevated concentrations in all other bedrock monitoring wells. However, concentrations are significantly lower away from the former containment tank.
- Separate-phase liquid (confirmed with Sudan IV), containing TCE, or its degradation products, and other parameters, was found in well MW-2D.
- The highest concentrations of organic indicator parameters in groundwater were observed in the vicinity of the former containment tank or its associated piping.

In summary, the extent of impacts in soil and shallow groundwater has been defined. Additional investigation is necessary to further define the extent of impacts in the bedrock water-bearing zone.

FIGURES



New York
Quadrangle

LATITUDE: N43° 06' 21"
LONGITUDE: W78° 55' 46"



SOURCE: DeLORME 3-D
TOPOQUAD PROGRAM

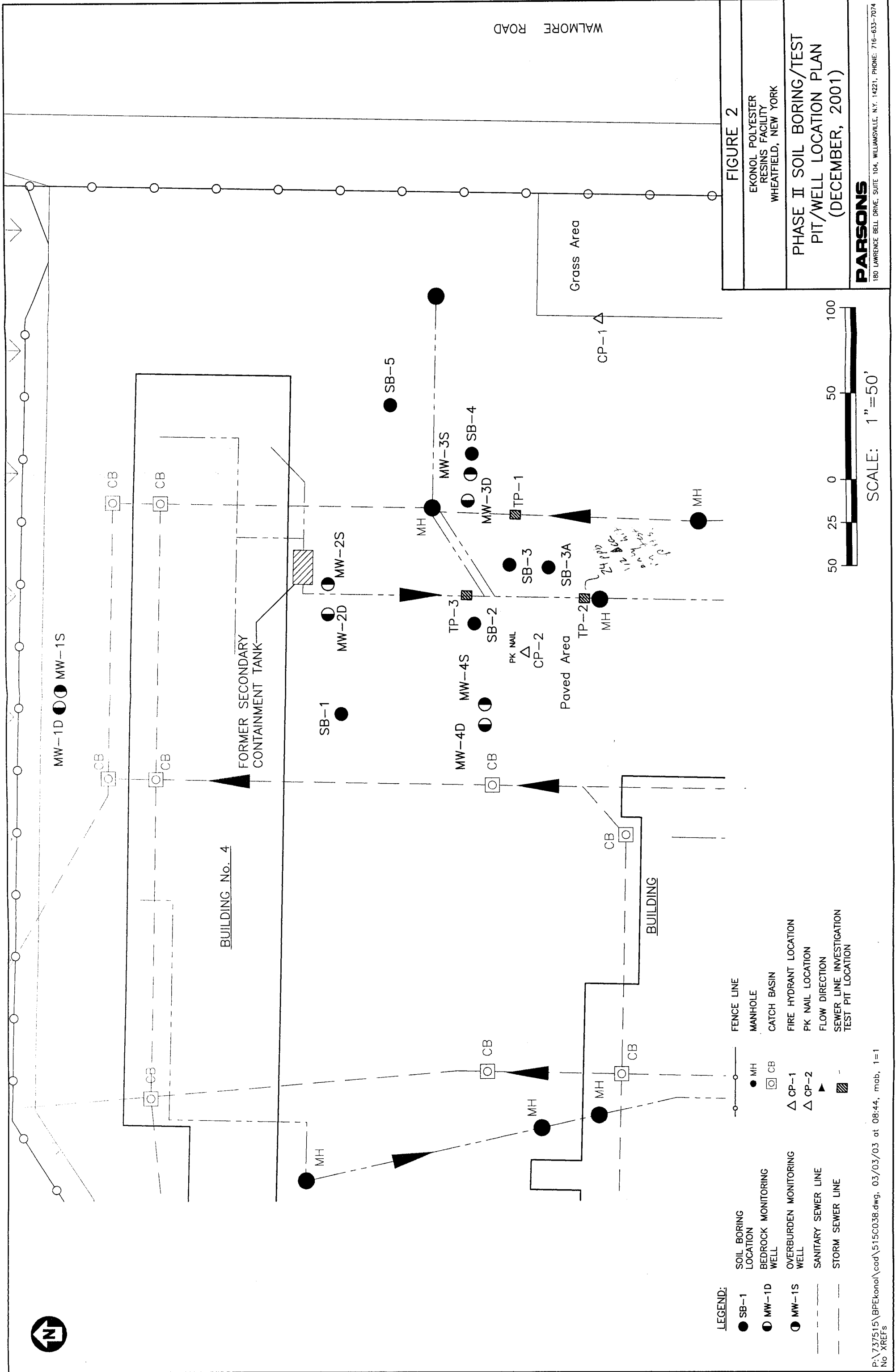
FIGURE 1

EKONOL POLYESTER RESINS FACILITY
WHEATFIELD, NEW YORK

SITE LOCATION MAP

PARSONS

180 LAWRENCE BELL DRIVE • WILLIAMSVILLE, NEW YORK 14221 (716) 633-7074



LEGEND:
 ● SB-1 SOIL BORING LOCATION
 ○ MW-1D BEDROCK MONITORING WELL
 ○ MW-1S OVERBURDEN MONITORING WELL
 --- SANITARY SEWER LINE
 --- STORM SEWER LINE
 ○ MH MANHOLE
 □ CB CATCH BASIN
 △ CP-1 FIRE HYDRANT LOCATION
 △ CP-2 PK NAIL LOCATION
 ▲ FLOW DIRECTION
 ▨ TEST PIT LOCATION

FENCE LINE
 FLOW DIRECTION
 SEWER LINE INVESTIGATION
 TEST PIT LOCATION

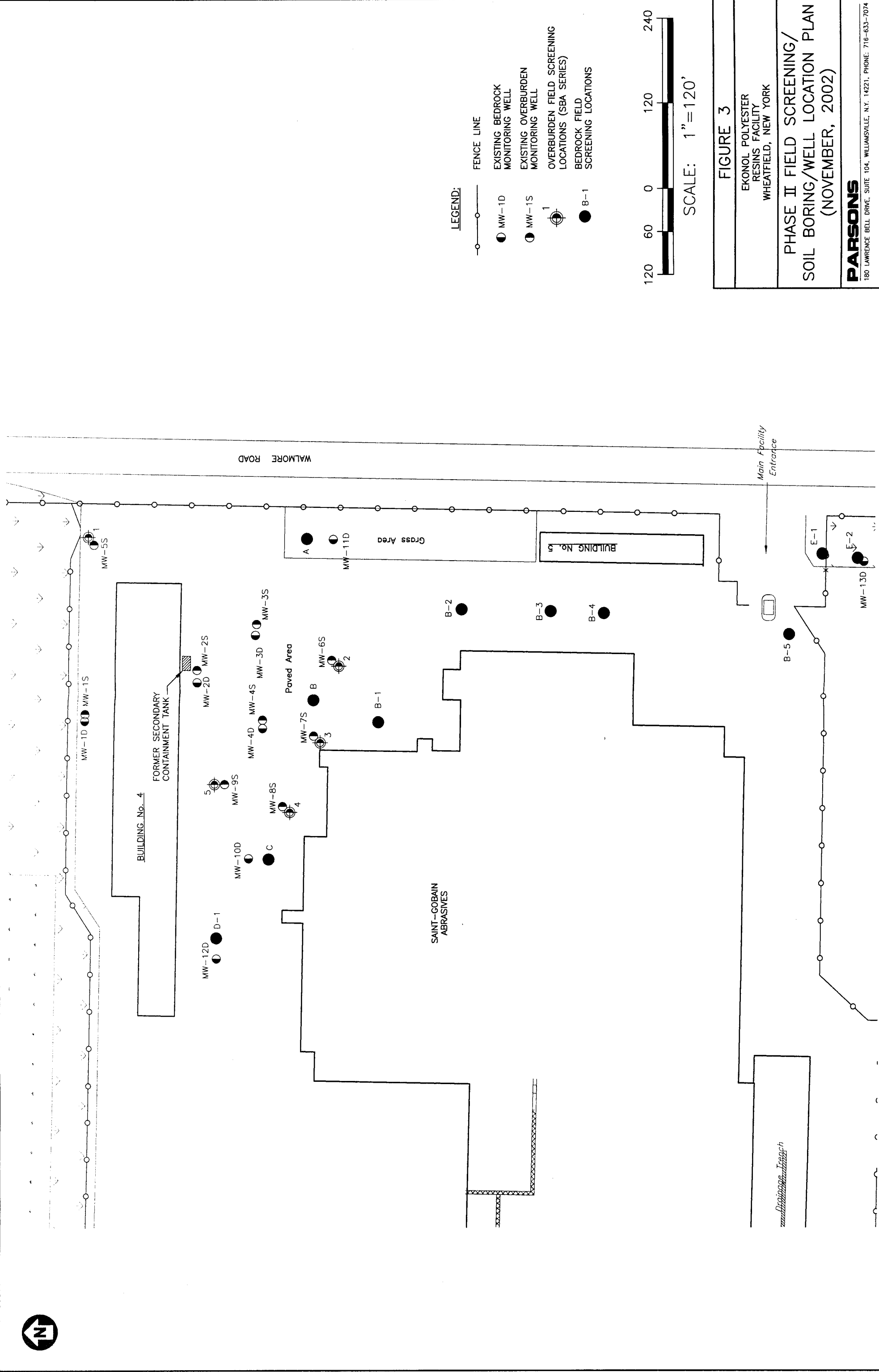


FIGURE 2

EKONOL POLYESTER
 RESINS FACILITY
 WHEATFIELD, NEW YORK

**PHASE II SOIL BORING/TEST
 PIT/WELL LOCATION PLAN
 (DECEMBER, 2001)**

PARSONS
 180 LAWRENCE BELL DRIVE, SUITE 104, WILLIAMSVILLE, N.Y. 14221, PHONE: 716-653-7074



LEGEND:

- FENCE LINE
- MW-1D EXISTING BEDROCK MONITORING WELL
- MW-1S EXISTING OVERBURDEN MONITORING WELL
- ⊙ OVERBURDEN FIELD SCREENING LOCATIONS (SBA SERIES)
- B-1 BEDROCK FIELD SCREENING LOCATIONS



SCALE: 1"=120'

FIGURE 3

EKONOL POLYESTER
RESINS FACILITY
WHEATFIELD, NEW YORK

**PHASE II FIELD SCREENING/
SOIL BORING/WELL LOCATION PLAN
(NOVEMBER, 2002)**

PARSONS
180 LAWRENCE BELL DRIVE, SUITE 104, WILLIAMSVILLE, N.Y. 14221, PHONE: 716-633-7074



Limit of Plume
LIMIT OF PLUME
(SEE NOTE 2)

NFTA

- 6595 6607 6611 6617 6623
- 6639 6651 6653 6677 6677 6689 6695
- R C C R R R R R R R C C R R C

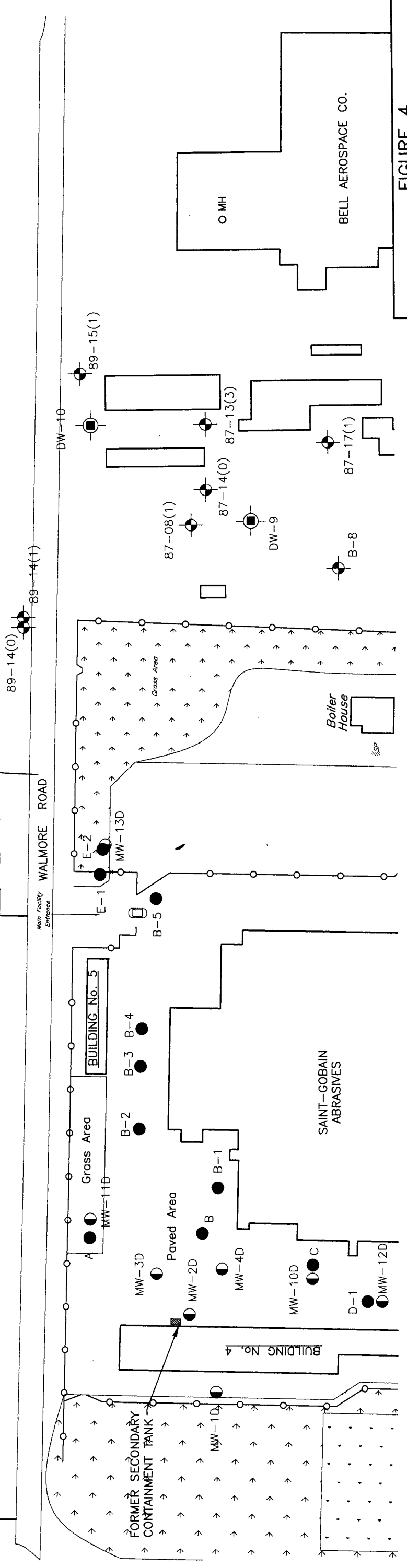


FIGURE 4

EKONOL POLYESTER
RESINS FACILITY
WHEATFIELD, NEW YORK

GENERAL SITE PLAN

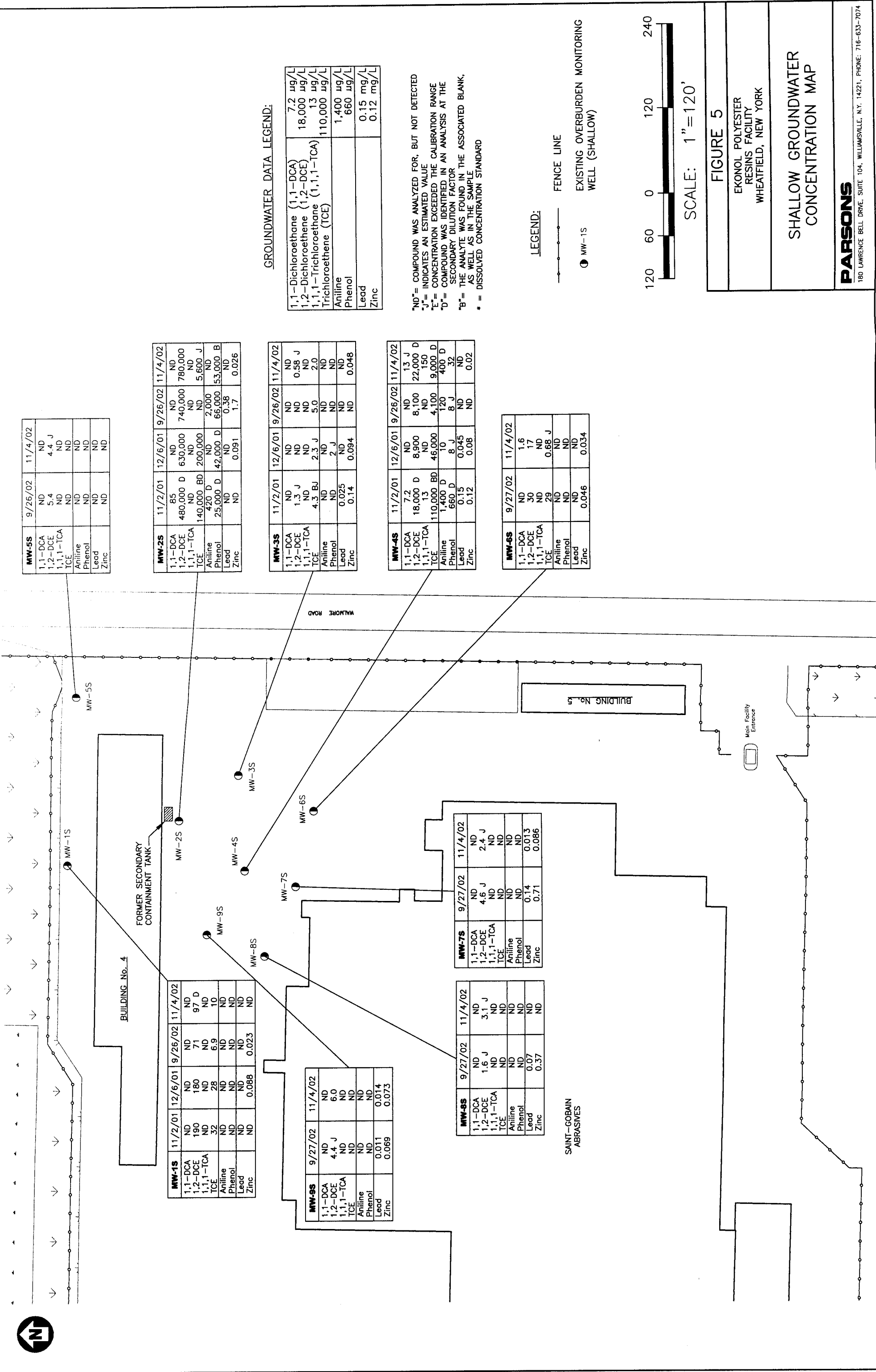
PARSONS
180 LAWRENCE BELL DRIVE, SUITE 104, WILLIAMSVILLE, N.Y. 14221, PHONE: 716-633-7074

LEGEND:

- FENCE LINE
- EXISTING BEDROCK MONITORING WELL
- EXISTING EXTRACTION WELL
- EXISTING MONITORING WELL
- MW-10
- B-2
- DW-9
- 87-08(1)
- 6653 R RESIDENTIAL BUILDING
- 6677 C COMMERCIAL BUILDING



- NOTES:
1. LOCATIONS NOT SURVEYED, BUT FIELD MEASURED.
 2. APPROXIMATE LIMIT OF DISSOLVED PHASE PLUME >1ppb (MARCH 2001, GOLDER ASSOCIATES, INC.; 2000-2001 ANNUAL SUMMARY, FIGURE 6).



GROUNDWATER DATA LEGEND:

1,1-Dichloroethane (1,1-DCA)	7.2 ug/L
1,2-Dichloroethane (1,2-DCE)	18,000 ug/L
1,1,1-Trichloroethane (1,1,1-TCA)	13 ug/L
Trichloroethane (TCE)	110,000 ug/L
Aniline	1,400 ug/L
Phenol	660 ug/L
Lead	0.15 mg/L
Zinc	0.12 mg/L

"ND"= COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED
 "J"= INDICATES AN ESTIMATED VALUE
 "E"= CONCENTRATION EXCEEDED THE CALIBRATION RANGE
 "D"= COMPOUND WAS IDENTIFIED IN AN ANALYSIS AT THE SECONDARY DILUTION FACTOR
 "B"= THE ANALYTE WAS FOUND IN THE ASSOCIATED BLANK, AS WELL AS IN THE SAMPLE
 * = DISSOLVED CONCENTRATION STANDARD

LEGEND:

- FENCE LINE
- MW-1S
- EXISTING OVERBURDEN MONITORING WELL (SHALLOW)



SCALE: 1"=120'

FIGURE 5

EKONOL POLYESTER
 RESINS FACILITY
 WHEATFIELD, NEW YORK

**SHALLOW GROUNDWATER
 CONCENTRATION MAP**

PARSONS

180 LAWRENCE BELL DRIVE, SUITE 104, WILLIAMSVILLE, N.Y. 14221, PHONE: 716-633-7074

MW-5S 9/26/02 11/4/02

1,1-DCA	ND	ND
1,2-DCE	5.4	4.4 J
1,1,1-TCA	ND	ND
TCE	ND	ND
Aniline	ND	ND
Phenol	ND	ND
Lead	ND	ND
Zinc	ND	ND

MW-2S 11/2/01 12/6/01 9/26/02 11/4/02

1,1-DCA	85	ND	ND	ND
1,2-DCE	480,000 D	630,000	740,000	780,000
1,1,1-TCA	ND	ND	ND	ND
TCE	140,000 BD	200,000	ND	5,600 J
Aniline	420 D	ND	2,000	ND
Phenol	25,000 D	42,000 D	66,000	53,000 B
Lead	ND	ND	0.38	ND
Zinc	ND	0.091	1.7	0.026

MW-3S 11/2/01 12/6/01 9/26/02 11/4/02

1,1-DCA	ND	ND	ND	ND
1,2-DCE	1.3 J	ND	ND	0.58 J
1,1,1-TCA	ND	ND	ND	ND
TCE	4.3 BJ	2.3 J	5.0	2.0
Aniline	ND	ND	ND	ND
Phenol	2 J	ND	ND	ND
Lead	0.025	ND	ND	ND
Zinc	0.14	0.094	ND	0.048

MW-4S 11/2/01 12/6/01 9/26/02 11/4/02

1,1-DCA	7.2	ND	ND	13 J
1,2-DCE	18,000 D	8,900	8,100	22,000 D
1,1,1-TCA	13	ND	ND	150
TCE	110,000 BD	46,000	4,100	9,000 D
Aniline	1,400 D	10	120	400 D
Phenol	660 D	8 J	8 J	32
Lead	0.15	0.045	ND	ND
Zinc	0.12	0.08	ND	0.02

MW-6S 9/27/02 11/4/02

1,1-DCA	ND	1.6
1,2-DCE	30	17
1,1,1-TCA	ND	ND
TCE	29	0.68 J
Aniline	ND	ND
Phenol	ND	ND
Lead	ND	ND
Zinc	0.046	0.034

MW-1S 11/2/01 12/6/01 9/26/02 11/4/02

1,1-DCA	ND	ND	ND	ND
1,2-DCE	190	180	71	97 D
1,1,1-TCA	ND	ND	ND	ND
TCE	32	28	6.9	10
Aniline	ND	ND	ND	ND
Phenol	ND	ND	ND	ND
Lead	ND	ND	ND	ND
Zinc	ND	0.088	0.023	ND

MW-9S 9/27/02 11/4/02

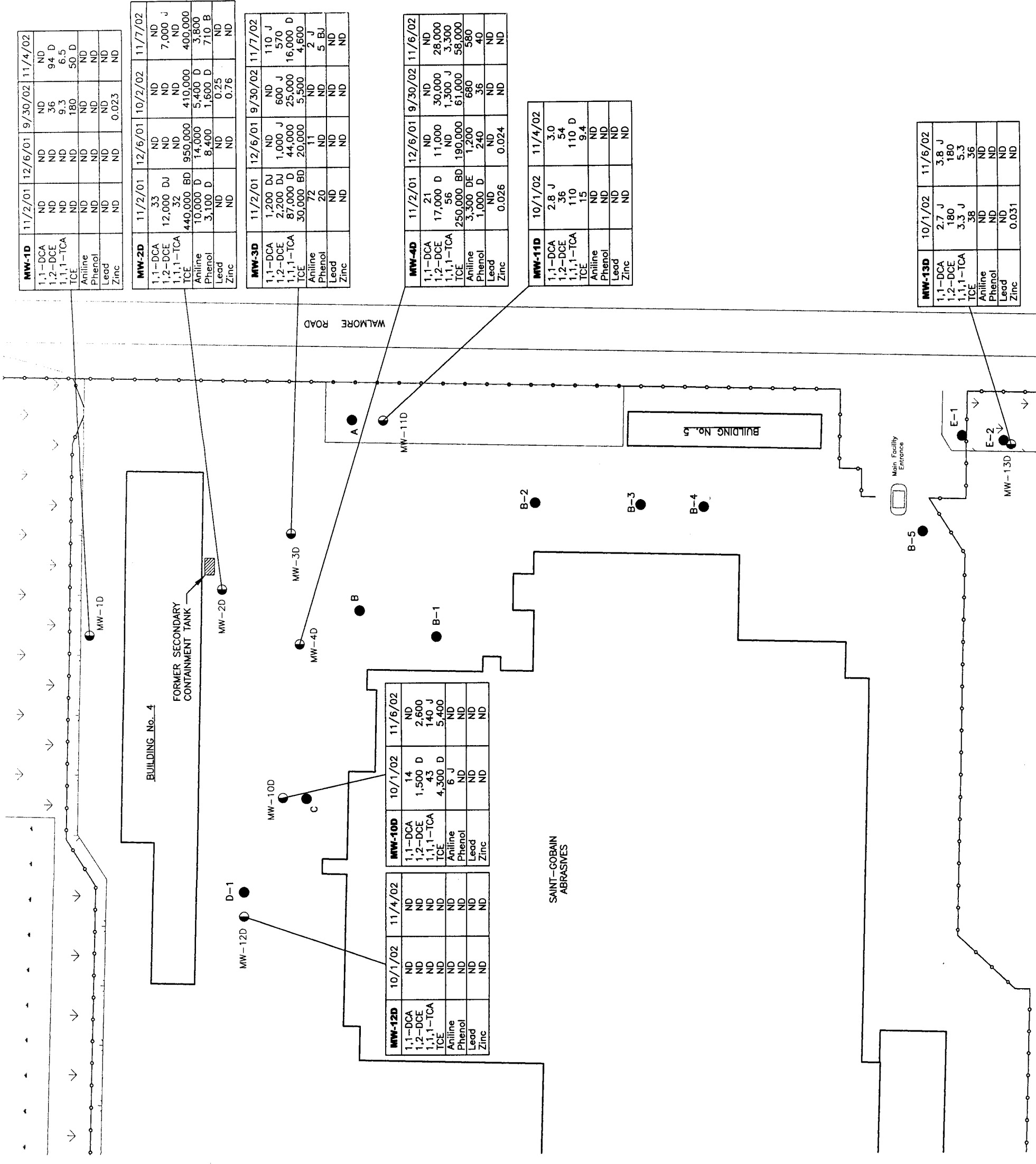
1,1-DCA	ND	ND
1,2-DCE	4.4 J	6.0
1,1,1-TCA	ND	ND
TCE	ND	ND
Aniline	ND	ND
Phenol	ND	ND
Lead	0.011	0.014
Zinc	0.069	0.073

MW-7S 9/27/02 11/4/02

1,1-DCA	ND	ND	2.4 J
1,2-DCE	4.6 J	ND	ND
1,1,1-TCA	ND	ND	ND
TCE	ND	ND	ND
Aniline	ND	ND	ND
Phenol	ND	ND	ND
Lead	0.14	0.013	0.086
Zinc	0.71	ND	ND

MW-8S 9/27/02 11/4/02

1,1-DCA	ND	ND	3.1 J
1,2-DCE	1.6 J	ND	ND
1,1,1-TCA	ND	ND	ND
TCE	ND	ND	ND
Aniline	ND	ND	ND
Phenol	ND	ND	ND
Lead	0.07	0.07	0.013
Zinc	0.37	ND	ND



GROUNDWATER DATA LEGEND:

1,1-Dichloroethane (1,1-DCA)	ND	µg/L
1,2-Dichloroethane (1,2-DCE)	28,000	µg/L
1,1,1-Trichloroethane (1,1,1-TCA)	3,300	µg/L
Trichloroethene (TCE)	58,000	µg/L
Aniline	580	µg/L
Phenol	40	µg/L
Lead	ND	mg/L
Zinc	ND	mg/L

"ND" = COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED
 "J" = INDICATES AN ESTIMATED VALUE
 "E" = CONCENTRATION EXCEEDED THE CALIBRATION RANGE
 "D" = COMPOUND WAS IDENTIFIED IN AN ANALYSIS AT THE SECONDARY DILUTION FACTOR
 "B" = THE ANALYTE WAS FOUND IN THE ASSOCIATED BLANK AS WELL AS IN THE SAMPLE
 * = DISSOLVED CONCENTRATION STANDARD

LEGEND:

- FENCE LINE
- MW-1D
- B-5
- EXISTING BEDROCK MONITORING WELL (DEEP)
- BEDROCK FIELD SCREENING LOCATION



SCALE: 1"=120'

FIGURE 6

EKONOL POLYESTER
 RESINS FACILITY
 WHEATFIELD, NEW YORK

**BEDROCK GROUNDWATER
 CONCENTRATION MAP**

PARSONS

180 LAWRENCE BELL DRIVE, SUITE 104, WILLIAMSVILLE, N.Y. 14221, PHONE: 716-633-7074

MW-1D	11/2/01	12/6/01	9/30/02	11/4/02
1,1-DCA	ND	ND	ND	ND
1,2-DCE	ND	ND	36	94 D
1,1,1-TCA	ND	ND	9.3	6.5
TCE	ND	ND	180	50 D
Aniline	ND	ND	ND	ND
Phenol	ND	ND	ND	ND
Lead	ND	ND	ND	ND
Zinc	ND	ND	0.023	ND

MW-2D	11/2/01	12/6/01	10/2/02	11/7/02
1,1-DCA	33	ND	ND	ND
1,2-DCE	12,000 DJ	ND	ND	7,000 J
1,1,1-TCA	32	ND	ND	ND
TCE	440,000 BD	950,000	410,000	400,000
Aniline	10,000 D	14,000	5,400 D	3,800
Phenol	3,100 D	8,400	1,600 D	710 B
Lead	ND	ND	0.25	ND
Zinc	ND	ND	0.76	ND

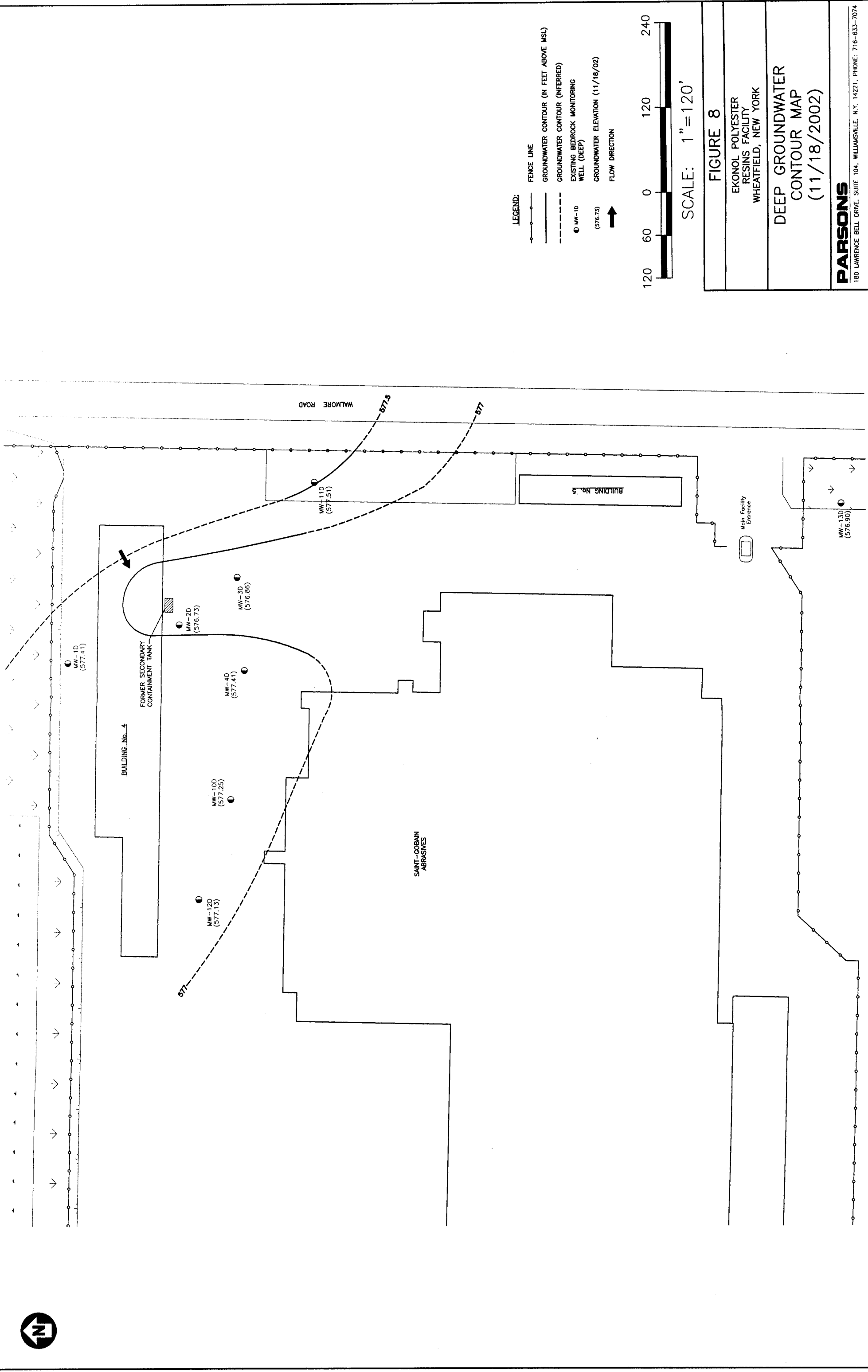
MW-3D	11/2/01	12/6/01	9/30/02	11/7/02
1,1-DCA	1,200 DJ	ND	ND	110 J
1,2-DCE	2,200 DJ	1,000 J	600 J	570
1,1,1-TCA	87,000 D	44,000	25,000	16,000 D
TCE	30,000 BD	20,000	5,500	4,600
Aniline	72	11	ND	2 J
Phenol	20	ND	ND	5 BJ
Lead	ND	ND	ND	ND
Zinc	ND	ND	ND	ND

MW-4D	11/2/01	12/6/01	9/30/02	11/6/02
1,1-DCA	21	ND	ND	ND
1,2-DCE	17,000 D	11,000	30,000	28,000
1,1,1-TCA	56	ND	1,300 J	3,300
TCE	250,000 BD	190,000	61,000	58,000
Aniline	3,300 DE	1,200	680	580
Phenol	1,000 D	240	36	40
Lead	ND	ND	ND	ND
Zinc	0.026	0.024	ND	ND

MW-11D	10/1/02	11/4/02
1,1-DCA	2.8 J	3.0
1,2-DCE	36	54
1,1,1-TCA	110	110 D
TCE	15	9.4
Aniline	ND	ND
Phenol	ND	ND
Lead	ND	ND
Zinc	ND	ND

MW-13D	10/1/02	11/6/02
1,1-DCA	2.7 J	3.8 J
1,2-DCE	180	180
1,1,1-TCA	3.3 J	5.3
TCE	38	36
Aniline	ND	ND
Phenol	ND	ND
Lead	ND	ND
Zinc	0.031	ND

MW-12D	10/1/02	11/4/02	MW-10D	10/1/02	11/6/02
1,1-DCA	ND	ND	14	ND	ND
1,2-DCE	ND	ND	1,500 D	2,600	2,600
1,1,1-TCA	ND	ND	43	140 J	140 J
TCE	ND	ND	4,300 D	5,400	5,400
Aniline	ND	ND	6 J	ND	ND
Phenol	ND	ND	ND	ND	ND
Lead	ND	ND	ND	ND	ND
Zinc	ND	ND	ND	ND	ND



LEGEND:

- FENCE LINE
- GROUNDWATER CONTOUR (IN FEET ABOVE MSL)
- GROUNDWATER CONTOUR (INFERRED)
- EXISTING BEDROCK MONITORING WELL (DEEP)
- MW-10 (576.73)
- GROUNDWATER ELEVATION (11/18/02)
- FLOW DIRECTION



SCALE: 1"=120'

FIGURE 8

EKONOL POLYESTER
RESINS FACILITY
WHEATFIELD, NEW YORK

DEEP GROUNDWATER
CONTOUR MAP
(11/18/2002)

PARSONS
180 LAWRENCE BELL DRIVE, SUITE 104, WILLIAMSVILLE, N.Y. 14221, PHONE: 716-633-7074

TABLES

Table 1

Ekonol Facility
Groundwater Field Screening Summary
Wheatfield, New York

Field Screening Location ID	Date Sampled	VOH Result (ug/L)
SB-1	10/4/01	0.0
SB-2	10/4/01	21
SB-3	10/4/01	143
SB-3A	10/4/01	10.6
SB-4	10/4/01	0.0
SB-5	10/4/01	11.9
MW-1S	6/3/02	34
MW-2S	6/3/02	>200*
MW-3S	6/3/02	0.0
MW-4S	6/3/02	24
MW-1D	6/3/02	10.0
MW-2D	6/3/02	>200*
MW-3D	6/3/02	>200*
MW-4D	6/3/02	>200*
SBA-1	6/4/02	0.0
SBA-2	6/4/02	0.0
SBA-3	6/4/02	0.0
SBA-4	6/4/02	0.0
SBA-5	6/4/02	0.0
Location A	6/13/02	>200*
Location B	6/13/02	>200*
Location C	6/13/02	0.0
Location B-1	6/20/02	>200*
MW-6S	6/20/02	>200*
MW-7S	6/20/02	12.5
Location B-2	6/24/02	>200*
Location B-3	6/27/02	18.8
Location B-4	6/27/02	130
Location B-5	6/27/02	>200*
Location D-1	9/18/02	44
Location D-1A**	9/18/02	43
Location E-1	9/18/02	191
Location E-1A**	9/18/02	106
Location E-2	9/18/02	31
Location E-2A**	9/18/02	24

* Analyzing equipment does not read over 200 ug/L.

** Duplicate sample

Table 2

Ekonomol Facility
Soil Boring Analytical Summary
Wheatfield, New York

CAS No.	Compound	Standard*	Sample ID Lab Sample ID Depth Source SDG Matrix Sampled	SB-1 8'-10' A1971001 8'-10' STL Buffalo A01-9710 Soil 10/4/2001	SB-2 8'-10' A1971003 8'-10' STL Buffalo A01-9710 Soil 10/4/2001	SB-3 8'-10' A1971004 8'-10' STL Buffalo A01-9710 Soil 10/4/2001	SB-3A 6'-8' A1971007 6'-8' STL Buffalo A01-9710 Soil 10/4/2001	SB-4 8'-10' A1971005 8'-10' STL Buffalo A01-9710 Soil 10/4/2001	SB-5 2'-4' A1971006 2'-4' STL Buffalo A01-9710 Soil 10/4/2001
			Units						
	VOLATILES								
75-34-3	1,1-Dichloroethane	200	ug/Kg	ND	1 J	2 J	ND	ND	ND
540-59-0	1,2-Dichloroethane (Total)	300	ug/Kg	ND	19	41	ND	ND	ND
71-55-6	1,1,1-Trichloroethane	800	ug/Kg	ND	ND	ND	ND	ND	ND
79-01-6	Trichloroethane	700	ug/Kg	ND	ND	ND	ND	ND	ND
	SEMIVOLATILES								
62-53-3	Aniline	100	ug/Kg	ND	ND	ND	ND	ND	ND
108-95-2	Phenol	30 or MDL	ug/Kg	ND	ND	ND	ND	ND	ND
	METALS								
7439-92-1	Lead - Total	SB	mg/Kg	10.9	21.2	6.3	7.0	10.9	9.7
7441-66-6	Zinc - Total	20 or SB	mg/Kg	66.1	104	44.8	48.5	71.1	68.7

* - Standards taken from the Technical and Administrative Guidance Memorandum #4046 - Recommended Soil Cleanup Objective - 1994

"MDL"= Method Detection Limit

"SB"= Site Background

"ND"= Compound was analyzed for, but not detected

"J"= Indicates an estimated value

Table 3

EkonoI Facility
 MW-1S Analytical Summary
 Wheatfield, New York

			Sample ID	MW-1S	MW-1S	MW-1S	MW-1S
			Date Sampled	11/2/2001	12/6/2001	9/26/2002	11/4/2002
			Lab Sample ID	A1A87201	A1C13203	A2957201	A2A99705
			Source	STL Buffalo	STL Buffalo	STL Buffalo	STL Buffalo
			SDG	A01-A872	A01-C132	A02-9572	A02A997
CAS No.	Compound	Standard*	Units				
VOLATILES							
75-34-3	1,1-Dichloroethane	5	ug/L	ND	ND	ND	ND
540-59-0	1,2-Dichloroethene (Total)	5	ug/L	190	180	71	97 D
71-55-6	1,1,1-Trichloroethane	5	ug/L	ND	ND	ND	ND
79-01-6	Trichloroethene	5	ug/L	32	28	6.9	10
SEMI-VOLATILES							
62-53-3	Aniline	5	ug/L	ND	ND	ND	ND
108-95-2	Phenol	1	ug/L	ND	ND	ND	ND
METALS							
7439-92-1	Lead - Total	0.025**	mg/L	ND	ND	ND	ND
7441-66-6	Zinc - Total	2	mg/L	ND	0.088	0.023	ND

* = Standards taken from the Ambient Water Quality Standards and Guidance Values (Class GA) - 1998

"ND"= Compound was analyzed for, but not detected

"J"= Indicates an estimated value

"E"= Concentration exceeded the calibration range

"D"= Compound was identified in an analysis at the secondary dilution factor

"B"= The analyte was found in the associated blank, as well as in the sample

** = Dissolved concentration standard

Table 3 (Cont'd.)

EkonoI Facility
 MW-2S Analytical Summary
 Wheatfield, New York

			Sample ID	MW-2S	MW-2S	MW-2S	MW-2S
			Date Sampled	11/2/2001	12/6/2001	10/3/2002	11/7/2002
			Lab Sample ID	A1A87205	A1C13208	A2980401	A2B04201
			Source	STL Buffalo	STL Buffalo	STL Buffalo	STL Buffalo
			SDG	A01-A872	A01-C132	A02-9804	A02B042
CAS No.	Compound	Standard*	Units				
VOIATILES							
75-34-3	1,1-Dichloroethane	5	ug/L	85	ND	ND	ND
540-59-0	1,2-Dichloroethene (Total)	5	ug/L	480,000 D	630,000	740,000	780,000
71-55-6	1,1,1-Trichloroethane	5	ug/L	ND	ND	ND	ND
79-01-6	Trichloroethene	5	ug/L	140,000 BD	200,000	ND	5,600 J
SEMIVOLATILES							
62-53-3	Aniline	5	ug/L	420 D	ND	2,000	ND
108-95-2	Phenol	1	ug/L	25,000 D	42,000 D	66,000	53,000 B
METALS							
7439-92-1	Lead - Total	0.025**	mg/L	ND	ND	0.38	ND
7441-66-6	Zinc - Total	2	mg/L	ND	0.091	1.7	0.026

* = Standards taken from the Ambient Water Quality Standards and Guidance Values (Class GA) - 1998

"ND"= Compound was analyzed for, but not detected

"J"= Indicates an estimated value

"E"= Concentration exceeded the calibration range

"D"= Compound was identified in an analysis at the secondary dilution factor

"B"= The analyte was found in the associated blank, as well as in the sample

** = Dissolved concentration standard

Table 3 (Cont'd.)

EkonoI Facility
 MW-3S Analytical Summary
 Wheatfield, New York

			Sample ID	MW-3S	MW-3S	MW-3S	MW-3S
			Date Sampled	11/2/2001	12/6/2001	9/26/2002	11/4/2002
			Lab Sample ID	A1A87209	A1C13207	A2957203	A2A99702
			Source	STL Buffalo	STL Buffalo	STL Buffalo	STL Buffalo
			SDG	A01-A872	A01-C132	A02-9572	A02A997
CAS No.	Compound	Standard*	Units				
VOIATILES							
75-34-3	1,1-Dichloroethane	5	ug/L	ND	ND	ND	ND
540-59-0	1,2-Dichloroethene (Total)	5	ug/L	1.3 J	ND	ND	0.58 J
71-55-6	1,1,1-Trichloroethane	5	ug/L	ND	ND	ND	ND
79-01-6	Trichloroethene	5	ug/L	4.3 BJ	2.3 J	5.0	2.0
SEMIVOLATILES							
62-53-3	Aniline	5	ug/L	ND	ND	ND	ND
108-95-2	Phenol	1	ug/L	ND	2 J	ND	ND
METALS							
7439-92-1	Lead - Total	0.025**	mg/L	0.025	ND	ND	ND
7441-66-6	Zinc - Total	2	mg/L	0.14	0.094	ND	0.048

* = Standards taken from the Ambient Water Quality Standards and Guidance Values (Class GA) - 1998

"ND"= Compound was analyzed for, but not detected

"J"= Indicates an estimated value

"E"= Concentration exceeded the calibration range

"D"= Compound was identified in an analysis at the secondary dilution factor

"B"= The analyte was found in the associated blank, as well as in the sample

** = Dissolved concentration standard

Table 3 (Cont'd.)

EkonoI Facility
 MW-4S Analytical Summary
 Wheatfield, New York

			Sample ID	MW-4S	MW-4S	MW-4S	MW-4S
			Date Sampled	11/2/2001	12/6/2001	9/26/2002	11/4/2002
			Lab Sample ID	A1A87207	A1C13205	A2957204	A2A99707
			Source	STL Buffalo	STL Buffalo	STL Buffalo	STL Buffalo
			SDG	A01-A872	A01-C132	A02-9572	A02A997
CAS No.	Compound	Standard*	Units				
VOIATILES							
75-34-3	1,1-Dichloroethane	5	ug/L	7.2	ND	ND	13 J
540-59-0	1,2-Dichloroethene (Total)	5	ug/L	18,000 D	8,900	8,100	22,000 D
71-55-6	1,1,1-Trichloroethane	5	ug/L	13	ND	ND	150
79-01-6	Trichloroethene	5	ug/L	110,000 BD	46,000	4,100	9,000 D
SEMIVOLATILES							
62-53-3	Aniline	5	ug/L	1,400 D	10	120	400 D
108-95-2	Phenol	1	ug/L	660 D	8 J	8 J	32
METALS							
7439-92-1	Lead - Total	0.025**	mg/L	0.15	0.045	ND	ND
7441-66-6	Zinc - Total	2	mg/L	0.12	0.08	ND	0.02

* = Standards taken from the Ambient Water Quality Standards and Guidance Values (Class GA) - 1998

"ND"= Compound was analyzed for, but not detected

"J"= Indicates an estimated value

"E"= Concentration exceeded the calibration range

"D"= Compound was identified in an analysis at the secondary dilution factor

"B"= The analyte was found in the associated blank, as well as in the sample

** = Dissolved concentration standard

Table 3 (Cont'd.)

EkonoI Facility
 MW-5S Analytical Summary
 Wheatfield, New York

			Sample ID	MW-5S	MW-5S
			Date Sampled	9/26/2002	11/4/2002
			Lab Sample ID	A2957202	A2A88703
			Source	STL Buffalo	STL Buffalo
			SDG	A02-9572	A02A887
CAS No.	Compound	Standard*	Units		
VOLATILES					
75-34-3	1,1-Dichloroethane	5	ug/L	ND	ND
540-59-0	1,2-Dichloroethene (Total)	5	ug/L	5.4	4.4 J
71-55-6	1,1,1-Trichloroethane	5	ug/L	ND	ND
79-01-6	Trichloroethene	5	ug/L	ND	ND
SEMIVOLATILES					
62-53-3	Aniline	5	ug/L	ND	ND
108-95-2	Phenol	1	ug/L	ND	ND
METALS					
7439-92-1	Lead - Total	0.025**	mg/L	ND	ND
7441-66-6	Zinc - Total	2	mg/L	ND	ND

* = Standards taken from the Ambient Water Quality Standards and Guidance Values (Class GA) - 1998

"ND"= Compound was analyzed for, but not detected

"J"= Indicates an estimated value

"E"= Concentration exceeded the calibration range

"D"= Compound was identified in an analysis at the secondary dilution factor

"B"= The analyte was found in the associated blank, as well as in the sample

** = Dissolved concentration standard

Table 3 (Cont'd.)

EkonoI Facility
 MW-6S Analytical Summary
 Wheatfield, New York

			Sample ID	MW-6S	MW-6S
			Date Sampled	9/27/2002	11/4/2002
			Lab Sample ID	A2961401	A2A99703
			Source	STL Buffalo	STL Buffalo
			SDG	A02-9614	A02A997
CAS No.	Compound	Standard*	Units		
VOLATILES					
75-34-3	1,1-Dichloroethane	5	ug/L	ND	1.6
540-59-0	1,2-Dichloroethene (Total)	5	ug/L	30	17
71-55-6	1,1,1-Trichloroethane	5	ug/L	ND	ND
79-01-6	Trichloroethene	5	ug/L	29	0.68 J
SEMIVOLATILES					
62-53-3	Aniline	5	ug/L	ND	ND
108-95-2	Phenol	1	ug/L	ND	ND
METALS					
7439-92-1	Lead - Total	0.025**	mg/L	ND	ND
7441-66-6	Zinc - Total	2	mg/L	0.046	0.034

* = Standards taken from the Ambient Water Quality Standards and Guidance Values (Class GA) - 1998

"ND"= Compound was analyzed for, but not detected

"J"= Indicates an estimated value

"E"= Concentration exceeded the calibration range

"D"= Compound was identified in an analysis at the secondary dilution factor

"B"= The analyte was found in the associated blank, as well as in the sample

** = Dissolved concentration standard

Table 3 (Cont'd.)

Ekono1 Facility
 MW-7S Analytical Summary
 Wheatfield, New York

			Sample ID	MW-7S	MW-7S
			Date Sampled	9/27/2002	11/4/2002
			Lab Sample ID	A2961402	A2A88706
			Source	STL Buffalo	STL Buffalo
			SDG	A02-9614	A02A887
CAS No.	Compound	Standard*	Units		
VOLATILES					
75-34-3	1,1-Dichloroethane	5	ug/L	ND	ND
540-59-0	1,2-Dichloroethene (Total)	5	ug/L	4.6 J	2.4 J
71-55-6	1,1,1-Trichloroethane	5	ug/L	ND	ND
79-01-6	Trichloroethene	5	ug/L	ND	ND
SEMIVOLATILES					
62-53-3	Aniline	5	ug/L	ND	ND
108-95-2	Phenol	1	ug/L	ND	ND
METALS					
7439-92-1	Lead - Total	0.025**	mg/L	0.14	0.013
7441-66-6	Zinc - Total	2	mg/L	0.71	0.086

* = Standards taken from the Ambient Water Quality Standards and Guidance Values (Class GA) - 1998

"ND"= Compound was analyzed for, but not detected

"J"= Indicates an estimated value

"E"= Concentration exceeded the calibration range

"D"= Compound was identified in an analysis at the secondary dilution factor

"B"= The analyte was found in the associated blank, as well as in the sample

** = Dissolved concentration standard

Table 3 (Cont'd.)

Ekono1 Facility
 MW-8S Analytical Summary
 Wheatfield, New York

			Sample ID	MW-8S	MW-8S
			Date Sampled	9/27/2002	11/4/2002
			Lab Sample ID	A2961403	A2A88704
			Source	STL Buffalo	STL Buffalo
			SDG	A02-9614	A02A887
CAS No.	Compound	Standard*	Units		
VOLATILES					
75-34-3	1,1-Dichloroethane	5	ug/L	ND	ND
540-59-0	1,2-Dichloroethene (Total)	5	ug/L	1.6 J	3.1 J
71-55-6	1,1,1-Trichloroethane	5	ug/L	ND	ND
79-01-6	Trichloroethene	5	ug/L	ND	ND
SEMI-VOLATILES					
62-53-3	Aniline	5	ug/L	ND	ND
108-95-2	Phenol	1	ug/L	ND	ND
METALS					
7439-92-1	Lead - Total	0.025**	mg/L	0.07	ND
7441-66-6	Zinc - Total	2	mg/L	0.37	ND

* = Standards taken from the Ambient Water Quality Standards and Guidance Values (Class GA) - 1998

"ND"= Compound was analyzed for, but not detected

"J"= Indicates an estimated value

"E"= Concentration exceeded the calibration range

"D"= Compound was identified in an analysis at the secondary dilution factor

"B"= The analyte was found in the associated blank, as well as in the sample

** = Dissolved concentration standard

Table 3 (Cont'd.)

EkonoI Facility
 MW-9S Analytical Summary
 Wheatfield, New York

			Sample ID	MW-9S	MW-9S
			Date Sampled	9/27/2002	11/4/2002
			Lab Sample ID	A2961404	A2A88705
			Source	STL Buffalo	STL Buffalo
			SDG	A02-9614	A02A887
CAS No.	Compound	Standard*	Units		
VOLATILES					
75-34-3	1,1-Dichloroethane	5	ug/L	ND	ND
540-59-0	1,2-Dichloroethene (Total)	5	ug/L	4.4 J	6.0
71-55-6	1,1,1-Trichloroethane	5	ug/L	ND	ND
79-01-6	Trichloroethene	5	ug/L	ND	ND
SEMIVOLATILES					
62-53-3	Aniline	5	ug/L	ND	ND
108-95-2	Phenol	1	ug/L	ND	ND
METALS					
7439-92-1	Lead - Total	0.025**	mg/L	0.011	0.014
7441-66-6	Zinc - Total	2	mg/L	0.069	0.073

* = Standards taken from the Ambient Water Quality Standards and Guidance Values (Class GA) - 1998

"ND"= Compound was analyzed for, but not detected

"J"= Indicates an estimated value

"E"= Concentration exceeded the calibration range

"D"= Compound was identified in an analysis at the secondary dilution factor

"B"= The analyte was found in the associated blank, as well as in the sample

** = Dissolved concentration standard

Table 4

Ekonomol Facility
 MW-1D Analytical Summary
 Wheatfield, New York

			Sample ID	MW-1D	MW-1D	MW-1D	MW-1D
			Date Sampled	11/2/2001	12/6/2001	9/30/2002	11/4/2002
			Lab Sample ID	A1A87202	A1C13201	A2965602	A2A99706
			Source	STL Buffalo	STL Buffalo	STL Buffalo	STL Buffalo
			SDG	A01-A872	A01-C132	A02-9656	A02A997
CAS No.	Compound	Standard*	Units				
VOLATILES							
75-34-3	1,1-Dichloroethane	5	ug/L	ND	ND	ND	ND
540-59-0	1,2-Dichloroethene (Total)	5	ug/L	ND	ND	36	94 D
71-55-6	1,1,1-Trichloroethane	5	ug/L	ND	ND	9.3	6.5
79-01-6	Trichloroethene	5	ug/L	ND	ND	180	50 D
SEMIVOLATILES							
62-53-3	Aniline	5	ug/L	ND	ND	ND	ND
108-95-2	Phenol	1	ug/L	ND	ND	ND	ND
METALS							
7439-92-1	Lead - Total	0.025**	mg/L	ND	ND	ND	ND
7441-66-6	Zinc - Total	2	mg/L	ND	ND	0.023	ND

* = Standards taken from the Ambient Water Quality Standards and Guidance Values (Class GA) - 1998

"ND"= Compound was analyzed for, but not detected

"J"= Indicates an estimated value

"E"= Concentration exceeded the calibration range

"D"= Compound was identified in an analysis at the secondary dilution factor

"B"= The analyte was found in the associated blank, as well as in the sample

** = Dissolved concentration standard

Table 4 (Cont'd.)

**EkonoI Facility
MW-2D Analytical Summary
Wheatfield, New York**

			Sample ID	MW-2D	MW-2D	MW-2D	MW-2D
			Date Sampled	11/2/2001	12/6/2001	10/2/2002	11/7/2002
			Lab Sample ID	A1A87204	A1C13209	A2980501	A2B04203
			Source	STL Buffalo	STL Buffalo	STL Buffalo	STL Buffalo
			SDG	A01-A872	A01-C132	A02-9805	A02B042
CAS No.	Compound	Standard*	Units				
VOLATILES							
75-34-3	1,1-Dichloroethane	5	ug/L	33	ND	ND	ND
540-59-0	1,2-Dichloroethene (Total)	5	ug/L	12,000 DJ	ND	ND	7,000 J
71-55-6	1,1,1-Trichloroethane	5	ug/L	32	ND	ND	ND
79-01-6	Trichloroethene	5	ug/L	440,000 BD	950,000	410,000	400,000
SEMIVOLATILES							
62-53-3	Aniline	5	ug/L	10,000 D	14,000	5,400 D	3,800
108-95-2	Phenol	1	ug/L	3,100 D	8,400	1,600 D	710 B
METALS							
7439-92-1	Lead - Total	0.025**	mg/L	ND	ND	0.25	ND
7441-66-6	Zinc - Total	2	mg/L	ND	ND	0.76	ND

* = Standards taken from the Ambient Water Quality Standards and Guidance Values (Class GA) - 1998

"ND"= Compound was analyzed for, but not detected

"J"= Indicates an estimated value

"E"= Concentration exceeded the calibration range

"D"= Compound was identified in an analysis at the secondary dilution factor

"B"= The analyte was found in the associated blank, as well as in the sample

** = Dissolved concentration standard

Table 4 (Cont'd.)

**EkonoI Facility
MW-3D Analytical Summary
Wheatfield, New York**

			Sample ID	MW-3D	MW-3D	MW-3D	MW-3D
			Date Sampled	11/2/2001	12/6/2001	9/30/2002	11/7/2002
			Lab Sample ID	A1A87208	A1C13206	A2965603	A2B04202
			Source	STL Buffalo	STL Buffalo	STL Buffalo	STL Buffalo
			SDG	A01-A872	A01-C132	A02-9656	A02B042
CAS No.	Compound	Standard*	Units				
VOLATILES							
75-34-3	1,1-Dichloroethane	5	ug/L	1,200 DJ	ND	ND	110 J
540-59-0	1,2-Dichloroethene (Total)	5	ug/L	2,200 DJ	1,000 J	600 J	570
71-55-6	1,1,1-Trichloroethane	5	ug/L	87,000 D	44,000	25,000	16,000 D
79-01-6	Trichloroethene	5	ug/L	30,000 BD	20,000	5,500	4,600
SEMIVOLATILES							
62-53-3	Aniline	5	ug/L	72	11	ND	2 J
108-95-2	Phenol	1	ug/L	20	ND	ND	5 BJ
METALS							
7439-92-1	Lead - Total	0.025**	mg/L	ND	ND	ND	ND
7441-66-6	Zinc - Total	2	mg/L	ND	ND	ND	ND

* = Standards taken from the Ambient Water Quality Standards and Guidance Values (Class GA) - 1998

"ND"= Compound was analyzed for, but not detected

"J"= Indicates an estimated value

"E"= Concentration exceeded the calibration range

"D"= Compound was identified in an analysis at the secondary dilution factor

"B"= The analyte was found in the associated blank, as well as in the sample

** = Dissolved concentration standard

Table 4 (Cont'd.)

**EkonoI Facility
MW-4D Analytical Summary
Wheatfield, New York**

			Sample ID	MW-4D	MW-4D	MW-4D	MW-4D
			Date Sampled	11/2/2001	12/6/2001	9/30/2002	11/6/2002
			Lab Sample ID	A1A87206	A1C13204	A2965604	A2A98403
			Source	STL Buffalo	STL Buffalo	STL Buffalo	STL Buffalo
			SDG	A01-A872	A01-C132	A02-9656	A02A984
CAS No.	Compound	Standard*	Units				
VOLATILES							
75-34-3	1,1-Dichloroethane	5	ug/L	21	ND	ND	ND
540-59-0	1,2-Dichloroethene (Total)	5	ug/L	17,000 D	11,000	30,000	28,000
71-55-6	1,1,1-Trichloroethane	5	ug/L	56	ND	1,300 J	3,300
79-01-6	Trichloroethene	5	ug/L	250,000 BD	190,000	61,000	58,000
SEMI-VOLATILES							
62-53-3	Aniline	5	ug/L	3,300 DE	1,200	680	580
108-95-2	Phenol	1	ug/L	1,000 D	240	36	40
METALS							
7439-92-1	Lead - Total	0.025**	mg/L	ND	ND	ND	ND
7441-66-6	Zinc - Total	2	mg/L	0.026	0.024	ND	ND

* = Standards taken from the Ambient Water Quality Standards and Guidance Values (Class GA) - 1998

"ND"= Compound was analyzed for, but not detected

"J"= Indicates an estimated value

"E"= Concentration exceeded the calibration range

"D"= Compound was identified in an analysis at the secondary dilution factor

"B"= The analyte was found in the associated blank, as well as in the sample

** = Dissolved concentration standard

Table 4 (Cont'd.)

Ekonomi Facility
MW-10D Analytical Summary
Wheatfield, New York

			Sample ID	MW-10D	MW-10D
			Date Sampled	10/1/2002	11/6/2002
			Lab Sample ID	A2968203	A2A98402
			Source	STL Buffalo	STL Buffalo
			SDG	A02-9682	A02A984
CAS No.	Compound	Standard*	Units		
VOLATILES					
75-34-3	1,1-Dichloroethane	5	ug/L	14	ND
540-59-0	1,2-Dichloroethene (Total)	5	ug/L	1,500 D	2,600
71-55-6	1,1,1-Trichloroethane	5	ug/L	43	140 J
79-01-6	Trichloroethene	5	ug/L	4,300 D	5,400
SEMIVOLATILES					
62-53-3	Aniline	5	ug/L	6 J	ND
108-95-2	Phenol	1	ug/L	ND	ND
METALS					
7439-92-1	Lead - Total	0.025**	mg/L	ND	ND
7441-66-6	Zinc - Total	2	mg/L	ND	ND

* = Standards taken from the Ambient Water Quality Standards and Guidance Values (Class GA) - 1998

"ND"= Compound was analyzed for, but not detected

"J"= Indicates an estimated value

"E"= Concentration exceeded the calibration range

"D"= Compound was identified in an analysis at the secondary dilution factor

"B"= The analyte was found in the associated blank, as well as in the sample

** = Dissolved concentration standard

Table 4 (Cont'd.)

EkonoI Facility
 MW-11D Analytical Summary
 Wheatfield, New York

			Sample ID	MW-11D	MW-11D
			Date Sampled	10/1/2002	11/4/2002
			Lab Sample ID	A2968201	A2A99704
			Source	STL Buffalo	STL Buffalo
			SDG	A02-9682	A02A997
CAS No.	Compound	Standard*	Units		
VOLATILES					
75-34-3	1,1-Dichloroethane	5	ug/L	2.8 J	3.0
540-59-0	1,2-Dichloroethene (Total)	5	ug/L	36	54
71-55-6	1,1,1-Trichloroethane	5	ug/L	110	110 D
79-01-6	Trichloroethene	5	ug/L	15	9.4
SEMIVOLATILES					
62-53-3	Aniline	5	ug/L	ND	ND
108-95-2	Phenol	1	ug/L	ND	ND
METALS					
7439-92-1	Lead - Total	0.025**	mg/L	ND	ND
7441-66-6	Zinc - Total	2	mg/L	ND	ND

* = Standards taken from the Ambient Water Quality Standards and Guidance Values (Class GA) - 1998

"ND"= Compound was analyzed for, but not detected

"J"= Indicates an estimated value

"E"= Concentration exceeded the calibration range

"D"= Compound was identified in an analysis at the secondary dilution factor

"B"= The analyte was found in the associated blank, as well as in the sample

** = Dissolved concentration standard

Table 4 (Cont'd.)

EkonoI Facility
 MW-12D Analytical Summary
 Wheatfield, New York

			Sample ID	MW-12D	MW-12D
			Date Sampled	10/1/2002	11/4/2002
			Lab Sample ID	A2968204	A2A88702
			Source	STL Buffalo	STL Buffalo
			SDG	A02-9682	A02A887
CAS No.	Compound	Standard*	Units		
VOLATILES					
75-34-3	1,1-Dichloroethane	5	ug/L	ND	ND
540-59-0	1,2-Dichloroethene (Total)	5	ug/L	ND	ND
71-55-6	1,1,1-Trichloroethane	5	ug/L	ND	ND
79-01-6	Trichloroethene	5	ug/L	ND	ND
SEMIVOLATILES					
62-53-3	Aniline	5	ug/L	ND	ND
108-95-2	Phenol	1	ug/L	ND	ND
METALS					
7439-92-1	Lead - Total	0.025**	mg/L	ND	ND
7441-66-6	Zinc - Total	2	mg/L	ND	ND

* = Standards taken from the Ambient Water Quality Standards and Guidance Values (Class GA) - 1998

"ND"= Compound was analyzed for, but not detected

"J"= Indicates an estimated value

"E"= Concentration exceeded the calibration range

"D"= Compound was identified in an analysis at the secondary dilution factor

"B"= The analyte was found in the associated blank, as well as in the sample

** = Dissolved concentration standard

Table 4 (Cont'd.)

Ekonol Facility
 MW-13D Analytical Summary
 Wheatfield, New York

			Sample ID	MW-13D	MW-13D
			Date Sampled	10/1/2002	11/6/2002
			Lab Sample ID	A2968202	A2A98401
			Source	STL Buffalo	STL Buffalo
			SDG	A02-9682	A02A984
CAS No.	Compound	Standard*	Units		
VOLATILES					
75-34-3	1,1-Dichloroethane	5	ug/L	2.7 J	3.8 J
540-59-0	1,2-Dichloroethene (Total)	5	ug/L	180	180
71-55-6	1,1,1-Trichloroethane	5	ug/L	3.3 J	5.3
79-01-6	Trichloroethene	5	ug/L	38	36
SEMIVOLATILES					
62-53-3	Aniline	5	ug/L	ND	ND
108-95-2	Phenol	1	ug/L	ND	ND
METALS					
7439-92-1	Lead - Total	0.025**	mg/L	ND	ND
7441-66-6	Zinc - Total	2	mg/L	0.031	ND

* = Standards taken from the Ambient Water Quality Standards and Guidance Values (Class GA) - 1998

"ND"= Compound was analyzed for, but not detected

"J"= Indicates an estimated value

"E"= Concentration exceeded the calibration range

"D"= Compound was identified in an analysis at the secondary dilution factor

"B"= The analyte was found in the associated blank, as well as in the sample

** = Dissolved concentration standard

Table 5

Ekonomol Facility
Packer Test Analytical Summary
Wheatfield, New York

CAS No.	Compound	Standard*	Sample ID		MW-10D-1	MW-10D-2	MW-10D-3	MW-11D-1	MW-11D-2	MW-11D-3	MW-12D-1	MW-13D-1	MW-13D-2	MW-13D-3	
			Date Sampled	Lab Sample ID											
			Source	SDG											
			Units												
75-34-3	VOLATILES														
540-59-0	1,1-Dichloroethane	5	ug/L	ND	ND	ND	9.5	7.3	5.1	ND	ND	2.8 DJ	ND	ND	
71-55-6	1,2-Dichloroethane (Total)	5	ug/L	33	18 J	12	310	240	36	35	35	180 D	65	11	
79-01-6	1,1,1-Trichloroethane	5	ug/L	ND	ND	ND	240 D	160 D	300 D	1.7 J	1.7 J	3.8 DJ	3.5 J	ND	
	Trichloroethane	5	ug/L	960 D	360	270	30	24	67	95	95	40 D	20	3.8 J	
62-53-3	SEMIVOLATILES														
108-95-2	Aniline	5	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	Phenol	1	ug/L	ND	2 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	
7439-92-1	METALS														
7441-66-6	Lead - Total	0.025**	mg/L	ND	1.6	0.029	0.39	0.62	0.19	1.3	1.3	0.077	0.10	0.069	
	Zinc - Total	2	mg/L	0.027	1.8	0.14	0.23	0.93	0.44	4.0	4.0	0.11	0.10	0.096	

* = Standards taken from the Ambient Water Quality Standards and Guidance Values (Class GA) - 1998

"ND"= Compound was analyzed for, but not detected

"J"= Indicates an estimated value

"E"= Concentration exceeded the calibration range

"D"= Compound was identified in an analysis at the secondary dilution factor

"B"= The analyte was found in the associated blank, as well as in the sample

** = Dissolved concentration standard

Table 6

**EkonoI Facility
 Separate Phase Physical Analytical Summary
 Wheatfield, New York**

Test	Method	Sample ID				MW-2DP Lower Layer	MW-2SP	MW-3DP
		Date Sampled	Lab Sample ID	Source	SDG			
	Units							
Interfacial Tension	ASTM D-971	10/2/2002	0210-66	Saybolt	L2210.213A	10/2/2002	10/2/2002	10/2/2002
Surface Tension	ASTM D-1331A							
Viscosity at 20 C	ASTM D-445							
Density at 20 C	ASTM D-4052							
		N/A	N/A	N/A	N/A	N/A	N/A	N/A
		47.5	32.5	33.0	32.5	33.0	33.0	48.0
		1.01	1.228	0.925	1.228	0.925	0.925	0.979
		1.0003	1.0004	1.0016	1.0004	1.0016	1.0016	1.0004

Definitions of units used:

Interfacial Tension- mm/m = milli newton / meters

Surface Tension- dynes/cm = unit of force / centimeters

Viscosity- cSt = centistroke

Density- g/cm3 = grams / cubic centimeter

Table 7

EkonoI Facility
Separate Phase Chemical Analytical Summary
Wheatfield, New York

			Sample ID	MW-2DP	MW-2SP	MW-3DP
			Date Sampled	10/2/2002	10/2/2002	10/2/2002
			Lab Sample ID	A2980702	A2980703	A2980701
			Source	STL Buffalo	STL Buffalo	STL Buffalo
			SDG	A02-9807	A02-9807	A02-9807
CAS No.	Compound	Standard*	Units			
VOLATILES						
67-64-1	Acetone	50	ug/L	ND	ND	ND
71-43-2	Benzene	1	ug/L	ND	ND	ND
75-27-4	Bromodichloromethane	5	ug/L	ND	ND	ND
75-25-2	Bromoform	50	ug/L	ND	ND	ND
74-83-9	Bromomethane	5	ug/L	ND	ND	ND
78-93-3	2-Butanone	NS	ug/L	ND	ND	ND
75-15-0	Carbon Disulfide	NS	ug/L	ND	ND	ND
56-23-5	Carbon Tetrachloride	5	ug/L	ND	ND	ND
108-90-7	Chlorobenzene	5	ug/L	ND	ND	ND
75-00-3	Chloroethane	5	ug/L	ND	ND	ND
67-66-3	Chloroform	7	ug/L	101,000	ND	ND
74-87-3	Chloromethane	NS	ug/L	ND	ND	ND
124-48-1	Dibromochloromethane	5	ug/L	ND	ND	ND
75-34-3	1,1-Dichloroethane	5	ug/L	ND	ND	5.9
107-06-2	1,2-Dichloroethane	0.6	ug/L	ND	ND	ND
75-35-4	1,1-Dichloroethene	5	ug/L	ND	ND	4.4 J
540-59-0	1,2-Dichloroethene (Total)	5	ug/L	611,000	970,000 D	46
78-87-5	1,2-Dichloropropane	1	ug/L	ND	ND	ND
10061-01-5	cis-1,3-Dichloropropene	5	ug/L	ND	ND	ND
10061-02-6	trans-1,3-Dichloropropene	0.4	ug/L	ND	ND	ND
100-41-4	Ethylbenzene	5	ug/L	ND	ND	ND
591-78-6	2-Hexanone	50	ug/L	ND	ND	ND
75-09-2	Methylene Chloride	5	ug/L	ND	ND	ND
108-10-1	4-Methyl-2-pentanone	NS	ug/L	ND	ND	ND
100-42-5	Styrene	5	ug/L	ND	ND	ND
79-34-5	1,1,2,2-Tetrachloroethane	5	ug/L	ND	ND	ND
127-18-4	Tetrachloroethene	5	ug/L	15,900,000 D	ND	8.9
108-88-3	Toluene	5	ug/L	ND	ND	ND
71-55-6	1,1,1-Trichloroethane	5	ug/L	ND	ND	590 D
79-00-5	1,1,2-Trichloroethane	1	ug/L	ND	ND	ND
79-01-6	Trichloroethene	5	ug/L	924,000,000 D	ND	110 D
108-05-4	Vinyl Acetate	NS	ug/L	ND	ND	ND
75-01-4	Vinyl Chloride	2	ug/L	ND	50,000 D	ND
1330-20-7	Total Xylenes	5	ug/L	ND	ND	ND
SEMIVOLATILES						
83-32-9	Acenaphthene	20	ug/L	ND	ND	ND
208-96-8	Acenaphthylene	NS	ug/L	ND	ND	ND
62-53-3	Analine	5	ug/L	540,000 D	1,900 D	2 J
120-12-7	Anthracene	50	ug/L	ND	ND	ND
56-55-3	Benzo(a)anthracene	0.002	ug/L	22,000 DJ	ND	ND
205-99-2	Benzo(b)fluoranthene	0.002	ug/L	ND	ND	ND
207-08-9	Benzo(k)fluoranthene	0.002	ug/L	ND	ND	ND
191-24-2	Benzo(ghi)perylene	NS	ug/L	ND	ND	ND
50-32-8	Benzo(a)pyrene	NS	ug/L	ND	ND	ND
1863-63-4	Benzoic acid	NS	ug/L	ND	3,300 DJ	ND
100-51-6	Benzyl alcohol	NS	ug/L	ND	ND	ND
111-92-1	Bis(2-chloroethoxy) methane	5	ug/L	ND	ND	ND
111-44-4	Bis(2-chloroethyl) ether	1	ug/L	ND	ND	ND
108-60-1	2,2'-Oxybis(1-Chloropropane)	NS	ug/L	ND	ND	ND
117-81-7	Bis(2-ethylhexyl) phthalate	5	ug/L	3,600 DJ	3 J	4 J
101-55-3	4-Bromophenyl phenyl ether	NS	ug/L	ND	ND	ND
85-68-7	Butyl benzyl phthalate	50	ug/L	ND	ND	ND
106-47-8	4-Chloroaniline	5	ug/L	ND	ND	ND
59-50-7	4-Chloro-3-methylphenol	NS	ug/L	ND	ND	ND
91-58-7	2-Chloronaphthalene	10	ug/L	ND	ND	ND
95-57-8	2-Chlorophenol	NS	ug/L	ND	2 J	ND
7005-72-3	4-Chlorophenyl phenyl ether	NS	ug/L	ND	ND	ND
218-01-9	Chrysene	0.002	ug/L	ND	0.7 J	ND
53-70-3	Dibenzo(a,h)anthracene	NS	ug/L	ND	ND	ND
132-64-9	Dibenzofuran	NS	ug/L	3,600 DJ	ND	ND
84-74-2	Di-n-butyl phthalate	50	ug/L	ND	ND	ND
95-50-1	1,2-Dichlorobenzene	3	ug/L	ND	ND	ND
541-73-1	1,3-Dichlorobenzene	3	ug/L	1,200 DJ	ND	ND
106-46-7	1,4-Dichlorobenzene	3	ug/L	21,000 D	ND	ND

Table 7 (Cont'd.)

EkonoL Facility
 Separate Phase Chemical Analytical Summary
 Wheatfield, New York

			Sample ID	MW-2DP	MW-2SP	MW-3DP
			Date Sampled	10/2/2002	10/2/2002	10/2/2002
			Lab Sample ID	A2980702	A2980703	A2980701
			Source	STL Buffalo	STL Buffalo	STL Buffalo
			SDG	A02-9807	A02-9807	A02-9807
SEMIVOLATILES CONT'D						
CAS No.	Compound	Standard*	Units			
91-94-1	3,3'-Dichlorobenzidine	5	ug/L	ND	ND	ND
120-83-2	2,4-Dichlorophenol	5	ug/L	ND	ND	ND
131-11-3	Diethyl phthalate	50	ug/L	ND	ND	ND
105-67-9	2,4-Dimethylphenol	50	ug/L	ND	ND	ND
84-66-2	Dimethyl phthalate	50	ug/L	ND	ND	ND
534-52-1	4,6-Dinitro-2-methylphenol	NS	ug/L	ND	ND	ND
51-28-5	2,4-Dinitrophenol	10	ug/L	ND	ND	ND
121-14-2	2,4-Dinitrotoluene	5	ug/L	ND	ND	ND
606-20-2	2,6-Dinitrotoluene	5	ug/L	ND	ND	ND
117-84-0	Di-n-octyl phthalate	50	ug/L	ND	ND	ND
206-44-0	Fluoranthene	50	ug/L	ND	0.8 J	ND
86-73-7	Fluorene	50	ug/L	6,800 DJ	ND	ND
118-74-1	Hexachlorobenzene	0.04	ug/L	ND	ND	ND
87-68-3	Hexachlorobutadiene	0.5	ug/L	ND	ND	ND
77-47-4	Hexachlorocyclopentadiene	5	ug/L	ND	ND	ND
67-72-1	Hexachloroethane	5	ug/L	ND	ND	ND
193-39-5	Indeno(1,2,3-cd)pyrene	0.002	ug/L	ND	ND	ND
78-59-1	Isophorone	50	ug/L	ND	ND	ND
91-57-6	2-Methylnaphthalene	NS	ug/L	790 DJ	ND	ND
95-48-7	2-Methylphenol	NS	ug/L	ND	140 DJ	ND
106-44-5	4-Methylphenol	NS	ug/L	ND	64	ND
91-20-3	Naphthalene	10	ug/L	5,400 DJ	ND	ND
88-74-4	2-Nitroaniline	5	ug/L	ND	ND	ND
99-09-2	3-Nitroaniline	5	ug/L	ND	ND	ND
100-01-6	4-Nitroaniline	5	ug/L	ND	ND	ND
98-95-3	Nitrobenzene	0.4	ug/L	ND	ND	ND
88-75-5	2-Nitrophenol	NS	ug/L	ND	ND	ND
100-02-7	4-Nitrophenol	NS	ug/L	ND	ND	ND
86-30-6	N-nitrosodiphenylamine	50	ug/L	1,200 DJ	ND	ND
621-64-7	N-Nitroso-Di-n-propylamine	NS	ug/L	ND	ND	ND
87-86-5	Pentachlorophenol	1	ug/L	ND	ND	ND
85-01-8	Phenanthrene	50	ug/L	3,600 DJ	0.8 J	ND
108-95-2	Phenol	1	ug/L	53,000 D	51,000 D	11
129-00-0	Pyrene	50	ug/L	ND	0.9 J	ND
120-82-1	1,2,4-Trichlorobenzene	5	ug/L	220,000 DE	ND	ND
95-95-4	2,4,5-Trichlorophenol	NS	ug/L	ND	ND	ND
88-06-2	2,4,6-Trichlorophenol	NS	ug/L	ND	ND	ND

* = Standards taken from the Ambient Water Quality Standards and Guidance Values (Class GA) - 1998

"NS"= No Standard

"ND"= Compound was analyzed for, but not detected

"J"= Indicates an estimated value

"E"= Concentration exceeded the calibration range

"D"= Compound was identified in an analysis at the secondary dilution factor

"B"= The analyte was found in the associated blank, as well as in the sample

Table 8

Ekonomol Facility
Sewer Investigation Analytical Summary
Wheatfield, New York

CAS No.	Compound	Standard*	Sample ID Lab Sample ID Source SDG Matrix Sampled	TP #1 A1B98501 STL Buffalo A01-B985 Soil 12/3/2001	TP #2 A1B98503 STL Buffalo A01-B985 Soil 12/4/2001	TP #3 A1B98502 STL Buffalo A01-B985 Soil 12/4/2001
		Units				
	VOLATILES					
75-34-3	1,1-Dichloroethane	200	ug/Kg	ND	24	ND
540-59-0	1,2-Dichloroethene (Total)	300	ug/Kg	ND	ND	ND
71-55-6	1,1,1-Trichloroethane	800	ug/Kg	ND	ND	ND
79-01-6	Trichloroethene	700	ug/Kg	ND	ND	ND
	SEMIVOLATILES					
62-53-3	Aniline	100	ug/Kg	ND	ND	ND
108-95-2	Phenol	30 or MDL	ug/Kg	ND	ND	ND
	METALS					
7439-92-1	Lead - Total	SB	mg/Kg	15.1	10	9.7
7441-66-6	Zinc - Total	20 or SB	mg/Kg	87.2	88.8	70.8

* - Standards taken from the Technical and Administrative Guidance Memorandum #4046 - Recommended Soil Cleanup Objective - 1994

"MDL"= Method Detection Limit

"SB"= Site Background

"ND"= Compound was analyzed for, but not detected

Table 9

Ekonomol Facility
Groundwater Elevation Table
Wheatfield, New York

Monitoring Well ID	Top of Well Casing Elevation (Feet)	Depth to Water 9/25/02-10/3/02 (Feet TOC)	Water Table Elevation 9/25/02-10/3/02 (Feet)	Depth to Water 10/21/02 (Feet TOC)	Water Table Elevation 10/21/02 (Feet)	Depth to Water 11/18/02 (Feet TOC)	Water Table Elevation 11/18/02 (Feet)	Depth to Water 12/11/02 (Feet TOC)	Water Table Elevation 12/11/02 (Feet)
Shallow									
MW-1S	585.06	6.85	578.21	7.46	577.60	9.32	575.74	5.39	579.67
MW-2S	585.11	4.88	580.23	8.26	576.85	3.55	581.56	3.59	581.52
MW-3S	584.83	5.42	579.41	7.84	576.99	9.41	575.42	8.73	576.10
MW-4S	585.79	10.53	575.26	8.81	576.98	8.68	577.11	8.58	577.21
MW-5S	585.61	10.02	575.59	8.47	577.14	8.03	577.58	-	-
MW-6S	585.64	10.25	575.39	8.36	577.28	10.31	575.33	8.73	576.91
MW-7S	586.26	9.46	576.80	8.08	578.18	7.16	579.10	6.75	579.51
MW-8S	585.98	11.65	574.33	10.28	575.70	8.36	577.62	10.65	575.33
MW-9S	585.66	9.98	575.68	9.39	576.27	11.59	574.07	8.58	577.08
Deep									
MW-1D	585.53	9.15	576.38	8.54	576.99	8.12	577.41	10.43	575.10
MW-2D	585.19	9.75	575.44	8.88	576.31	8.46	576.73	8.94	576.25
MW-3D	584.97	9.21	575.76	8.57	576.40	8.11	576.86	8.74	576.23
MW-4D	585.62	9.27	576.35	8.61	577.01	8.21	577.41	8.83	576.79
MW-10D	585.47	9.47	576.00	8.63	576.84	8.22	577.25	8.85	576.62
MW-11D	588.42	12.31	576.11	11.43	576.99	10.91	577.51	11.74	576.68
MW-12D	585.85	9.85	576.00	8.03	577.82	8.72	577.13	9.02	576.83
MW-13D	587.89	12.62	575.27	11.64	576.25	10.99	576.90	12.21	575.68

"-" Unable to take reading due to snow cover

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- Town of Wheatfield Tax Assessor's Department, Tax Map Number 147.00, Town of Wheatfield, Niagara County, New York, March 1998;

**ATTACHMENT A
BORING LOGS AND DRILLING RECORDS**

PARSONS					BORING NO.	
DRILLING RECORD					SB-1	
Contractor: <u>Zebra Environmental Corp.</u>			PROJECT NAME <u>Ekono1 Facility</u>		Sheet <u>1</u> of <u>1</u>	
Driller: <u>Dominic Pino</u>			PROJECT NUMBER <u>737515</u>		Location: <u>Southwest of Ekono1 Facility</u>	
Inspector: <u>Andy Janik</u>			Weather <u>Sunny 65 F</u>		Elevation:	
Rig Type: <u>Geoprobe</u>			Date/Time Start <u>10/4/01 0855</u>			
Method: <u>Direct Push</u>			Date/Time Finish <u>10/4/01 0925</u>			
Observations						
Depth of Water						
Top of Boring Elevation						
PID Reading	Sample Code	Sample Depth	Rec. (ft)	SPT	FIELD IDENTIFICATION OF MATERIAL	WELL CONSTRUCTION DIAGRAM
		0				
		1			UNIFIED SOIL CLASS.	
	SS-1	2			Stiff, brown, Silty CLAY, some gray Silt throughout	
		3				
0.80		4	3.5		CL	
		5			Stiff, brown, Silty CLAY, some gray Silt throughout	
	SS-2	6				
		7				
0.40		8	4.0		CL	
		9			Stiff, brown, Silty CLAY, moist at 10'	
	SS-3	10				
		11				
5.70		12	4.0		CL	
0.60	SS-4	13	1.2		Stiff, moist/wet, red/brown, Silty CLAY	
		14			CL	
STANDARD PENETRATION						
TOR- TOP OF ROCK						
SUMMARY:						

PARSONS DRILLING RECORD					BORING NO. SB-2		
Contractor: Zebra Environmental Corp. Driller: Dominic Pino			PROJECT NAME Ekonol Facility PROJECT NUMBER 737515		Sheet 1 of 1		
Inspector: Andy Janik Rig Type: Geoprobe Method: Direct Push					Location: Southwest of Ekonol Facility		
Observations					Elevation:		
Depth of Water	10/4/2001			Weather Sunny 65 F			
	-10' bgs			Date/Time Start 10/4/01 0945			
Top of Boring Elevation				Date/Time Finish 10/4/01 1025			
PID Reading	Sample Code	Sample Depth	Rec. (ft)	SPT	FIELD IDENTIFICATION OF MATERIAL	WELL CONSTRUCTION DIAGRAM	
		0					
		1				UNIFIED SOIL CLASS.	
	SS-1	2			Stiff, brown/black, Silty CLAY		
0.50		3					1" SCH 40 PVC well riser
		4	4.0				2.5' bgs
		5			Stiff, brown, Silty CLAY, some f- Sand throughout		CL
	SS-2	6					ML
0.00		7					1" SCH 40 PVC well screen, 0.010" slot
		8	4.0		Stiff, brown, Silty CLAY, moist at 10'		CL
	SS-3	9					GC
		10					TOR @ 12.5' bgs
0.80		11					
0.70	SS-4	12	4.0		Wet, brown, Silty CLAY, some m-Gravel		
		13	0.4				
		14					
STANDARD PENETRATION							
TOR- TOP OF ROCK							
SUMMARY:							

Contractor: <u>Zebra Environmental Corp.</u> Driller: <u>Dominic Pino</u> Inspector: <u>Andy Janik</u> Rig Type: <u>Geoprobe</u> Method: <u>Direct Push</u>					PARSONS DRILLING RECORD					BORING NO. <u>SB-3</u> Sheet <u>1</u> of <u>1</u> Location: <u>Southwest of Ekonol Facility</u> Elevation: _____																																																																																				
Observations _____ Depth of Water <u>-11' bgs</u> Top of Boring Elevation _____					Weather <u>Sunny 65 F</u> Date/Time Start <u>10/4/01 1050</u> Date/Time Finish <u>10/4/01 1125</u>																																																																																									
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PID Reading	Sample Code	Sample Depth	Rec. (ft)	SPT																																																																																										
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STANDARD PENETRATION TOR= TOP OF ROCK																																																																																														
SUMMARY: _____ _____ _____																																																																																														

Contractor: <u>Zebra Environmental Corp.</u> Driller: <u>Dominic Pino</u> Inspector: <u>Andy Janik</u> Rig Type: <u>Geoprobe</u> Method: <u>Direct Push</u>					PARSONS DRILLING RECORD		BORING NO. <u>SB-3A</u>	
Observations: <u>10/4/2001</u> Depth of Water: <u>-11.5' bgs</u> Top of Boring Elevation: _____					PROJECT NAME <u>Ekonomol Facility</u> PROJECT NUMBER <u>737515</u>		Sheet <u>1</u> of <u>1</u> Location: <u>Southwest of Ekonomol Facility</u> Elevation: _____	
					Weather <u>Sunny 65 F</u> Date/Time Start <u>10/4/01 1610</u> Date/Time Finish <u>10/4/01 1645</u>			
					FIELD IDENTIFICATION OF MATERIAL			
PID Reading	Sample Code	Sample Depth	Rec. (ft)	SPT	UNIFIED SOIL CLASS.			
		0						
		1						
	SS-1	2			CL			
		3						
1.70		4	3.0		CL			
		5						
	SS-2	6			ML			
		7						
10.50		8	4.0		ML			
		9						
	SS-3	10			CL			
		11						
10.30		12	4.0		CL			
2.00	SS-4	13	0.5		GC			
		14						
STANDARD PENETRATION TOR= TOP OF ROCK					SUMMARY: _____ _____ _____ _____			

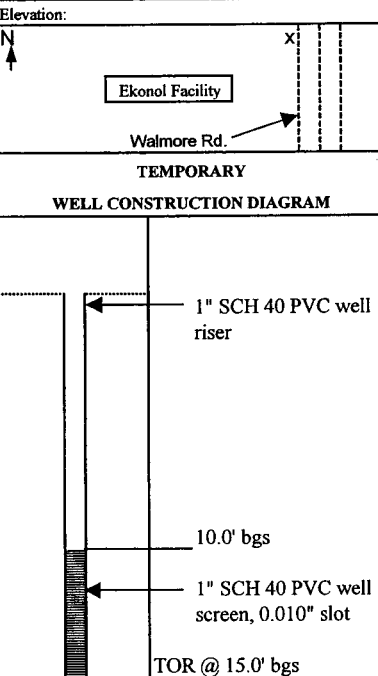
Contractor: <u>Zebra Environmental Corp.</u>					PARSONS DRILLING RECORD		BORING NO. <u>SB-4</u>	
Driller: <u>Dominic Pino</u>					PROJECT NAME <u>EkonoI Facility</u>		Sheet <u>1</u> of <u>1</u>	
Inspector: <u>Andy Janik</u>					PROJECT NUMBER <u>737515</u>		Location: <u>Southwest of EkonoI Facility</u>	
Rig Type: <u>Geoprobe</u>					Weather <u>Sunny 65 F</u>		Elevation:	
Method: <u>Direct Push</u>					Date/Time Start <u>10/4/01 1255</u>			
Observations					Date/Time Finish <u>10/4/01 1335</u>			
Depth of Water <u>-9' bgs</u>					FIELD IDENTIFICATION OF MATERIAL			
Top of Boring Elevation					WELL CONSTRUCTION DIAGRAM			
FID Reading	Sample Code	Sample Depth	Rec. (ft)	SPT	UNIFIED SOIL CLASS			
		0						
		1			Stiff, brown, Silty CLAY, some black mottling	CL		
	SS-1	2						
		3						
0.30		4	3.5		Stiff, brown, Silty CLAY, some m-Gravel, trace f-Sand	CL		
	SS-2	6						
		7						
0.30		8	4.0		Stiff, brown, Silty CLAY, moist at 9'	ML		
	SS-3	10						
		11						
0.40		12	4.0			CL		
0.20	SS-4	13	0.5		Wet, brown, Silty CLAY, some c-Gravel	GC		
		14						

STANDARD PENETRATION
TOR= TOP OF ROCK

SUMMARY: _____

					PARSONS DRILLING RECORD		BORING NO. SB-5																																																																																	
Contractor: Zebra Environmental Corp.					PROJECT NAME Ekonol Facility		Sheet 1 of 1																																																																																	
Driller: Dominic Pino					PROJECT NUMBER 737515		Location: Southwest of Ekonol Facility																																																																																	
Inspector: Andy Janik					Weather Sunny 65 F		Elevation:																																																																																	
Rig Type: Geoprobe					Date/Time Start 10/4/01 1345		Walmore Rd. →																																																																																	
Method: Direct Push					Date/Time Finish 10/4/01 1425		↑ Ekonol Facility x																																																																																	
Observations 10/4/2001					FIELD IDENTIFICATION OF MATERIAL				TEMP. CONSTRUCTION DIAGRAM*																																																																															
Depth of Water ~11' bgs																																																																																								
Top of Boring Elevation					UNIFIED SOIL CLASS.				<p>1" SCH 40 PVC well riser 3.0' bgs 1" SCH 40 PVC well screen, 0.010" slot TOR @ 13.0' bgs</p>																																																																															
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PID Reading	Sample Code	Sample Depth	Rec. (ft)	SPT																																																																																				
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STANDARD PENETRATION					SUMMARY:				* Wells were removed and abandoned following sampling.																																																																															
TOR- TOP OF ROCK																																																																																								

			PARSONS DRILLING RECORD		BORING NO. SBA-1	
Contractor: Zebra Environmental Corp.			PROJECT NAME Ekono1 Facility		Sheet 1 of 1	
Driller: Phil Orsi			PROJECT NUMBER 737515		Location: Northeast of Ekono1 Facility	
Inspector: Andy Janik					Elevation:	
Rig Type: Geoprobe						
Method: Direct Push			Weather Cloudy/Showers 55 F			
Observations		6/4/2002	Date/Time Start 6/4/02 0915			
Depth of Water		-9' bgs	Date/Time Finish 6/4/02 0950			
Top of Boring Elevation						
PID Reading	Sample Code	Sample Depth	Rec. (ft)	SPT	FIELD IDENTIFICATION OF MATERIAL	
		0			TEMPORARY WELL CONSTRUCTION DIAGRAM	
		1			UNIFIED SOIL CLASS.	
	SS-1	2			Brown, Silty CLAY, some gray Silt throughout	
		3				
1.7		4	3.7		CL	
		5			Stiff, red/brown, CLAY	
	SS-2	6				
		7				
1.9		8	4.0		CL	
		9			Stiff, brown, Silty CLAY, moist at 9', saturated to 12'	
	SS-3	10				
		11				
2.1		12	4.0		CL	
	SS-4	13			Stiff, moist/wet, red/brown, Silty CLAY	
		14				
2.2		15	4.0		CL	



STANDARD PENETRATION TOR= TOP OF ROCK	SUMMARY: Temporary piezometer installed to obtain water sample for field screening.	

PARSONS DRILLING RECORD					BORING NO. SBA-2			
Contractor: Zebra Environmental Corp.			PROJECT NAME: Ekonol Facility		Sheet 1 of 1			
Driller: Phil Orsi			PROJECT NUMBER: 737515		Location: South of Ekonol Facility			
Inspector: Andy Janik					Elevation:			
Rig Type: Geoprobe								
Method: Direct Push			Weather: Cloudy/Showers 55 F					
Observations: 6/4/2002			Date/Time Start: 6/4/02 1010					
Depth of Water: ~11.4' bgs			Date/Time Finish: 6/4/02 1045					
Top of Boring Elevation:			FIELD IDENTIFICATION OF MATERIAL		TEMPORARY WELL CONSTRUCTION DIAGRAM			
PID Reading	Sample Code	Sample Depth	Rec. (ft)	SPT	UNIFIED SOIL CLASS.			
		0						
		1			Red/brown, Silty CLAY, some gray Silt throughout			
	SS-1	2						
		3						
1.5		4	3.3		CL			
		5			Stiff, red/brown, CLAY			
	SS-2	6						
		7						
4.3		8	4.0		CL			
		9			Stiff, brown, Silty CLAY, moist at 11.4'			
	SS-3	10						
		11						
3.8		12	4.0		CL			
	SS-4	13			Stiff, moist/wet, red/brown, CLAY			
2.3		14	2.5		CL			
STANDARD PENETRATION					SUMMARY: Temporary piezometer installed to obtain water sample for field screening.			
TOR= TOP OF ROCK								

PARSONS DRILLING RECORD					BORING NO. SBA-3	
Contractor: Zebra Environmental Corp.					PROJECT NAME: Ekonal Facility	
Driller: Phil Orsi					PROJECT NUMBER: 737515	
Inspector: Andy Janik					Sheet: 1 of 1	
Rig Type: Geoprobe					Location: South of Ekonal Facility	
Method: Direct Push					Elevation:	
Observations			6/4/2002	Weather: Cloudy/Showers 55 F		
Depth of Water			~11.9' bgs	Date/Time Start: 6/4/02 1240		
Top of Boring Elevation				Date/Time Finish: 6/4/02 1315		
FIELD IDENTIFICATION OF MATERIAL					TEMPORARY WELL CONSTRUCTION DIAGRAM	
PID Reading	Sample Code	Sample Depth	Rec. (ft)	SPT	UNIFIED SOIL CLASS.	<p>1" SCH 40 PVC well riser</p> <p>8.5' bgs</p> <p>1" SCH 40 PVC well screen, 0.010" slot</p> <p>TOR @ 13.5' bgs</p>
		0				
		1				
	SS-1	2			Brown/gray, Silty CLAY	
		3				
2.9		4	2.0		CL	
		5			Stiff, red/brown, CLAY	
	SS-2	6				
		7				
2.8		8	4.0		CL	
		9			Stiff, red/brown, Silty CLAY, moist at 11.9'	
	SS-3	10				
		11				
3.0		12	4.0		CL	
	SS-4	13			Stiff, moist, red/brown, CLAY, some m-gravel	
3.1		14	2.0		CL	
STANDARD PENETRATION TOR= TOP OF ROCK					SUMMARY: <u>Temporary piezometer installed to obtain water sample for field screening.</u>	

PARSONS DRILLING RECORD					BORING NO. SBA-4	
Contractor: Zebra Environmental Corp.		PROJECT NAME Ekonol Facility			Sheet 1 of 1	
Driller: Phil Orsi		PROJECT NUMBER 737515			Location: South of Ekonol Facility	
Inspector: Andy Janik		Weather Cloudy/Showers 55 F			Elevation:	
Rig Type: Geoprobe		Date/Time Start 6/4/02 1425				
Method: Direct Push		Date/Time Finish 6/4/02 1500				
Observations	6/4/2002					
Depth of Water	-10.5' bgs					
Top of Boring Elevation						
PID Reading	Sample Code	Sample Depth	Rec. (ft)	SPT	FIELD IDENTIFICATION OF MATERIAL	TEMPORARY WELL CONSTRUCTION DIAGRAM
		0				
		1			Stiff, brown/black, Silty CLAY	
	SS-1	2				
		3				
4.2		4	1.7		CL	
		5			Stiff, red/brown, CLAY, some gray Silt throughout	
	SS-2	6				
		7				
4.2		8	4.0		CL	
		9			Stiff, red/brown, Silty CLAY, some gray Silt	
	SS-3	10			Moist at 10.5'	
		11				
4.0		12	3.0		CL	
	SS-4	13			Wet/ moist, red/brown, CLAY, some m-gravel	
3.8		14	2.5		CL	
STANDARD PENETRATION						
TOR= TOP OF ROCK						
SUMMARY:						
					Temporary piezometer installed to obtain water sample for field screening.	

PARSONS DRILLING RECORD					BORING NO. SBA-5
Contractor: Zebra Environmental Corp.		PROJECT NAME Ekonol Facility			Sheet 1 of 1
Driller: Phil Orsi		PROJECT NUMBER 737515			Location: South of Ekonol Facility
Inspector: Andy Janik		Weather Cloudy/Showers 55 F			
Rig Type: Geoprobe		Date/Time Start 6/4/02 1325			
Method: Direct Push		Date/Time Finish 6/4/02 1350			
Observations		Elevation:			
6/4/2002		Date/Time Start 6/4/02 1325			
Depth of Water ~11.4' bgs		Date/Time Finish 6/4/02 1350			
Top of Boring Elevation		FIELD IDENTIFICATION OF MATERIAL			
		TEMPORARY WELL CONSTRUCTION DIAGRAM			
PID Reading	Sample Code	Sample Depth	Rec. (ft)	SPT	UNIFIED SOIL CLASS.
		0			
		1			Stiff, red/brown, Silty CLAY, some gray Silt
	SS-1	2			
		3			
4.7		4	3.1		CL
		5			Stiff, red/brown, CLAY, some gray Silt
	SS-2	6			
		7			
4.1		8	4.0		CL
		9			Stiff, red/brown, Silty CLAY
	SS-3	10			Moist at 11.4'
		11			
3.7		12	4.0		CL
	SS-4	13			
3.4		14	2.0		Wet/ moist, red/brown, CLAY, some f-gravel
					CL
STANDARD PENETRATION TOR= TOP OF ROCK					SUMMARY: Temporary piezometer installed to obtain water sample for field screening.

Contractor: SJB Services, Inc.					PARSONS DRILLING RECORD		BORING NO. MW-1S	
Driller: Steve Wolkiewicz, Andy Morris					PROJECT NAME Ekonol Facility		Sheet 1 of 1	
Inspector: Andy Janik					PROJECT NUMBER 737515		Location: North of Ekonol Facility	
Rig Type: ACKER AD II, SoilMax					Weather Sunny 50 F		Elevation:	
Method: 4.25-inch HSA/SS					Date/Time Start 10/22/01 1210		N Walmore Rd. → X Ekonol Facility	
Date/Time Finish 10/22/01 1515					FIELD IDENTIFICATION OF MATERIAL		WELL CONSTRUCTION DIAGRAM	
PID Reading	Sample Code	Sample Depth	Rec. (ft)	SPT	UNIFIED SOIL CLASS.			
		0						
0.20		1		1	0-0.5'- concrete slab		Flush-mount protective casing	
	SS-1	2	1.0	3-7	Stiff, brown, Silty CLAY, some m-Gravel ML		Grout	
0.00		3		14-15	Stiff, brown, Silty CLAY, some gray Silt, well sorted pebbles throughout sample. ML		Bentonite seal	
	SS-2	4	1.5	16-14			2" SCH 40 PVC well riser	
0.00		5		8-10	Stiff, brown, Silty CLAY, some gray Silt throughout sample. CL		5.7' to 15.7' screen interval	
	SS-3	6	1.8	14-18			Sand	
0.00		7		48-35	Very stiff, brown, Silty CLAY, some gray Silt throughout sample, slightly moist at 7.8-8.0' CL		2" SCH 40 PVC well screen, 0.010" slot	
	SS-4	8	2.0	31-29			Well depth @ 15.7'	
0.00		9		5-5	Moist, brown, stiff, Silty CLAY, some gray Silt CL		TOR @ 15.7'	
	SS-5	10	2.0	5-8				
0.00		11		6-7	Moist/wet, stiff, red/brown, Silty CLAY, gray Silty Clay throughout, some well rounded m-Gravel. ML			
	SS-6	12	1.5	10-9				
0.40		13		2-3	Wet, red/brown, Silty CLAY, some f-Sand throughout, at 13.8' some black staining with m-Gravel. ML			
	SS-7	14	1.2	4-4				
0.00		15		3-12	Wet, red/brown, Silty CLAY, angular m-Gravel throughout. GC			
	SS-8	16	1.0	14-50/2				

STANDARD PENETRATION		SUMMARY:	Top of competent bedrock (TOR) defined as auger and split
TOR = TOP OF ROCK			spoon (SS) refusal.
SS = SPLIT SPOON			
ST = SHELBY TUBE			

					PARSONS DRILLING RECORD		BORING NO. MW-2S			
Contractor: SJB Services, Inc.					PROJECT NAME <u>Ekonomol Facility</u>		Sheet <u>1</u> of <u>1</u>			
Driller: Steve Wolkiewicz, Andy Morris							PROJECT NUMBER <u>737515</u>		Location: South of Ekonomol Facility	
Inspector: Andy Janik									Elevation:	
Rig Type: ACKER AD II, SoilMax										
Method: 4.25-inch HSA/SS										
Observations		10/23/2001			Weather <u>Cloudy 50 F</u>					
Depth of Water		~10' bgs			Date/Time Start <u>10/23/01 0935</u>					
Top of Boring Elevation					Date/Time Finish <u>10/23/01 1110</u>					
PID Reading	Sample Code	Sample Depth	Rec. (ft)	SPT	FIELD IDENTIFICATION OF MATERIAL		WELL CONSTRUCTION DIAGRAM			
		0			UNIFIED SOIL CLASS.					
21.40		1		3	0-0.5'- concrete slab					
	SS-1	2	0.5	5-6	Stiff, dark gray, Silty CLAY, trace organics ML					
33.00		3		7-12	Stiff, brown, Silty CLAY, some dark staining throughout ML					
	SS-2	4	0.4	13-12						
72.40		5		20-17	Stiff, brown, Silty CLAY, some gray Silt throughout sample CL					
	SS-3	6	1.2	16-18						
69.70		7		16-9	Very stiff, brown, Silty CLAY, some gray Silt throughout sample CL					
	SS-4	8	1.4	16-17						
-		9		19-18	No recovery- rock in spoon cap					
	SS-5	10	-	13-10						
107		11		7-5	Moist/wet, stiff, brown, Silty CLAY, some m-Gravel, black/green staining at 11.7' to 12.0' CL					
	SS-6	12	2.0	5-7						
133		13		4-50/1	Moist/wet, brown, Silty CLAY, with plastic odor CL					
	SS-7	14	1.0							

STANDARD PENETRATION

TOR = TOP OF ROCK
 SS = SPLIT SPOON
 ST = SHELBY TUBE

SUMMARY:

Top of competent bedrock (TOR) defined as auger and split spoon (SS) refusal.

					PARSONS DRILLING RECORD		BORING NO. MW-3S	
Contractor: SJB Services, Inc.					PROJECT NAME <u>Ekonomol Facility</u> PROJECT NUMBER <u>737515</u>		Sheet <u>1</u> of <u>1</u>	
Driller: Steve Wolkiewicz, Andy Morris							Location: Southeast of Ekonomol Facility	
Inspector: Andy Janik							Elevation:	
Rig Type: ACKER AD II, SoilMax								
Method: 4.25-inch HSA/SS								
Observations: 10/23/2001								
Depth of Water: ~11' bgs					Weather: <u>Cloudy 50 F</u>		Date/Time Start: <u>10/23/01 1445</u>	
Top of Boring Elevation:					Date/Time Finish: <u>10/23/01 1600</u>			
PID Reading	Sample Code	Sample Depth	Rec. (ft)	SPT	FIELD IDENTIFICATION OF MATERIAL		WELL CONSTRUCTION DIAGRAM	
		0			UNIFIED SOIL CLASS.			
9.40		1		3	0-0.5'- concrete slab			
	SS-1	2	1.0	4-6	Stiff, brown, Silty CLAY CL			
11.60		3		17-20	Stiff, brown, Silty CLAY, some gray Silt throughout, some m-Gravel ML			
	SS-2	4	0.8	18-15				
10.20		5		3-4	Stiff, brown, Silty CLAY, some gray Silt throughout sample CL			
	SS-3	6	1.5	7-18				
7.10		7		25-34	Stiff, brown, Silty CLAY, some gray Silt throughout sample CL			
	SS-4	8	2.0	24-48				
11.10		9		4-7	Same description as above CL			
	SS-5	10	1.5	7-8				
6.9		11		9-10	Moist/wet, red/brown, Silty CLAY, some gray Silt throughout, trace of m-Gravel ML			
	SS-6	12	2.0	8-9				
7.7		13		4-50/1	Moist/wet, red/brown, Silty CLAY, some gray Silt throughout, trace of m-Gravel CL			
	SS-7	14	0.5					

STANDARD PENETRATION

TOR = TOP OF ROCK
SS = SPLIT SPOON
ST = SHELBY TUBE

SUMMARY:

Top of competent bedrock (TOR) defined as auger and split spoon (SS) refusal.

Contractor: SJB Services, Inc.					PARSONS DRILLING RECORD		BORING NO. MW-4S	
Driller: Steve Wolkiewicz, Andy Morris					PROJECT NAME Ekonol Facility		Sheet 1 of 1	
Inspector: Andy Janik					PROJECT NUMBER 737515		Location: Southwest of Ekonol Facility	
Rig Type: ACKER AD II, SoilMax					Weather Rain 60 F		Elevation:	
Method: 4.25-inch HSA/SS					Date/Time Start 10/24/01 1040		Walmore Rd. →	
Observations					Date/Time Finish 10/24/01 1140		↑ Ekonol Facility	
Depth of Water ~10' bgs					FIELD IDENTIFICATION OF MATERIAL		X	
Top of Boring Elevation					WELL CONSTRUCTION DIAGRAM			
PID Reading	Sample Code	Sample Depth	Rec. (ft)	SPT	UNIFIED SOIL CLASS.	<p>Flush-mount protective casing Grout Bentonite seal 2" SCH 40 PVC well riser Sand 8.2'-13.2' screen interval 2" SCH 40 PVC well screen, 0.010" slot size Well depth @ 13.2' TOR @ 13.2'</p>		
-		0		-	0-0.9'- concrete slab			
	SS-1	2	-	5-4	Minimal recovery, piece of concrete in spoon cap			
1.70		3		8-10	Stiff, brown, Silty CLAY, some gray Silt throughout, some m-Gravel ML			
0.20	SS-2	4	1.2	14-16	Stiff, brown, Silty CLAY, some gray Silt throughout sample CL			
	SS-3	6	1.4	12-20	Stiff, brown, Silty CLAY, some gray Silt throughout sample CL			
3.20		7		18-26	Stiff, brown, Silty CLAY, some gray Silt throughout sample CL			
1.90	SS-4	8	2.0	33-38	Moist, stiff, red/brown, Silty CLAY CL			
	SS-5	10	2.0	9-9	Moist/wet, red/brown, Silty CLAY CL			
2.6		11		7-6	Moist/wet, red/brown, Silty CLAY CL			
14.0	SS-6	12	2.0	9-8	Moist/wet, red/brown, Silty CLAY, some gray Silt throughout, trace of m-Gravel ML			
	SS-7	14	0.5					

STANDARD PENETRATION

TOR = TOP OF ROCK
 SS = SPLIT SPOON
 ST = SHELBY TUBE

SUMMARY:

Top of competent bedrock (TOR) defined as auger and split spoon (SS) refusal.

Contractor: SJB Services, Inc.					PARSONS DRILLING RECORD		BORING NO. MW-5S	
Driller: Matt Matthies, Keith Oliver					PROJECT NAME		Ekonomol Facility	
Inspector: Andy Janik					PROJECT NUMBER		737515	
Rig Type: ACKER AD II, SoilMax					Location:		Northeast of Ekonomol Facility	
Method: 4.25-inch HSA/SS					Elevation:			
Observations		6/10/2002		Weather		Sunny 70 F		
Depth of Water		-9.6' bgs		Date/Time Start		6/10/02 1105		
Top of Boring Elevation				Date/Time Finish		6/10/02 1225		
PID Reading	Sample Code	Sample Depth	Rec. (ft)	SPT	FIELD IDENTIFICATION OF MATERIAL		WELL CONSTRUCTION DIAGRAM	
		0			UNIFIED SOIL CLASS.		<p>Flush-mount protective casing Grout 2" Stainless steel well riser Bentonite seal Sand 10.1' to 15.1' screen interval 2" Stainless steel well screen, 0.010" slot Well depth @ 15.1' TOR @ 15.1'</p>	
2.2		1		-	0-1.0'- Concrete slab.			
	SS-1	2	0.5	2-3	Stiff, brown, Silty CLAY, some organic staining ML			
2.3		3		5-7	Stiff, brown/gray, Silty CLAY ML			
	SS-2	4	1.3	10-20	Stiff, brown, Silty CLAY, some gray Silt throughout sample CL			
2.3		5		4-8	Stiff, brown, Silty CLAY, some gray Silt throughout sample CL			
	SS-3	6	1.7	15-21	Very stiff, brown, Silty CLAY, some gray Silt throughout sample CL			
2.3		7		12-15	Very stiff, brown, Silty CLAY, some gray Silt throughout sample CL			
	SS-4	8	2.0	31-37	Moist, brown, stiff, Silty CLAY, some gray Silt ML			
3.3		9		3-4	Moist, brown, stiff, Silty CLAY, some gray Silt ML			
	SS-5	10	2.0	5-4	Moist/wet, stiff, red/brown, Silty CLAY, gray Silt throughout, trace of f-Gravel ML			
3.2		11		3-2	Wet, red/brown, CLAY, trace of f-Gravel ML			
	SS-6	12	2.0	3-3	Wet, red/brown, CLAY, trace of f-Gravel ML			
3.2		13		3-2	Wet, red/brown, CLAY, trace of f-Gravel ML			
	SS-7	14	1.8	3-2	Wet, red/brown, CLAY, angular pieces of bedrock throughout ML			
2.2		15		29-50/0.3	Wet, red/brown, CLAY, angular pieces of bedrock throughout ML			
	SS-8	16	0.5	-				

STANDARD PENETRATION
 TOR = TOP OF ROCK
 SS = SPLIT SPOON

SUMMARY: Top of competent bedrock (TOR) defined as auger and split spoon (SS) refusal.

					PARSONS DRILLING RECORD		BORING NO. MW-6S	
Contractor: SJB Services, Inc.					PROJECT NAME Ekonomol Facility		Location: South of Ekonomol Facility	
Driller: Matt Mathies, Keith Oliver								
Inspector: Andy Janik								
Rig Type: ACKER AD II, SoilMax								
Method: 4.25-inch HSA/SS					PROJECT NUMBER 737515		Elevation:	
Observations		6/14/2002			Weather Sunny 70 F			
Depth of Water		~11.5' bgs			Date/Time Start 6/14/02 0925			
Top of Boring Elevation					Date/Time Finish 6/14/02 1115			
PID Reading	Sample Code	Sample Depth	Rec. (ft)	SPT	FIELD IDENTIFICATION OF MATERIAL		WELL CONSTRUCTION DIAGRAM	
		0			UNIFIED SOIL CLASS.			
2.3		1		-	0-1.0'- Concrete slab.			
	SS-1	2	0.5	3-5	Stiff, brown, Silty CLAY, some gray Silt ML			
2.1		3		5-4	Stiff, brown/gray, Silty CLAY, some gray Silt ML			
	SS-2	4	0.9	10-10	Stiff, brown, Silty CLAY, some gray Silt throughout sample, trace of f-Sand, brown CL			
2.2		5		5-8	Very stiff, brown, Silty CLAY CL			
	SS-3	6	1.7	16-21	Very stiff, brown, Silty CLAY CL			
2.2		7		18-22	Very stiff, brown, Silty CLAY CL			
	SS-4	8	2.0	22-27	Very stiff, brown, Silty CLAY CL			
2.0		9		4-5	Moist/wet, stiff, red/brown, Silty CLAY ML			
	SS-5	10	2.0	7-9	Wet, red/brown, CLAY, trace of f-Gravel ML			
2.1		11		4-5	Wet, red/brown, CLAY, angular pieces of bedrock throughout ML			
	SS-6	12	1.9	7-12				
2.5		13		12-22				
	SS-7	14	0.8	26-27				
2.0		15		10-50/0.3				
	SS-8	16	0.5	-				

STANDARD PENETRATION

TOR = TOP OF ROCK

SS = SPLIT SPOON

ST = SHELBY TUBE

SUMMARY:

Top of competent bedrock (TOR) defined as auger and split spoon (SS) refusal.

Well depth @ 14.8'
TOR @ 14.8'

Contractor: SJB Services, Inc.					PARSONS DRILLING RECORD		BORING NO. MW-7S	
Driller: Jon Keherer, Keith Oliver					PROJECT NAME Ekonol Facility			
Inspector: Andy Janik					PROJECT NUMBER 737515		Location: South of Ekonol Facility	
Rig Type: ACKER AD II, SoilMax							Elevation:	
Method: 4.25-inch HSA/SS					Weather Sunny 60 F			
Observations: 6/17/2002					Date/Time Start 6/17/02 1035			
Depth of Water: ~10.9' bgs					Date/Time Finish 6/17/02 1145			
Top of Boring Elevation								
PID Reading	Sample Code	Sample Depth	Rec. (ft)	SPT	FIELD IDENTIFICATION OF MATERIAL		WELL CONSTRUCTION DIAGRAM	
		0			UNIFIED SOIL CLASS.			
1.6		1		3	0-0.8'- Concrete slab			
	SS-1	2	0.6	6-10	Concrete pieces and Gravel			
1.7		3		3-5	Stiff, black/brown/gray, Silty CLAY, some m-Gravel			
	SS-2	4	0.8	6-8	ML			
1.8		5		13-12	Stiff, brown, Silty CLAY, some gray Silt throughout sample, some angular Sand crystals			
	SS-3	6	1.2	11-16	CL			
1.7		7		41-32	Very stiff, brown, CLAY, some gray Silt throughout sample, some Sandy, m-Gravel			
	SS-4	8	1.9	26-39	CL			
1.6		9		15-14	Moist, brown, stiff, Silty CLAY			
	SS-5	10	1.1	11-6	CL			
1.7		11		4-5	Moist/wet, stiff, red/brown, Silty CLAY, some f-Gravel			
	SS-6	12	2.0	5-11	ML			
1.6		13		8-14	Wet, red/brown, CLAY, angular pieces of bedrock throughout			
	SS-7	14	0.4	25-50/0.0	ML			
		15						
		16						

STANDARD PENETRATION

TOR = TOP OF ROCK
 SS = SPLIT SPOON
 ST = SHELBY TUBE

SUMMARY:

Top of competent bedrock (TOR) defined as auger and split spoon (SS) refusal.

					PARSONS DRILLING RECORD		BORING NO. MW-8S	
Contractor: SJB Services, Inc.					PROJECT NAME Ekonomol Facility		Location: Southwest of Ekonomol Facility	
Driller: Jon Keherer, Keith Oliver								
Inspector: Andy Janik/Eric Felter					PROJECT NUMBER 737515		Elevation:	
Rig Type: ACKER AD II, SoilMax					Weather Sunny 65 F			
Method: 4.25-inch HSA/SS					Date/Time Start 6/18/02 0845			
Observations					Date/Time Finish 6/19/02 0940			
Depth of Water ~11.0' bgs					FIELD IDENTIFICATION OF MATERIAL		WELL CONSTRUCTION DIAGRAM	
Top of Boring Elevation					UNIFIED SOIL CLASS.		<ul style="list-style-type: none"> Flush-mount protective casing Grout 2" Stainless steel well riser Bentonite seal Sand 9.2' to 14.2' screen interval 2" Stainless steel well screen, 0.010" slot 	
PID Reading	Sample Code	Sample Depth	Rec. (ft)	SPT				
		0						
1.4		1		-	0-1.2'- Concrete slab			
	SS-1	2	0.4	5-5	Stiff, brown, Silty CLAY, some concrete bits ML			
1.6		3		5-9	Stiff, brown/gray, Silty CLAY			
	SS-2	4	0.9	10-15	ML			
		5		37-20	No Recovery			
	SS-3	6		11-10				
0.2		7		6-8	Very stiff, brown, Silty CLAY, some gray Silt throughout sample			
	SS-4	8	1.2	38-40	CL			
0.5		9		40-11	Moist, brown, stiff, Silty CLAY, some gray Silt, trace f-Gravel			
	SS-5	10	1.2	12-14	CL			
0.5		11		10-6	Moist/wet, stiff, red/brown, Silty CLAY, gray Silt throughout, trace of f-Gravel			
	SS-6	12	1.4	4-5	ML			
0.2		13		6-7	Wet, red/brown, CLAY, trace of f-Gravel			
	SS-7	14	1.6	6-7	ML			
0.5		15		50/0.2	Wet, red/brown, CLAY, angular pieces of bedrock throughout			
	SS-8	16	0.2	-	ML			
							Well depth @ 14.2' TOR @ 14.2'	
STANDARD PENETRATION								
TOR = TOP OF ROCK					SUMMARY:		Top of competent bedrock (TOR) defined as auger and split spoon (SS) refusal.	
SS = SPLIT SPOON								
ST = SHELBY TUBE								

					PARSONS DRILLING RECORD		BORING NO. MW-9S	
Contractor: SJB Services, Inc.					PROJECT NAME		Ekonomol Facility	
Driller: Jon Keherer, Keith Oliver					PROJECT NUMBER		737515	
Inspector: Andy Janik					Location:		Southwest of Ekonomol Facility	
Rig Type: ACKER AD II, SoilMax					Elevation:			
Method: 4.25-inch HSA/SS					Weather		Sunny 70 F	
Observations					Date/Time Start		6/14/02 1345	
Depth of Water					Date/Time Finish		6/14/02 1505	
Top of Boring Elevation					FIELD IDENTIFICATION OF MATERIAL		WELL CONSTRUCTION DIAGRAM	
PID Reading	Sample Code	Sample Depth	Rec. (ft)	SPT	UNIFIED SOIL CLASS.		<p> Flush-mount protective casing Grout 2" Stainless steel well riser Bentonite seal Sand 9.2' to 14.2' screen interval 2" Stainless steel well screen, 0.010" slot Well depth @ 14.2' TOR @ 14.2' </p>	
		0						
2.1		1		-	0-1.0'- Concrete slab			
	SS-1	2	0.6	4-5	Stiff, black, Silty CLAY, trace organics ML			
2.3		3		6-6	Stiff, brown, Silty CLAY, some gray Silt throughout sample ML			
	SS-2	4	0.5	8-15				
1.9		5		7-7	Stiff, brown, Silty CLAY, some gray Silt throughout sample, trace of f-Sand, brown CL			
	SS-3	6	1.3	9-11				
2.2		7		17-19	Very stiff, brown, Silty CLAY CL			
	SS-4	8	1.8	27-32				
2.3		9		5-6	Moist, red/brown, stiff, Silty CLAY CL			
	SS-5	10	2.0	7-8				
		11		5-5	No Recovery			
	SS-6	12		4-4				
2.1		13		4-3	Wet, red/brown, CLAY ML			
	SS-7	14	2.0	2-3				
2.2		15		50/0.2	Wet, red/brown, CLAY, angular pieces of bedrock throughout ML			
	SS-8	16	0.4	-				

STANDARD PENETRATION

TOR = TOP OF ROCK
 SS = SPLIT SPOON
 ST = SHELBY TUBE

SUMMARY:

Top of competent bedrock (TOR) defined as auger and split spoon (SS) refusal.

**PARSONS
DRILLING RECORD**

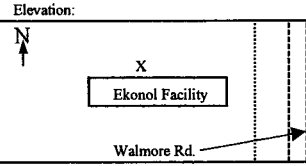
Contractor: SJB Services, Inc.
 Driller: Steve Wolkiewicz, Andy Morris
 Inspector: Andy Janik
 Rig Type: ACKER AD II, SoilMax
 Method: 6.25" HSA/5.875" Roller Cone/HQ Coring

BORING NO. MW-1D

PROJECT NAME EkonoI Facility
 PROJECT NUMBER 737515

Sheet 1 of 1
 Location: North of EkonoI Facility

Weather Cloudy 45 F
 Date/Time Start Coring 10/31/01 1315
 Date/Time Finish Coring 10/31/01 1520



HQ Core Run	Range	Depth	Rec. (%)	RQD (%)
		0		
		1		
		2		
		3		
		4		
		5		
		6		
		7		
		8		
		9		
		10		
		11		
		12		
		13		
#1	14.6'-24.6'	14	96.0	82.0
		15		
		16		
		17		
		18		
		19		
		20		
		21		
		22		
		23		
#2	24.6'-32.2'	24	99.0	94.0
		25		
		26		
		27		
		28		
		29		
		30		
		31		
		32		
		33		
		34		

FIELD IDENTIFICATION OF MATERIAL

For description of overburden material see Drilling Record of MW-1S

Start of Run #1, grout from installation of 4" steel casing (14.60'-15.90')

Massive, light gray, dolomite, slightly porous to hand break (15.90'-18.10')

Massive, light gray, dolomite, porous, break on stylolitic horizon (18.10'-19.35')

Gray, dolomite, porous, stylolitic horizons to break on bedding plane (19.35'-20.25')

Gray dolomite, fractured rubble (20.25'-20.72')

Gray, dolomite, vugged, brownish-gray coral beddings, to break on bedding plane (20.72'-24.13')

Loss of circulation at 22'

Light to dark gray, dolomite, porous coral beddings, vuggy, break on weathered bedding plane with pieces of Shale (24.60'-26.28')

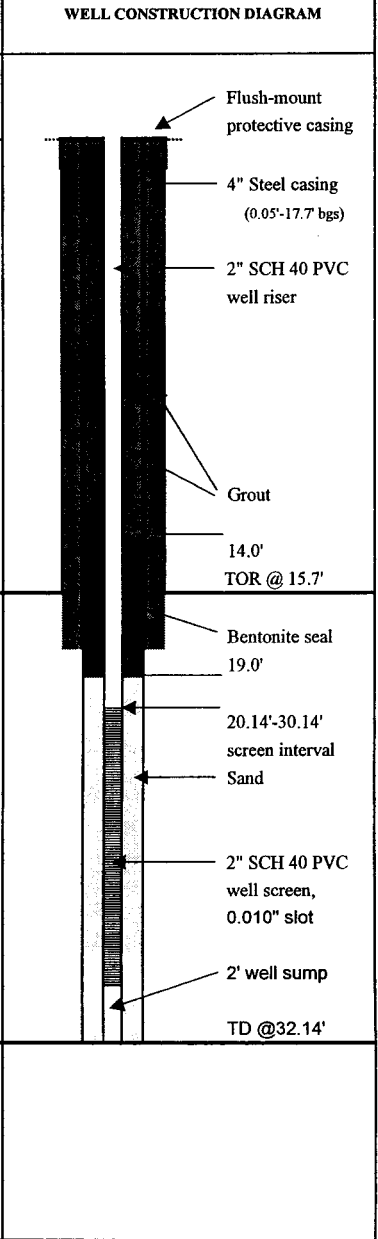
Gray, dolomite, vugged with orange/brown Gypsum crystals, to mineralization at break (26.28'-26.65')

Gray, dolomite, slightly vugged to break at bedding plane (26.65'-27.70')

Gray, dolomite, at 28.63'- incomplete fracture on stylolitic horizon, slightly vugged to weathered break (27.70'-29.13')

Dark gray, dolomite, some porous coral bedding, slightly vugged (29.13'-30.21')

Dark gray, dolomite, fractured zone, slightly vugged with mineralization and stylolitic horizons (30.21'-32.14')



STANDARD PENETRATION

TOR= TOP OF ROCK

SUMMARY:

TOR was determined at HSA auger refusal.

PARSONS DRILLING RECORD					BORING NO. MW-2D	
Contractor: SJB Services, Inc. Driller: Steve Wolkiewicz, Andy Morris Inspector: Andy Janik Rig Type: ACKER AD II, SoilMax Method: 6.25" HSA/5.875" Roller Cone/HQ Coring					PROJECT NAME Ekonomol Facility PROJECT NUMBER 737515	
Weather Cloudy 45 F Date/Time Start Coring 10/31/01 0845 Date/Time Finish Coring 10/31/01 1118					Sheet 1 of 1 Location: South of Ekonomol Facility Elevation: <div style="text-align: center;"> </div>	
FIELD IDENTIFICATION OF MATERIAL					WELL CONSTRUCTION DIAGRAM	
HQ Core Run	Range	Depth	Rec. (%)	RQD (%)	<div style="text-align: center;"> <p>For description of overburden material see Drilling Record of MW-2S</p> </div>	
		0				
		1				
		2				
		3				
		4				
		5				
		6				
		7				
		8				
		9				
		10				
		11				
		12				
		13				
		14				
#1	15.2'-24.8'	15	99.0	89.0	Start of Run #1, grout from installation of 4" steel casing (15.20'-15.56') Light gray, dolomite, slightly porous to break on Silty bedding plane (15.56'-16.51') Massive, light gray, dolomite, more porous to break (16.51'-17.24') Massive, light gray, dolomite, porous (17.24-18.22') Gray, dolomite, porous, stylolitic horizons, slightly vugged (18.22'-20.11') Gray, dolomite, porous, to break on Silty bedding plane (20.11'-21.80') Light gray, dolomite, incomplete fracture at 22.93' (21.80'-23.32') Loss of circulation at 23' Light gray, dolomite, to rubble zone (23.32'-24.80')	
		16			Bentonite seal 17' 18.0'-28.0' screen interval Sand	
#2	24.8'-30.0'	24	99.0	94.0	Light to dark gray, dolomite, vuggy with some Gypsum crystals, to break on mineralized bedding plane (24.80'-27.60') Brownish-gray, dolomite, porous, vuggy, stylolitic horizons to break (27.60'-28.15') Brownish-gray, dolomite, to break on weathered plane (28.15'-28.42') Gray, dolomite, slightly vugged, to break on Shale bedding plane (28.42'-29.22') Gray, dolomite, slightly vugged to break, near vertical fracture with Sphalerite crystals (29.22'-29.99')	
		25			2" SCH 40 PVC well screen, 0.010" slot 2' well sump TD @ 30.0'	
		26				
		27				
		28				
		29				
		30				
		31				
		32				
		33				
		34				

STANDARD PENETRATION

TOR= TOP OF ROCK

SUMMARY:

TOR was determined at HSA auger refusal.

					PARSONS DRILLING RECORD		BORING NO. MW-3D	
Contractor: SJB Services, Inc.					PROJECT NAME: Ekonol Facility		Sheet 1 of 1	
Driller: Steve Wolkiewicz, Andy Morris					PROJECT NUMBER: 737515		Location: Southeast of Ekonol Facility	
Inspector: Andy Janik					Weather: Sunny 45 F		Elevation:	
Rig Type: ACKER AD II, SoilMax					Date/Time Start Coring: 10/30/01 1345			
Method: 6.25" HSA/5.875" Roller Cone/HQ Coring					Date/Time Finish Coring: 10/30/01 1600			
HQ Core Run	Range	Depth	Rec. (%)	RQD (%)	FIELD IDENTIFICATION OF MATERIAL		WELL CONSTRUCTION DIAGRAM	
		0			For description of overburden material see Drilling Record of MW-3S			
		1						
		2						
		3						
		4						
		5						
		6						
		7						
		8						
		9						
		10						
		11						
		12						
		13						
#1	14.2'-15.0'	14	100.0	100.0	Light gray, massive, dolomite, drill break at 14.65' (14.20'-15.00')			
#2	15.0'-25.0'	15	98.0	90	Light gray, massive dolomite, fracture on bedding plane (15.00'-15.68')			
		16			Light gray, dolomite, some vugging, mineralization at fracture (15.68'-16.13')			
		17			Light to dark gray, massive, dolomite, to drill break (16.13'-16.80')			
		18						
		19			Light gray, massive, dolomite, some vugging, slightly porous to drill break (16.80'-19.93')			
		20						
		21			Light gray, massive, dolomite, to weathered fracture (19.93'-22.30')			
		22			Light gray, dolomite rubble zone (22.30'-23.15') Lost circulation at 22.5'			
		23			Light gray, massive, dolomite (23.15'-24.00')			
		24						
		25			Light gray, dolomite rubble zone to 25.0' (24.00'-25.00')			
#3	25.0'-26.9'	26	100.0	100.0	Light gray, dolomite (25.00'-25.60')			
		27			Light to dark gray, dolomite, more porous, vuggy with some Gypsum crystals (25.60'-26.90')			
		28						
		29						
		30						
		31						
		32						
		33						
		34						

STANDARD PENETRATION

TOR= TOP OF ROCK

SUMMARY:

TOR was determined at HSA auger refusal.

					PARSONS DRILLING RECORD		BORING NO. MW-4D	
Contractor: SJB Services, Inc.					PROJECT NAME: Ekonol Facility		Sheet 1 of 1	
Driller: Steve Wolkiewicz, Andy Morris					PROJECT NUMBER: 737515		Location: Southwest of Ekonol Facility	
Inspector: Andy Janik							Elevation:	
Rig Type: ACKER AD II, SoilMax					Weather: Sunny 45 F		N ↑ Walmore Rd. → Ekonol Facility	
Method: 6.25" HSA/5.875" Roller Cone/HQ Coring					Date/Time Start Coring: 10/30/01 0915		X	
					Date/Time Finish Coring: 10/30/01 1150			
HQ Core Run	Range	Depth	Rec. (%)	RQD (%)	FIELD IDENTIFICATION OF MATERIAL		WELL CONSTRUCTION DIAGRAM	
		0			For description of overburden material see Drilling Record of MW-4S		<p>Flush-mount protective casing</p> <p>4" Steel casing (0.9'-14.8' bgs)</p> <p>2" SCH 40 PVC well riser</p> <p>Grout</p> <p>12'</p> <p>TOR @ 12.8'</p> <p>Bentonite seal</p> <p>15.5'</p> <p>17.6'-27.6' screen interval</p> <p>Sand</p> <p>2" SCH 40 PVC well screen, 0.010" slot</p> <p>2' well sump</p> <p>TD @ 29.60'</p>	
		1						
		2						
		3						
		4						
		5						
		6						
		7						
		8						
		9						
		10						
		11						
		12						
		13						
#1	12.8'-14.8'	14	19.0	0.0	Grout from 4" steel casing installation (12.80'-14.80')			
#2	14.8'-24.8'	15	99.0	92.0	Light gray, laminated, dolomite to drill break (14.80'-16.40')			
		16						
		17						
		18						
		19						
		20			Light gray, massive, dolomite to drill break (16.40'-20.90')			
		21						
		22			Light gray, massive, dolomite to break on bedding plane (20.90'-22.65')			
		23			Light gray, dolomite, some vugging and mineralization (22.65'-23.37')			
		24			Light gray, dolomite rubble zone (23.37'-24.80') Loss of circulation at 23.5'			
#3	24.8'-29.6'	25	100.0	100.0	Brownish-gray, dolomite, vuggy, porous to break (24.80'-26.97')			
		26						
		27			Brownish-gray, dolomite, vuggy, porous, lighter gray at 27.2' to break (26.97'-27.74')			
		28			Light gray, dolomite, vuggy to fracture (27.74'-28.70')			
		29			Light gray, dolomite, vuggy with Gypsum crystals to break (28.70'-29.60')			
		30						
		31						
		32						
		33						
		34						

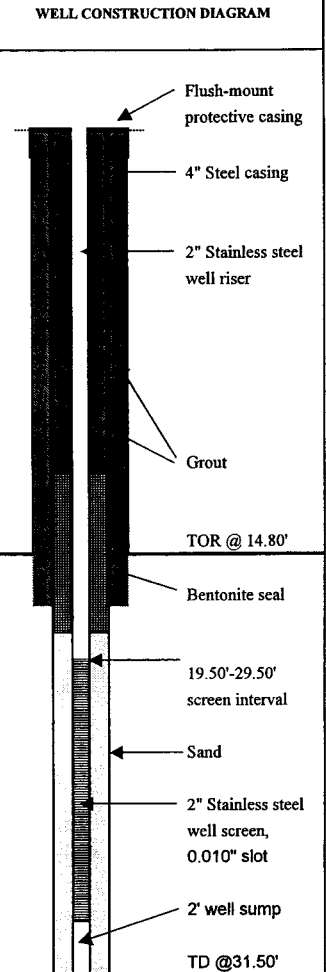
STANDARD PENETRATION

TOR= TOP OF ROCK

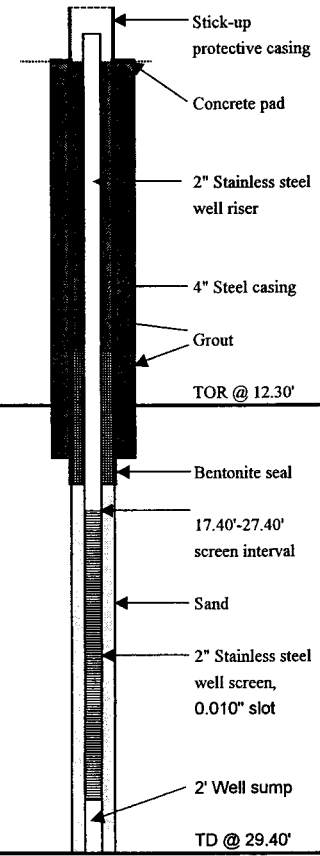
SUMMARY:

TOR was determined at HSA auger refusal.

PARSONS DRILLING RECORD					BORING NO. MW-10D	
Contractor: SJB Services, Inc. Driller: Jon Keherer, Mike Kukoleca Inspector: Andy Janik/Jim Schmetz Rig Type: ACKER AD II, SoilMax Method: 6.25" HSA/5.875" Roller Cone/HQ Coring					PROJECT NAME Ekonol Facility PROJECT NUMBER 737515	
Weather Hazy/Humid 85 F Date/Time Start Coring 7/2/02 0820 Date/Time Finish Coring 7/2/02 1230					Location: Southwest of Ekonol Facility Elevation: 	
HQ Core Run	Range	Depth	Rec. (%)	RQD (%)	FIELD IDENTIFICATION OF MATERIAL	
		0			Description of overburden material is consistent with other well locations.	
		1				
		2				
		3				
		4				
		5				
		6				
		7				
		8				
		9				
		10				
		11				
		12				
		13				
		14				
		15				
		16				
#1	17.20'-21.00'	17	100.0	100.0	Start of Run #1, grout from installation of 4" steel casing Massive, light to dark gray dolomite, laminated to fracture on bedding plane (17.20'-18.43')	
		18			Massive, light to dark gray dolomite, laminated, porous, with stylolitic horizons (18.43'-21.00')	
		19				
		20				
#2	21.00'-26.50'	22	96.0	67.0	Light to dark gray dolomite, laminated, porous, fossiliferous, vugged with mineralization (21.00'-24.00')	
		23			Light to dark gray dolomite, laminated, porous, fossiliferous, vugged with mineralization (21.00'-24.00')	
		24				
		25				
#3	26.50'-31.50'	27	100.0	100.0	Light to dark gray dolomite, rubble zone, weathered fractures and stylolitic horizons (24.00'-26.50') Light to dark gray dolomite, finely laminated, to break on mineralized bedding plane (26.50'-26.92')	
		28			Light to dark gray dolomite, laminated to drill break (26.92'-29.00')	
		29				
		30			Light to dark gray dolomite, laminated to fracture (29.00'-29.40')	
		31			Light to dark gray dolomite, laminated to fracture on mineralized bedding plane (29.40'-30.50')	
		32			Light to dark gray dolomite, laminated to drill break (30.50'-31.50')	
		33				
		34				
STANDARD PENETRATION TOR= TOP OF ROCK					SUMMARY: TOR was determined at HSA auger refusal.	

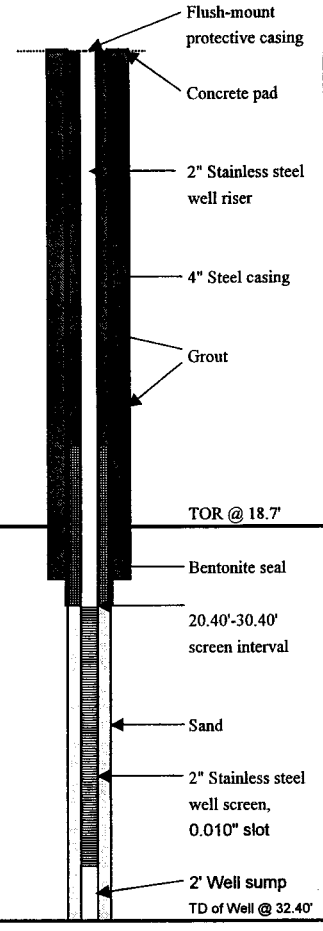
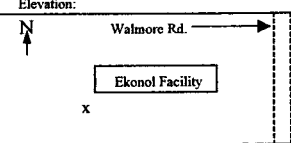


PARSONS DRILLING RECORD					BORING NO. MW-11D	
Contractor: SJB Services, Inc. Driller: Jon Keherer, Mike Kukoleca Inspector: Andy Janik Rig Type: ACKERAD II, SoilMax Method: 6.25" HSA/5.875" Roller Cone/HQ Coring					PROJECT NAME Ekonomol Facility PROJECT NUMBER 737515 Location: Southeast of Ekonomol Facility Elevation:	
Weather Hazy/Humid 85 F						
Date/Time Start Coring 7/3/02 0940						
Date/Time Finish Coring 7/3/02 1455						
HQ Core Run	Range	Depth	Rec. (%)	RQD (%)	FIELD IDENTIFICATION OF MATERIAL	
		0			Description of overburden material is consistent with other well locations.	
		1				
		2				
		3				
		4				
		5				
		6				
		7				
		8				
		9				
		10				
		11				
		12				
		13				
#1	14.50'-19.30'	14	100.0	50.0	Light to dark gray, dolomite, rubble zone, heavily fractured (14.50'-15.45')	
		15			Light to dark gray, dolomite, laminated, some stylolitic horizons (15.45'-16.05')	
		16			Light to dark gray, dolomite, rubble zone, heavily fractured (16.05'-17.40')	
		17			Light to dark gray, dolomite, to fracture at 18.05' on mineralized bedding plane (17.40'-18.40')	
		18			Light to dark gray, dolomite, laminated, some stylolitic horizons to break on bedding plane (18.40'-18.65')	
		19			Light to dark gray, dolomite, mineralized bedding planes to drill break (18.65'-19.30')	
#2	19.30'-24.50'	20	100.0	87.0	Light to dark gray, dolomite, fracture at 19.55' on bedding plane (19.30'-19.80')	
		21			Light to dark gray dolomite, laminated with stylolitic horizons, to fracture on bedding plane (19.80'-22.40')	
		22				
		23				
		24				
#3	24.50'-29.80'	25	100.0	94.0	Light to dark gray dolomite, laminated with stylolitic horizons, to drill break (22.40'-24.50')	
		26			Light to dark gray dolomite, porous, some vugging to weathered fracture (25.27'-25.46')	
		27			Light gray dolomite, porous, vuggy, numerous stylolitic horizons to fracture with c-Gravel (25.46'-26.38')	
		28			Light gray dolomite, porous, vuggy, with mineralization, some fossiliferous corals (26.38'-29.80')	
		29			Hand break at 28.39'	
		30				
		31				
		32				



STANDARD PENETRATION TOR- TOP OF ROCK	SUMMARY:	TOR was determined at HSA auger refusal.

Contractor: SJB Services, Inc.					PARSONS DRILLING RECORD		BORING NO.	MW-12D
Driller: Dale Matthies, Matt Matthies					PROJECT NAME		Ekonomol Facility	
Inspector: Andy Janik					PROJECT NUMBER		737515	
Rig Type: CME 550-X, ATV Drill Rig					Weather		Sunny 65 F	
Method: 6.25" HSA/5.875" Roller Cone/HQ Coring					Date/Time Start Coring		9/23/02 1005	
					Date/Time Finish Coring		9/24/02 1540	
					FIELD IDENTIFICATION OF MATERIAL		WELL CONSTRUCTION DIAGRAM	
HQ Core Run	Range	Depth	Rec. (%)	RQD (%)	Description of overburden material is consistent with other well locations.			
		0						
		1						
		2						
		3						
		4						
		5						
		6						
		7						
		8						
		9						
		10						
		11						
		12						
		13						
		14						
		15						
		16						
		17						
		18						
#1	19.70'-24.70'	19	78.0	57.0	Light to dark gray dolomite, heavily fractured rubble zone, some pieces of grout (19.70'-20.70')			
		20			Light to dark gray dolomite, porous, some stylolitic horizons, to break on bedding plane (20.70'-21.75') Light to dark gray dolomite, porous, to break on Sandy (brown), weathered bedding plane (21.75'-22.45') Light to dark gray dolomite, some brown, fossiliferous corals, porous with stylolitic horizons, to drill break (22.45'-23.55')			
		21						
		22						
		23						
		24			Gray dolomite, heavily fractured rubble zone (24.70'-26.40') Brown, porous, fossiliferous corals in gray, dolomite, to fracture (26.40'-26.80') Brown, porous, fossiliferous corals in gray, dolomite, to fracture (26.80'-27.65') Brown, porous, fossiliferous corals in gray, dolomite, becoming laminated in light to dark gray dolomite, slightly vugged, some mineralization, hand break at 28.60' (27.65'-29.68')			
		25						
		26						
		27						
#2	24.70'-29.70'	25	100.0	100.0	Gray, dolomite, heavily fractured, rubble zone (29.70'-30.10') Gray dolomite, to weathered bedding plane (30.10'-30.70') Dark gray, dolomite, laminated, vugged with some mineralization, to fracture (30.70'-32.30') Dark gray, dolomite, laminated, vugged, some mineralization, stylolitic horizons to fracture (32.30'-33.14') Dark gray, dolomite, laminated, vugged with mineralization and corals, horizontal and vertical stylolitic horizons to vertical fracture (33.14'-34.19') Hand break at 33.59' Dark gray/brown, dolomite, some vugging, laminated to vertical fracture/drill break (34.19'-35.00')			
		28						
		29						
		30						
#3	29.70'-35.00'	30	100.0	95.0	TD of Boring @ 35.0'			
		31						
		32						
		33						
		34						
		35						
		36						
		37						
		38						
		39						



STANDARD PENETRATION	SUMMARY:	TOR was determined at HSA auger refusal.
TOR= TOP OF ROCK		Due to difficulty in drilling, well was not set at total depth of boring.

Contractor: SJB Services, Inc.					PARSONS DRILLING RECORD		BORING NO. MW-13D	
Driller: Dale Matthies, Matt Matthies					PROJECT NAME		Ekonomol Facility	
Inspector: Andy Junik					PROJECT NUMBER		737515	
Rig Type: CME 550-X, ATV Drill Rig					Weather		Sun 70 F	
Method: 6.25" HSA/5.875" Roller Cone/HQ Coring					Date/Time Start Coring		9/25/02 1115	
					Date/Time Finish Coring		9/25/02 1550	
					FIELD IDENTIFICATION OF MATERIAL		WELL CONSTRUCTION DIAGRAM	
HQ Core Run	Range	Depth	Rec. (%)	RQD (%)	Description of overburden material is consistent with other well locations.			
		0						
		1						
		2						
		3						
		4						
		5						
		6						
		7						
		8						
		9						
		10						
		11						
		12						
		13						
#1	14.00'-19.00'	14	100.0	22.0	<p>Stick-up protective casing Concrete pad 2" Stainless steel well riser 4" Steel casing Grout TOR @ 12.70' Bentonite seal 17.90'-27.90' screen interval Sand 2" Stainless steel well screen, 0.010" slot 2' Well sump TD @ 29.90'</p>			
		15						
		16						
		17						
		18						
		19						
#2	19.00'-24.00'	20	100.0	68.0				
		21						
		22						
		23						
		24						
#3	24.50'-29.80'	25	90.0	90.0				
		26						
		27						
		28						
		29						
		30						
		31						
		32						

STANDARD PENETRATION

TOR= TOP OF ROCK

SUMMARY:

TOR was determined at HSA auger refusal.

**ATTACHMENT B
PACKER TEST RESULTS**

MEMORANDUM

December 17, 2002

To: File

From: Eric A. Felter

Subject: Packer Test Analytical Results

Attached are the preliminary results of the packer testing of two bedrock wells. Test data collected from MW-10 in the deeper two test zones did not provide a solution due to the well going dry during each test at one (1) gallon per minute (gpm). Preliminary results have been calculated for the shallowest zone in MW-10 and for all three zones in MW-11.

Summary of Packer Test Analyses (cm/s)				
MW-11D				
	Depth (ft.)	1 gpm test	3 gpm test	6 gpm test
Interval 1	14.5 to 19.3	9.8×10^{-3}	1.1×10^{-2}	1.0×10^{-2}
Interval 2	19.3 to 24.5	4.4×10^{-3}	8.7×10^{-3}	6.8×10^{-3}
Interval 3	24.5 to 29.8	3.0×10^{-2}	2.7×10^{-2}	2.7×10^{-2}
MW-10D				
	Depth (ft.)	1 gpm test	3 gpm test	6 gpm test
Interval 1	16.5 to 21	1.8×10^{-3}	3.0×10^{-3}	3.5×10^{-3}
Interval 2	21 to 26.5	2.9×10^{-4}	Dry	Dry
Interval 3	26.5 to 31.5	2.3×10^{-4}	Dry	Dry

Note: The 1 gpm tests for MW-10D intervals 2 and 3 were analyzed using the Theis equations:

$$T = \frac{Q}{4\pi s} W(u) \quad \& \quad S = \frac{4Tt}{r^2 \frac{1}{u}}$$

Where:

Q = pumping rate (ft³/min)

r = radius of or from the pumping well (ft)

s = drawdown (ft)

m = aquifer saturated thickness (feet)

MEMORANDUM

December 19, 2002

To: File
From: Eric A. Felter
Subject: Packer Test Analytical Results

Attached are the preliminary results of the packer testing of the bedrock well MW-13D.

Summary of Packer Test Analyses (cm/s)				
MW-13D				
	Depth (ft.)	1 gpm test	3 gpm test	6 gpm test
Interval 1	14 to 19	$9.3 \cdot 10^{-2}$	$8.0 \cdot 10^{-2}$	$1.3 \cdot 10^0$
Interval 2	19 to 24	$4.0 \cdot 10^{-3}$	$1.6 \cdot 10^{-2}$	$5.6 \cdot 10^{-2}$
Interval 3	24 to 29.9	$4.8 \cdot 10^{-3}$	$4.0 \cdot 10^{-2}$	$4.7 \cdot 10^{-1}$

**ATTACHMENT C
GROUNDWATER SAMPLING RECORDS**

Phase II
November 2001

WELL SAMPLING RECORD

Site Name EkonoI Facility

Well MW-1S

Samplers Andy Janik

Date 11/2/2001
Time 1000

Total Well Depth (TOC) 14.77 feet
Initial Static Water Level (TOC) 6.11 feet
Well Diameter (inches) 2.0

Purging Data

Method Dedicated Bailer

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 14.77 - 6.11 x 0.16
= 1.4 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 5 gallons

Sampling Data

Method Dedicated Bailer

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 10oz. Plastic bottle	HNO ₃	6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	8.11	8.97	9.14	8.16
Temp. (F)	65.3	62.9	60.4	60.6
Spec. Cond. (uS/cm)	1.45	1.23	1.29	1.27
Turbidity (NTU)	-	-	-	-

Comments: Water was brown in color, turbid. Sample was taken from well at 1100.

WELL SAMPLING RECORD

Site Name EkonoI Facility Well MW-2S
 Samplers Andy Janik Date 11/2/2001
 Time 1200

Total Well Depth (TOC) 11.90 feet
 Initial Static Water Level (TOC) 8.95 feet
 Well Diameter (inches) 2.0

Purging Data

Method Dedicated Bailer

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
 = 11.90 - 8.95 x 0.16
 = 0.5 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 3 gallons

Sampling Data

Method Dedicated Bailer

Parameters TCE; 1,2-DCE; Bottle 2-40ml vials Pres. HCl Method 8260
1,1-DCA; 1,1,1-TCA

phenol & aniline 2-1L amber bottles - 8270

Zn & Pb 1- 10oz. Plastic bottle HNO₃ 6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	8.15	8.06	8.01	7.96
Temp. (F)	61.8	62.5	62.6	61.0
Spec. Cond. (uS/cm)	1.42	1.50	1.49	1.39
Turbidity (NTU)	-	-	-	-

Comments: Water was brown in color, turbid. Sample was taken from well at 1315.

WELL SAMPLING RECORD

Site Name Ekonal Facility

Well MW-3S

Samplers Andy Janik

Date 11/2/2001

Time 1500

Total Well Depth (TOC) 12.15 feet
 Initial Static Water Level (TOC) 5.70 feet
 Well Diameter (inches) 2.0

Purging Data

Method Dedicated Bailer

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
 = 12.15 - 5.70 x 0.16
 = 1.0 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 4 gallons

Sampling Data

Method Dedicated Bailer

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 10oz. Plastic bottle	HNO ₃	6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	8.24	8.18	8.15	8.32
Temp. (F)	61.0	61.4	61.3	60.6
Spec. Cond. (uS/cm)	1.05	1.26	1.40	1.39
Turbidity (NTU)	-	-	-	-

Comments: Water was brown in color, turbid. Sample was taken from well at 1615.

WELL SAMPLING RECORD

Site Name Ekono1 Facility Well MW-4S
 Samplers Andy Janik Date 11/2/2001
 Time 1330

Total Well Depth (TOC) 12.47 feet
 Initial Static Water Level (TOC) 8.91 feet
 Well Diameter (inches) 2.0

Purging Data

Method Dedicated Bailer

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
 = 12.47 - 8.91 x 0.16
 = 0.6 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 3 gallons

Sampling Data

Method Dedicated Bailer

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 10oz. Plastic bottle	HNO ₃	6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	8.19	8.12	8.07	8.23
Temp. (F)	61.3	62.2	61.8	61.0
Spec. Cond. (uS/cm)	1.69	1.77	2.01	1.86
Turbidity (NTU)	-	-	-	-

Comments: Water was brown in color, turbid. Sample was taken from well at 1445.

WELL SAMPLING RECORD

Site Name Ekonol Facility Well MW-1D
 Samplers Andy Janik Date 11/2/2001
 Time 1020

Total Well Depth (TOC) 31.57 feet
 Initial Static Water Level (TOC) 8.00 feet
 Well Diameter (inches) 2.0

Purging Data

Method Dedicated Bailer

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
 = 31.57 - 8.00 x 0.16
 = 3.8 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 12 gallons

Sampling Data

Method Dedicated Bailer

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 10oz. Plastic bottle	HNO ₃	6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	9.49	9.22	8.79	8.14
Temp. (F)	61.3	58.7	58.3	60.2
Spec. Cond. (uS/cm)	0.88	0.93	0.91	0.93
Turbidity (NTU)	-	-	-	-

Comments: Water was light gray in color. Sample was taken from well at 1130.
Duplicate sample, MS, and MSD were also taken from this well.

WELL SAMPLING RECORD

Site Name EkonoI Facility Well MW-2D
 Samplers Andy Janik Date 11/2/2001
 Time 1225

Total Well Depth (TOC) 29.91 feet
 Initial Static Water Level (TOC) 8.36 feet
 Well Diameter (inches) 2.0

Purging Data

Method Dedicated Bailer

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
 = 29.91 - 8.36 x 0.16
 = 3.4 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 12 gallons

Sampling Data

Method Dedicated Bailer

Parameters	Bottle	Pres.	Method
<u>TCE; 1,2-DCE;</u>	<u>2-40ml vials</u>	<u>HCl</u>	<u>8260</u>
<u>1,1-DCA; 1,1,1-TCA</u>			
<u>phenol & aniline</u>	<u>2-1L amber bottles</u>	<u>-</u>	<u>8270</u>
<u>Zn & Pb</u>	<u>1- 10oz. Plastic bottle</u>	<u>HNO₃</u>	<u>6010B</u>

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	8.05	8.04	8.17	8.29
Temp. (F)	60.7	60.3	59.9	60.4
Spec. Cond. (uS/cm)	1.15	1.16	1.07	1.03
Turbidity (NTU)	-	-	-	-

Comments: Water was light gray in color. Sample was taken from well at 1300.

WELL SAMPLING RECORD

Site Name EkonoI Facility Well MW-3D

Samplers Andy Janik Date 11/2/2001
Time 1530

Total Well Depth (TOC) 26.27 feet
Initial Static Water Level (TOC) 8.21 feet
Well Diameter (inches) 2.0

Purging Data

Method Dedicated Bailer

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 26.27 - 8.21 x 0.16
= 2.9 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 10 gallons

Sampling Data

Method Dedicated Bailer

Parameters TCE; 1,2-DCE; Bottle 2-40ml vials Pres. HCl Method 8260
1,1-DCA; 1,1,1-TCA

phenol & aniline 2-1L amber bottles - 8270

Zn & Pb 1- 10oz. Plastic bottle HNO₃ 6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	8.26	8.19	8.15	8.33
Temp. (F)	63.0	60.2	59.9	60.7
Spec. Cond. (uS/cm)	1.01	1.07	1.09	1.08
Turbidity (NTU)	-	-	-	-

Comments: Water was light gray in color. Sample was taken from well at 1600.

WELL SAMPLING RECORD

Site Name EkonoI Facility Well MW-4D

Samplers Andy Janik Date 11/2/2001
Time 1400

Total Well Depth (TOC)	<u>28.85</u> feet
Initial Static Water Level (TOC)	<u>8.27</u> feet
Well Diameter (inches)	<u>2.0</u>

Purging Data

Method Dedicated Bailer

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
 = 28.85 - 8.27 x 0.16
 = 3.3 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 10 gallons

Sampling Data

Method Dedicated Bailer

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260

<u>phenol & aniline</u>	<u>2-1L amber bottles</u>	<u>-</u>	<u>8270</u>
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<u>Zn & Pb</u>	<u>1- 10oz. Plastic bottle</u>	<u>HNO₃</u>	<u>6010B</u>
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Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	8.65	8.38	8.26	8.58
Temp. (F)	63.7	60.7	60.3	61.3
Spec. Cond. (uS/cm)	1.23	1.16	1.14	1.15
Turbidity (NTU)	-	-	-	-

Comments: Water was light gray in color. Sample was taken from well at 1430.

Phase II
December 2001

WELL SAMPLING RECORD

Site Name EkonoI Facility Well MW-1S
 Samplers Andy Janik Date 12/5/2001
 Time 1515

Total Well Depth (TOC) 14.77 feet
 Initial Static Water Level (TOC) 5.12 feet
 Well Diameter (inches) 2.0

Purging Data

Method Dedicated Bailer

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
 = 14.77 - 6.12 x 0.16
 = 1.5 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 5 gallons

Sampling Data

Method Dedicated Bailer

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	8.44	8.48	8.48	8.58
Temp. (F)	62.5	60.8	59.7	53.8
Spec. Cond. (uS/cm)	1.36	1.32	1.37	1.25
Turbidity (NTU)	-	-	-	-

Comments: Water was light brown in color. Sample was taken from well at 1045 on 12/6/01.

WELL SAMPLING RECORD

Site Name Ekono1 Facility Well MW-2S
 Samplers Andy Janik Date 12/5/2001
 Time 1530

Total Well Depth (TOC) 11.90 feet
 Initial Static Water Level (TOC) 3.57 feet
 Well Diameter (inches) 2.0

Purging Data

Method Dedicated Bailer

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
 = 11.90 - 3.57 x 0.16
 = 1.3 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 4 gallons

Sampling Data

Method Dedicated Bailer

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	8.61	8.27	8.28	7.76
Temp. (F)	60.3	61.5	61.6	53.2
Spec. Cond. (uS/cm)	1.61	1.69	1.73	1.48
Turbidity (NTU)	-	-	-	-

Comments: Water was clear. Sample was taken from well at 1425 on 12/6/01.

WELL SAMPLING RECORD

Site Name EkonoI Facility

Well MW-3S

Samplers Andy Janik

Date 12/5/2001

Time 1550

Total Well Depth (TOC) 12.15 feet

Initial Static Water Level (TOC) 5.41 feet

Well Diameter (inches) 2.0

Purging Data

Method Dedicated Bailer

$$\begin{aligned} \text{Water Volume} &= (\text{Total Depth of Well} - \text{Depth To Water}) \times \text{Casing Volume per Foot} \\ &= \quad \quad \quad 12.15 \quad - \quad \quad \quad 5.41 \quad \times \quad \quad \quad 0.16 \\ &= \quad \quad \quad 1.1 \quad \text{gallons} \end{aligned}$$

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 3 gallons

Sampling Data

Method Dedicated Bailer

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260

phenol & aniline	2-1L amber bottles	-	8270
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Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B
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Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	9.43	9.17	8.40	8.10
Temp. (F)	61.0	60.4	60.2	54.5
Spec. Cond. (uS/cm)	0.88	1.34	1.63	1.26
Turbidity (NTU)	-	-	-	-

Comments: Water was light brown in color. Sample was taken from well at 1410 on 12/6/01.

WELL SAMPLING RECORD

Site Name EkonoI Facility

Well MW-4S

Samplers Andy Janik

Date 12/5/2001

Time 1610

Total Well Depth (TOC) 12.47 feet

Initial Static Water Level (TOC) 8.47 feet

Well Diameter (inches) 2.0

Purging Data

Method Dedicated Bailer

$$\begin{aligned} \text{Water Volume} &= (\text{Total Depth of Well} - \text{Depth To Water}) \times \text{Casing Volume per Foot} \\ &= \underline{12.47} - \underline{8.47} \times \underline{0.16} \\ &= \underline{0.6} \text{ gallons} \end{aligned}$$

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 3 gallons

Sampling Data

Method Dedicated Bailer

Parameters	Bottle	Pres.	Method
<u>TCE; 1,2-DCE;</u>	<u>2-40ml vials</u>	<u>HCl</u>	<u>8260</u>
<u>1,1-DCA; 1,1,1-TCA</u>			
<u>phenol & aniline</u>	<u>2-1L amber bottles</u>	<u>-</u>	<u>8270</u>
<u>Zn & Pb</u>	<u>1- 4 oz. Plastic bottle</u>	<u>HNO₃</u>	<u>6010B</u>

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	8.51	8.17	8.11	7.90
Temp. (F)	61.2	61.3	61.0	57.3
Spec. Cond. (uS/cm)	1.83	1.89	1.97	1.63
Turbidity (NTU)	-	-	-	-

Comments: Water was brown in color, turbid. Sample was taken from well at 1225 on 12/6/01.

WELL SAMPLING RECORD

Site Name EkonoI Facility Well MW-1D
 Samplers Andy Janik Date 12/6/2001
 Time 0925

Total Well Depth (TOC) 31.57 feet
 Initial Static Water Level (TOC) 7.45 feet
 Well Diameter (inches) 2"

Purging Data

Method Dedicated Bailer

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
 = 31.57 - 7.45 x 0.16
 = 3.9 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 12 gallons

Sampling Data

Method Dedicated Bailer

Parameters TCE; 1,2-DCE; Bottle 2-40ml vials Pres. HCl Method 8260
1,1-DCA; 1,1,1-TCA

phenol & aniline 2-1L amber bottles - 8270

Zn & Pb 1- 4 oz. Plastic bottle HNO₃ 6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	9.91	9.61	8.57	8.66
Temp. (F)	56.7	54.8	54.6	53.9
Spec. Cond. (uS/cm)	0.64	0.87	0.88	0.87
Turbidity (NTU)	-	-	-	-

Comments: Water was light gray in color. Sample was taken from well at 1015.
Duplicate sample, MS, and MSD were also taken from this well.

WELL SAMPLING RECORD

Site Name EkonoI Facility Well MW-2D
 Samplers Andy Janik Date 12/6/2001
 Time 1430

Total Well Depth (TOC) 29.91 feet
 Initial Static Water Level (TOC) 7.77 feet
 Well Diameter (inches) 2.0

Purging Data

Method Dedicated Bailer

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
 = 29.91 - 7.77 x 0.16
 = 3.5 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 11 gallons

Sampling Data

Method Dedicated Bailer

Parameters	Bottle	Pres.	Method
<u>TCE; 1,2-DCE;</u>	<u>2-40ml vials</u>	<u>HCl</u>	<u>8260</u>
<u>1,1-DCA; 1,1,1-TCA</u>			
<u>phenol & aniline</u>	<u>2-1L amber bottles</u>	<u>-</u>	<u>8270</u>
<u>Zn & Pb</u>	<u>1- 4 oz. Plastic bottle</u>	<u>HNO₃</u>	<u>6010B</u>

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	8.37	8.30	7.83	7.75
Temp. (F)	54.9	55.3	54.6	54.5
Spec. Cond. (uS/cm)	0.88	1.10	1.04	1.03
Turbidity (NTU)	-	-	-	-

Comments: Water was clear with visible sheen. Sample was taken from well at 1510.

WELL SAMPLING RECORD

Site Name EkonoI Facility Well MW-3D
 Samplers Andy Janik Date 12/6/2001
 Time 1305

Total Well Depth (TOC) 26.27 feet
 Initial Static Water Level (TOC) 7.59 feet
 Well Diameter (inches) 2.0

Purging Data

Method Dedicated Bailer

$$\begin{aligned} \text{Water Volume} &= (\text{Total Depth of Well} - \text{Depth To Water}) \times \text{Casing Volume per Foot} \\ &= \underline{26.27} - \underline{7.59} \times \underline{0.16} \\ &= \underline{2.9} \text{ gallons} \end{aligned}$$

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 10 gallons

Sampling Data

Method Dedicated Bailer

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	8.63	8.27	7.93	7.94
Temp. (F)	57.8	56.8	55.4	55.2
Spec. Cond. (uS/cm)	0.89	0.94	0.93	0.94
Turbidity (NTU)	-	-	-	-

Comments: Water was light gray in color. Sample was taken from well at 1400.

WELL SAMPLING RECORD

Site Name EkonoI Facility Well MW-4D
 Samplers Andy Janik Date 12/6/2001
 Time 1130

Total Well Depth (TOC) 28.85 feet
 Initial Static Water Level (TOC) 7.65 feet
 Well Diameter (inches) 2.0

Purging Data

Method Dedicated Bailer

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
 = 28.85 - 7.65 x 0.16
 = 3.4 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 11 gallons

Sampling Data

Method Dedicated Bailer

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260

phenol & aniline	2-1L amber bottles	-	8270
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Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B
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Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	8.58	8.34	8.07	8.14
Temp. (F)	56.5	56.8	56.5	56.5
Spec. Cond. (uS/cm)	0.27	0.91	0.97	0.99
Turbidity (NTU)	-	-	-	-

Comments: Water was light gray in color. Sample was taken from well at 1210.

Phase II
September 2002

WELL SAMPLING RECORD

Site Name Ekonomol Facility Well MW-1S

Samplers Dan Lipp Date 9/25/2002
Time 1350

Total Well Depth (TOC) 14.75 feet
Initial Static Water Level (TOC) 6.85 feet
Well Diameter (inches) 2.0

Purging Data

Method Peristaltic pump at 500mL per minute

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 14.75 - 6.85 x 0.16
= 1.3 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 4 gallons

Sampling Data

Method Peristaltic pump at 500mL per minute

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	6.84	7.51	7.43	7.85
Temp. (C)	15.80	17.76	16.05	16.10
Spec. Cond. (uS/cm)	5.00	4.46	4.51	4.78
Turbidity (NTU)	114.0	24.2	18.5	799.0
Dissolved Oxygen (DO)	2.00	0.29	0.11	0.51
ORP	-127	-116	-95	-143
Nitrate (mg/L)	-	-	0.0	0.0
Ferrous Iron (mg/L)	-	-	1.5	1.8
Sulfate (mg/L)	-	-	80	42

Comments: Sudan IV test was negative. Water was light brown in color. Sample was taken at 1345 on 9/26/02.

WELL SAMPLING RECORD

Site Name EkonoI Facility

Well MW-2S

Samplers Andy Janik
Jaime Davidson

Date 10/2/2002

Time 1030

Total Well Depth (TOC) 12.12 feet

Initial Static Water Level (TOC) 4.88 feet

Well Diameter (inches) 2.0

Purging Data

Method Peristaltic pump at 500mL per minute

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
 = 12.12 - 4.88 x 0.16
 = 1.2 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 4 gallons

Sampling Data

Method Peristaltic pump at 500mL per minute

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	5.92	6.67	7.15	6.70
Temp. (C)	22.22	25.81	23.27	15.57
Spec. Cond. (uS/cm)	0.000	0.000	0.000	0.000
Turbidity (NTU)	258.0	239.0	252.0	249.0
Dissolved Oxygen (DO)	8.97	5.76	6.97	8.95
ORP	70	36	-67	-6
Nitrate (mg/L)	-	-	0.0	0.0
Ferrous Iron (mg/L)	-	-	3.6	3.8
Sulfate (mg/L)	-	-	80	80

Comments: Sudan IV test was negative. Water was clear with sheen. Sample was taken at 0915 on 10/3/02.

WELL SAMPLING RECORD

Site Name EkonoI Facility

Well MW-3S

Samplers Dan Lipp

Date 9/26/2002

Time 0820

Total Well Depth (TOC) 12.05 feet
 Initial Static Water Level (TOC) 5.42 feet
 Well Diameter (inches) 2.0

Purging Data

Method Peristaltic pump at 500mL per minute

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
 = 12.05 - 5.42 x 0.16
 = 1.1 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 2.5 to dry gallons

Sampling Data

Method Peristaltic pump at 500mL per minute

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	7.69	7.64	7.62	7.44
Temp. (C)	18.82	18.44	17.75	18.67
Spec. Cond. (uS/cm)	3.14	3.13	3.28	3.51
Turbidity (NTU)	143.0	17.0	28.0	66.2
Dissolved Oxygen (DO)	3.52	0.95	1.80	4.33
ORP	-148	-151	-127	-94
Nitrate (mg/L)	-	-	0.0	0.0
Ferrous Iron (mg/L)	-	-	3.0	2.8
Sulfate (mg/L)	-	-	80	80

Comments: Sudan IV test was negative. Water was light brown in color. Sample was taken at 1450 on 9/26/02.

WELL SAMPLING RECORD

Site Name EkonoI Facility

Well MW-4S

Samplers Dan Lipp

Date 9/26/2002

Time 0930

Total Well Depth (TOC) 12.50 feet
 Initial Static Water Level (TOC) 10.53 feet
 Well Diameter (inches) 2.0

Purging Data

Method Peristaltic pump at 500mL per minute

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
 = 12.50 - 10.53 x 0.16
 = 0.3 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 1 gallons

Sampling Data

Method Peristaltic pump at 500mL per minute

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	7.19	7.04	7.01	7.35
Temp. (C)	17.48	17.43	17.33	18.38
Spec. Cond. (uS/cm)	6.78	6.70	6.81	7.12
Turbidity (NTU)	311.0	150.0	99.6	>1000
Dissolved Oxygen (DO)	2.24	1.14	0.59	2.19
ORP	-53	-49	-47	-133
Nitrate (mg/L)	-	-	0.0	0.0
Ferrous Iron (mg/L)	-	-	0.4	0.3
Sulfate (mg/L)	-	-	80	42

Comments: Sudan IV test was negative. Water was light brown in color. Sample was taken at 1530 on 9/26/02.

WELL SAMPLING RECORD

Site Name Ekonomol Facility

Well MW-5S

Samplers Dan Lipp

Date 9/25/2002

Time 1515

Total Well Depth (TOC) 14.52 feet

Initial Static Water Level (TOC) 10.02 feet

Well Diameter (inches) 2.0

Purging Data

Method Peristaltic pump at 500mL per minute

$$\begin{aligned} \text{Water Volume} &= (\text{Total Depth of Well} - \text{Depth To Water}) \times \text{Casing Volume per Foot} \\ &= \quad \quad \quad 14.52 \quad - \quad \quad \quad 10.02 \quad \times \quad \quad \quad 0.16 \\ &= \quad \quad \quad 0.7 \quad \text{gallons} \end{aligned}$$

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 3 gallons

Sampling Data

Method Peristaltic pump at 500mL per minute

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

pH
Temp. (C)
Spec. Cond. (uS/cm)
Turbidity (NTU)
Dissolved Oxygen (DO)
ORP
Nitrate (mg/L)
Ferrous Iron (mg/L)
Sulfate (mg/L)

1 Volume	2 Volume	3 Volume	Sample
6.85	6.84	6.98	6.62
14.43	14.03	13.88	15.48
5.69	4.43	3.79	3.59
>1000	>1000	>1000	451.0
2.56	0.60	0.29	2.58
-11	-31	-43	-19
-	-	0.0	0.0
-	-	0.0	1.2
-	-	0.0	80

Comments: Sudan IV test was negative. Water was brown in color, turbid. Sample was taken at 1418 on 9/26/02.

WELL SAMPLING RECORD

Site Name EkonoI Facility

Well MW-6S

Samplers Dan Lipp
Andy Janik

Date 9/27/2002

Time 0920

Total Well Depth (TOC) 14.00 feet
Initial Static Water Level (TOC) 10.25 feet
Well Diameter (inches) 2.0

Purging Data

Method Peristaltic pump at 500mL per minute

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 14.00 - 10.25 x 0.16
= 0.6 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 2 gallons

Sampling Data

Method Peristaltic pump at 500mL per minute

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

pH
Temp. (C)
Spec. Cond. (uS/cm)
Turbidity (NTU)
Dissolved Oxygen (DO)
ORP
Nitrate (mg/L)
Ferrous Iron (mg/L)
Sulfate (mg/L)

	1 Volume	2 Volume	3 Volume	Sample
pH	6.11	6.07	6.20	6.22
Temp. (C)	17.81	17.00	16.75	17.01
Spec. Cond. (uS/cm)	6.33	6.39	6.44	6.46
Turbidity (NTU)	23.1	23.7	34.6	16.7
Dissolved Oxygen (DO)	7.34	4.98	5.03	4.90
ORP	146	136	117	122
Nitrate (mg/L)	-	-	0.0	0.0
Ferrous Iron (mg/L)	-	-	0.0	0.0
Sulfate (mg/L)	-	-	80	80

Comments: Sudan IV test was negative. Water was light brown in color. Sample was taken at 0940 on 9/27/02.

WELL SAMPLING RECORD

Site Name Ekonomol Facility

Well MW-7S

Samplers Dan Lipp
Andy Janik

Date 9/27/2002

Time 1000

Total Well Depth (TOC) 12.50 feet
Initial Static Water Level (TOC) 9.46 feet
Well Diameter (inches) 2.0

Purging Data

Method Peristaltic pump at 500mL per minute

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 12.50 - 9.46 x 0.16
= 0.5 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 3 gallons

Sampling Data

Method Peristaltic pump at 500mL per minute

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

pH
Temp. (C)
Spec. Cond. (uS/cm)
Turbidity (NTU)
Dissolved Oxygen (DO)
ORP
Nitrate (mg/L)
Ferrous Iron (mg/L)
Sulfate (mg/L)

1 Volume	2 Volume	3 Volume	Sample
6.18	6.45	6.33	6.74
16.91	17.13	16.40	16.56
5.32	5.28	5.30	5.26
450.0	317.0	>1000	>1000
3.93	5.46	2.16	4.92
123	123	55	30
-	-	NT	NT
-	-	NT	NT
-	-	NT	NT

Comments: Sudan IV test was negative. Water was brown in color, turbid. Sample was taken at 1030 on 9/27/02.

NT = Field parameter not taken due to turbidity of water.

WELL SAMPLING RECORD

Site Name EkonoI Facility

Well MW-8S

Samplers Dan Lipp
Andy Janik

Date 9/27/2002

Time 1135

Total Well Depth (TOC) 13.55 feet
Initial Static Water Level (TOC) 11.65 feet
Well Diameter (inches) 2.0

Purging Data

Method Peristaltic pump at 500mL per minute

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 13.55 - 11.65 x 0.16
= 0.3 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 1 gallons

Sampling Data

Method Peristaltic pump at 500mL per minute

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

pH
Temp. (C)
Spec. Cond. (uS/cm)
Turbidity (NTU)
Dissolved Oxygen (DO)
ORP
Nitrate (mg/L)
Ferrous Iron (mg/L)
Sulfate (mg/L)

1 Volume	2 Volume	3 Volume	Sample
6.42	6.53	6.57	6.51
16.57	16.66	16.51	16.98
7.62	7.67	7.69	7.12
>1000	326.0	>1000	530.0
5.72	2.36	3.00	2.59
29	25	5	-17
-	-	0.0	0.0
-	-	0.4	1.2
-	-	80	80

Comments: Sudan IV test was negative. Water was brown in color, turbid. Sample was taken at 1250 on 9/27/02.

WELL SAMPLING RECORD

Site Name EkonoI Facility

Well MW-9S

Samplers Dan Lipp
Andy Janik

Date 9/27/2002

Time 1315

Total Well Depth (TOC) 14.02 feet
Initial Static Water Level (TOC) 9.98 feet
Well Diameter (inches) 2.0

Purging Data

Method Peristaltic pump at 500mL per minute

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 14.02 - 9.98 x 0.16
= 0.6 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 2 gallons

Sampling Data

Method Peristaltic pump at 500mL per minute

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

pH
Temp. (C)
Spec. Cond. (uS/cm)
Turbidity (NTU)
Dissolved Oxygen (DO)
ORP
Nitrate (mg/L)
Ferrous Iron (mg/L)
Sulfate (mg/L)

	1 Volume	2 Volume	3 Volume	Sample
pH	6.31	6.34	6.27	6.28
Temp. (C)	17.52	17.98	17.29	18.31
Spec. Cond. (uS/cm)	6.54	5.68	7.26	7.01
Turbidity (NTU)	>1000	819.0	>1000	>1000
Dissolved Oxygen (DO)	6.41	6.20	5.76	3.77
ORP	76	99	102	57
Nitrate (mg/L)	-	-	0.0	0.2
Ferrous Iron (mg/L)	-	-	0.0	0.0
Sulfate (mg/L)	-	-	80	80

Comments: Sudan IV test was negative. Water was brown in color, turbid. Sample was taken at 1345 on 9/27/02.

WELL SAMPLING RECORD

Site Name EkonoI Facility

Well MW-1D

Samplers Andy Janik
Jaime Davidson

Date 9/30/2002
Time 0850

Total Well Depth (TOC) 31.76 feet
Initial Static Water Level (TOC) 9.15 feet
Well Diameter (inches) 2.0

Purging Data

Method Peristaltic pump at 500mL per minute

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 31.76 - 9.15 x 0.16
= 3.6 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 12 gallons

Sampling Data

Method Peristaltic pump at 500mL per minute

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

pH
Temp. (C)
Spec. Cond. (uS/cm)
Turbidity (NTU)
Dissolved Oxygen (DO)
ORP
Nitrate (mg/L)
Ferrous Iron (mg/L)
Sulfate (mg/L)

	1 Volume	2 Volume	3 Volume	Sample
pH	7.68	7.78	7.79	7.67
Temp. (C)	19.14	14.55	16.75	15.20
Spec. Cond. (uS/cm)	0.00	2.75	2.85	2.87
Turbidity (NTU)	257.0	31.2	52.3	67.5
Dissolved Oxygen (DO)	11.87	2.11	1.50	1.44
ORP	-175	-240	-252	-242
Nitrate (mg/L)	-	-	4.0	2.0
Ferrous Iron (mg/L)	-	-	0.6	0.7
Sulfate (mg/L)	-	-	80	80

Comments: Sudan IV test was negative. Water was clear. Sample was taken at 1015 on 9/30/02. Duplicate sample was taken from this well.

WELL SAMPLING RECORD

Site Name EkonoI Facility

Well MW-2D

Samplers Andy Janik
Jaime Davidson

Date 10/2/2002

Time 1230

Total Well Depth (TOC) 30.06 feet
Initial Static Water Level (TOC) 9.75 feet
Well Diameter (inches) 2.0

Purging Data

Method Peristaltic pump at 500mL per minute

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 30.06 - 9.75 x 0.16
= 3.2 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 11 gallons

Sampling Data

Method Peristaltic pump at 500mL per minute

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

pH
Temp. (C)
Spec. Cond. (uS/cm)
Turbidity (NTU)
Dissolved Oxygen (DO)
ORP
Nitrate (mg/L)
Ferrous Iron (mg/L)
Sulfate (mg/L)

	1 Volume	2 Volume	3 Volume	Sample
pH	6.75	7.10	7.25	7.38
Temp. (C)	23.53	15.88	15.39	15.23
Spec. Cond. (uS/cm)	0.000	0.000	0.000	0.000
Turbidity (NTU)	217.0	283.0	290.0	289.0
Dissolved Oxygen (DO)	8.36	9.24	8.83	8.52
ORP	-87	-130	-161	-169
Nitrate (mg/L)	-	-	5.0	5.0
Ferrous Iron (mg/L)	-	-	0.0	0.0
Sulfate (mg/L)	-	-	80	80

Comments: Sudan IV test was negative. Water was clear with sheen and odor. Sample was taken at 1415 on 10/2/02.

WELL SAMPLING RECORD

Site Name EkonoI Facility

Well MW-3D

Samplers Andy Janik
Jaime Davidson

Date 9/30/2002

Time 1120

Total Well Depth (TOC) 26.43 feet
Initial Static Water Level (TOC) 9.21 feet
Well Diameter (inches) 2.0

Purging Data

Method Peristaltic pump at 500mL per minute

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 26.43 - 9.21 x 0.16
= 2.8 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 10 gallons

Sampling Data

Method Peristaltic pump at 500mL per minute

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

pH
Temp. (C)
Spec. Cond. (uS/cm)
Turbidity (NTU)
Dissolved Oxygen (DO)
ORP
Nitrate (mg/L)
Ferrous Iron (mg/L)
Sulfate (mg/L)

	1 Volume	2 Volume	3 Volume	Sample
pH	7.55	7.46	7.19	7.30
Temp. (C)	21.06	16.88	17.35	16.62
Spec. Cond. (uS/cm)	2.92	2.97	2.96	2.99
Turbidity (NTU)	74.3	56.9	47.6	47.9
Dissolved Oxygen (DO)	2.38	1.70	1.53	1.40
ORP	-221	-230	-193	-209
Nitrate (mg/L)	-	-	0.0	0.0
Ferrous Iron (mg/L)	-	-	0.8	0.4
Sulfate (mg/L)	-	-	80	80

Comments: Sudan IV test was negative. Water was clear with sheen and odor. Sample was taken at 1330 on 9/30/02.

WELL SAMPLING RECORD

Site Name Ekonomol Facility

Well MW-4D

Samplers Andy Janik
Jaime Davidson

Date 9/30/2002

Time 1400

Total Well Depth (TOC) 28.94 feet
Initial Static Water Level (TOC) 9.27 feet
Well Diameter (inches) 2.0

Purging Data

Method Peristaltic pump at 500mL per minute

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 28.94 - 9.27 x 0.16
= 3.1 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 10 gallons

Sampling Data

Method Peristaltic pump at 500mL per minute

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	7.13	7.27	7.26	7.25
Temp. (C)	19.36	17.37	17.80	16.30
Spec. Cond. (uS/cm)	3.26	3.76	3.79	3.65
Turbidity (NTU)	29.8	28.7	30.0	31.1
Dissolved Oxygen (DO)	2.14	1.23	1.12	0.90
ORP	-176	-218	-217	-219
Nitrate (mg/L)	-	-	1.0	0.2
Ferrous Iron (mg/L)	-	-	0.0	0.0
Sulfate (mg/L)	-	-	80	80

Comments: Sudan IV test was negative. Water was clear with sheen and odor. Sample was taken at 1500 on 9/30/02.

WELL SAMPLING RECORD

Site Name EkonoI Facility

Well MW-10D

Samplers Andy Janik
Jaime Davidson

Date 10/1/2002

Time 1120

Total Well Depth (TOC) 30.93 feet
Initial Static Water Level (TOC) 9.47 feet
Well Diameter (inches) 2.0

Purging Data

Method Peristaltic pump at 500mL per minute

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 30.93 - 9.47 x 0.16
= 3.4 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 11 gallons

Sampling Data

Method Peristaltic pump at 500mL per minute

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

pH
Temp. (C)
Spec. Cond. (uS/cm)
Turbidity (NTU)
Dissolved Oxygen (DO)
ORP
Nitrate (mg/L)
Ferrous Iron (mg/L)
Sulfate (mg/L)

	1 Volume	2 Volume	3 Volume	Sample
pH	8.78	8.48	8.31	8.25
Temp. (C)	20.12	17.87	18.06	17.75
Spec. Cond. (uS/cm)	0.000	0.000	0.004	0.002
Turbidity (NTU)	235.0	235.0	0.0	0.0
Dissolved Oxygen (DO)	10.87	11.05	10.68	10.47
ORP	-191	-167	-147	-142
Nitrate (mg/L)	-	-	0.0	0.0
Ferrous Iron (mg/L)	-	-	1.0	0.9
Sulfate (mg/L)	-	-	80	80

Comments: Sudan IV test was negative. Water was clear with slight sheen. Sample was taken at 1345 on 10/1/02.

WELL SAMPLING RECORD

Site Name Ekono1 Facility

Well MW-11D

Samplers Andy Janik
Jaime Davidson

Date 10/1/2002
Time 0835

Total Well Depth (TOC) 30.91 feet
Initial Static Water Level (TOC) 12.31 feet
Well Diameter (inches) 2.0

Purging Data

Method Peristaltic pump at 500mL per minute

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 30.91 - 12.31 x 0.16
= 3.0 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 10 gallons

Sampling Data

Method Peristaltic pump at 500mL per minute

Parameters	Bottle	Pres.	Method
<u>TCE; 1,2-DCE;</u>	<u>2-40ml vials</u>	<u>HCl</u>	<u>8260</u>
<u>1,1-DCA; 1,1,1-TCA</u>			
<u>phenol & aniline</u>	<u>2-1L amber bottles</u>	<u>-</u>	<u>8270</u>
<u>Zn & Pb</u>	<u>1- 4 oz. Plastic bottle</u>	<u>HNO₃</u>	<u>6010B</u>

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	6.14	5.87	6.92	6.94
Temp. (C)	16.55	13.75	13.22	13.17
Spec. Cond. (uS/cm)	3.830	3.630	3.690	3.690
Turbidity (NTU)	30.2	24.8	28.7	28.0
Dissolved Oxygen (DO)	2.69	2.29	2.32	2.60
ORP	2	-9	-132	-146
Nitrate (mg/L)	-	-	3.0	4.0
Ferrous Iron (mg/L)	-	-	0.0	0.2
Sulfate (mg/L)	-	-	80	80

Comments: Sudan IV test was negative. Water was clear. Sample was taken at 0930 on 10/1/02.

WELL SAMPLING RECORD

Site Name EkonoI Facility Well MW-12D
 Samplers Andy Janik Date 10/1/2002
Jaime Davidson Time 1400

Total Well Depth (TOC) 32.22 feet
 Initial Static Water Level (TOC) 9.85 feet
 Well Diameter (inches) 2.0

Purging Data

Method Peristaltic pump at 500mL per minute

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
 = 32.22 - 9.85 x 0.16
 = 3.6 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 12 gallons

Sampling Data

Method Peristaltic pump at 500mL per minute

Parameters	Bottle	Pres.	Method
<u>TCE; 1,2-DCE;</u>	<u>2-40ml vials</u>	<u>HCl</u>	<u>8260</u>
<u>1,1-DCA; 1,1,1-TCA</u>			
<u>phenol & aniline</u>	<u>2-1L amber bottles</u>	<u>-</u>	<u>8270</u>
<u>Zn & Pb</u>	<u>1- 4 oz. Plastic</u>	<u>HNO₃</u>	<u>6010B</u>
	<u>bottle</u>		

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	8.53	8.09	8.68	8.83
Temp. (C)	26.88	20.82	20.23	19.99
Spec. Cond. (uS/cm)	0.001	0.000	0.000	0.000
Turbidity (NTU)	230.0	261.0	89.4	177.0
Dissolved Oxygen (DO)	8.74	8.25	7.82	7.02
ORP	-203	-248	-277	-298
Nitrate (mg/L)	-	-	5.2	5.3
Ferrous Iron (mg/L)	-	-	0.0	0.0
Sulfate (mg/L)	-	-	80	80

Comments: Sudan IV test was negative. Water was light gray in color. Sample was taken at 1515 on 10/1/02.

WELL SAMPLING RECORD

Site Name EkonoI Facility

Well MW-13D

Samplers Andy Janik
Jaime Davidson

Date 10/1/2002
Time 1000

Total Well Depth (TOC) 31.64 feet
Initial Static Water Level (TOC) 12.62 feet
Well Diameter (inches) 2.0

Purging Data

Method Peristaltic pump at 500mL per minute

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 31.64 - 12.62 x 0.16
= 3.0 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 10 gallons

Sampling Data

Method Peristaltic pump at 500mL per minute

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

pH
Temp. (C)
Spec. Cond. (uS/cm)
Turbidity (NTU)
Dissolved Oxygen (DO)
ORP
Nitrate (mg/L)
Ferrous Iron (mg/L)
Sulfate (mg/L)

	1 Volume	2 Volume	3 Volume	Sample
pH	4.98	5.02	5.27	5.09
Temp. (C)	17.83	15.25	15.11	14.94
Spec. Cond. (uS/cm)	0.000	0.000	0.000	0.000
Turbidity (NTU)	241.0	249.0	249.0	249.0
Dissolved Oxygen (DO)	11.49	10.80	10.54	10.34
ORP	118	110	51	66
Nitrate (mg/L)	-	-	0.0	0.0
Ferrous Iron (mg/L)	-	-	0.6	0.6
Sulfate (mg/L)	-	-	80	80

Comments: Sudan IV test was negative. Water was clear. Sample was taken at 1115 on 10/1/02.

Phase II

November 2002

WELL SAMPLING RECORD

Site Name EkonoI Facility Well ID MW-1S

Samplers Andy Janik
Dan Lipp

Total Well Depth (TOC) 14.75 feet
Initial Static Water Level (TOC) 7.15 feet
Well Diameter 2.0 inches

Purging Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/5/02 - 1245

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 14.75 - 7.15 x 0.16
= 1.2 gallons

Casing Volumes (gal./ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 4 gallons

Sampling Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/5/02 - 1320

Parameters	Bottle	Pres.	Method
<u>TCE; 1,2-DCE;</u>	<u>2-40ml vials</u>	<u>HCl</u>	<u>8260</u>
<u>1,1-DCA; 1,1,1-TCA</u>			
<u>phenol & aniline</u>	<u>2-1L amber bottles</u>	<u>-</u>	<u>8270</u>
<u>Zn & Pb</u>	<u>1- 4 oz. Plastic bottle</u>	<u>HNO₃</u>	<u>6010B</u>

Field Parameters

pH
Temp. (F)
Spec. Cond. (uS/cm)
Turbidity (NTU)
Dissolved Oxygen (DO)
ORP
Nitrate (mg/L)
Ferrous Iron (mg/L)
Sulfate (mg/L)

1 Volume	2 Volume	3 Volume	Sample
7.39	7.11	7.10	7.11
58.3	60.4	60.3	59.5
4.83	4.02	4.00	4.00
>1,000	48.6	0	0
2.32	0.39	0.33	0.29
-146	-117	-97	-97
-	-	0.0	0.0
-	-	0.6	0.6
-	-	80	80

Comments: Water was clear, Sudan IV test was negative

WELL SAMPLING RECORD

Site Name Ekono1 Facility Well ID MW-2S

Samplers Andy Janik
Dan Lipp

Total Well Depth (TOC) 11.95 feet
Initial Static Water Level (TOC) 4.05 feet
Well Diameter 2.0 inches

Purging Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/6/02 - 1520

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 11.95 - 4.05 x 0.16
= 1.3 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 4 gallons

Sampling Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/7/02 - 0945

Parameters	Bottle	Pres.	Method
<i>TCE; 1,2-DCE;</i>	<i>2-40ml vials</i>	<i>HCl</i>	<i>8260</i>
<i>1,1-DCA; 1,1,1-TCA</i>			
<i>phenol & aniline</i>	<i>2-1L amber bottles</i>	<i>-</i>	<i>8270</i>
<i>Zn & Pb</i>	<i>1- 4 oz. Plastic bottle</i>	<i>HNO₃</i>	<i>6010B</i>

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	6.47	6.43	6.49	6.49
Temp. (F)	60.8	61.7	61.5	60.8
Spec. Cond. (uS/cm)	5.34	5.40	5.49	5.47
Turbidity (NTU)	35.8	3.4	13.3	0
Dissolved Oxygen (DO)	2.55	0.26	1.98	2.01
ORP	-48	-111	-81	-52
Nitrate (mg/L)	-	-	0.0	0.0
Ferrous Iron (mg/L)	-	-	3.3	3.4
Sulfate (mg/L)	-	-	80	80

Comments: Water was clear, Sudan IV test was negative

WELL SAMPLING RECORD

Site Name Ekono1 Facility Well ID MW-3S

Samplers Andy Janik
Dan Lipp

Total Well Depth (TOC) 12.02 feet
Initial Static Water Level (TOC) 7.42 feet
Well Diameter 2.0 inches

Purging Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/5/02 - 0835

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 12.02 - 7.42 x 0.16
= 0.7 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 3 gallons

Sampling Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/5/02 - 0915

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	7.10	6.90	7.08	7.08
Temp. (F)	61.7	62.1	60.8	60.4
Spec. Cond. (uS/cm)	3.94	3.57	4.07	4.18
Turbidity (NTU)	61.2	8.5	0	9.1
Dissolved Oxygen (DO)	0.39	0.21	0.17	0.18
ORP	-127	-112	-147	-140
Nitrate (mg/L)	-	-	0.0	0.0
Ferrous Iron (mg/L)	-	-	3.0	3.3
Sulfate (mg/L)	-	-	80	80

Comments: Water was clear, Sudan IV test was negative

WELL SAMPLING RECORD

Site Name Ekono1 Facility Well ID MW-4S

Samplers Andy Janik
Dan Lipp

Total Well Depth (TOC) 12.45 feet
Initial Static Water Level (TOC) 9.52 feet
Well Diameter 2.0 inches

Purging Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/5/02 - 1510

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 12.45 - 9.52 x 0.16
= 0.5 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 2 gallons

Sampling Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/5/02 - 1540

Parameters	Bottle	Pres.	Method
<u>TCE; 1,2-DCE;</u>	<u>2-40ml vials</u>	<u>HCl</u>	<u>8260</u>
<u>1,1-DCA; 1,1,1-TCA</u>			
<u>phenol & aniline</u>	<u>2-1L amber bottles</u>	<u>-</u>	<u>8270</u>
<u>Zn & Pb</u>	<u>1- 4 oz. Plastic bottle</u>	<u>HNO₃</u>	<u>6010B</u>

Field Parameters

pH
Temp. (F)
Spec. Cond. (uS/cm)
Turbidity (NTU)
Dissolved Oxygen (DO)
ORP
Nitrate (mg/L)
Ferrous Iron (mg/L)
Sulfate (mg/L)

	1 Volume	2 Volume	3 Volume	Sample
pH	6.82	6.70	6.67	6.68
Temp. (F)	62.1	62.6	62.1	60.8
Spec. Cond. (uS/cm)	6.89	6.69	6.87	6.77
Turbidity (NTU)	>1,000	179	399	101
Dissolved Oxygen (DO)	3.63	0.40	0.21	0.23
ORP	-160	-160	-211	-243
Nitrate (mg/L)	-	-	0.0	1.0
Ferrous Iron (mg/L)	-	-	0.8	0.6
Sulfate (mg/L)	-	-	80	80

Comments: Water was clear, Sudan IV test was negative

WELL SAMPLING RECORD

Site Name Ekono1 Facility Well ID MW-5S

Samplers Andy Janik
Dan Lipp

Total Well Depth (TOC) 14.44 feet
Initial Static Water Level (TOC) 9.33 feet
Well Diameter 2.0 inches

Purging Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/4/02 - 1225

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 14.44 - 9.33 x 0.16
= 0.8 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 3 gallons

Sampling Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/4/02 - 1320

Parameters	Bottle	Pres.	Method
<u>TCE; 1,2-DCE;</u>	<u>2-40ml vials</u>	<u>HCl</u>	<u>8260</u>
<u>1,1-DCA; 1,1,1-TCA</u>			
<u>phenol & aniline</u>	<u>2-1L amber bottles</u>	<u>-</u>	<u>8270</u>
<u>Zn & Pb</u>	<u>1- 4 oz. Plastic bottle</u>	<u>HNO₃</u>	<u>6010B</u>

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	7.12	6.97	6.97	6.97
Temp. (F)	56.1	56.5	55.9	55.9
Spec. Cond. (uS/cm)	4.28	3.76	2.78	2.73
Turbidity (NTU)	488	235	35.2	42.3
Dissolved Oxygen (DO)	4.52	0.40	0.18	0.00
ORP	-42	-45	-60	-57
Nitrate (mg/L)	-	-	0.0	0.9
Ferrous Iron (mg/L)	-	-	0.8	0.8
Sulfate (mg/L)	-	-	80	80

Comments: Water was light brown in color, Sudan IV test was negative

WELL SAMPLING RECORD

Site Name Ekono1 Facility Well ID MW-6S

Samplers Andy Janik
Dan Lipp

Total Well Depth (TOC) 14.03 feet
Initial Static Water Level (TOC) 8.39 feet
Well Diameter 2.0 inches

Purging Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/5/02 - 0920

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 14.03 - 8.39 x 0.16
= 0.9 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 3 gallons

Sampling Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/5/02 - 1000

Parameters	Bottle	Pres.	Method
<u>TCE; 1,2-DCE;</u>	<u>2-40ml vials</u>	<u>HCl</u>	<u>8260</u>
<u>1,1-DCA; 1,1,1-TCA</u>			
<u>phenol & aniline</u>	<u>2-1L amber bottles</u>	<u>-</u>	<u>8270</u>
<u>Zn & Pb</u>	<u>1- 4 oz. Plastic bottle</u>	<u>HNO₃</u>	<u>6010B</u>

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	6.68	6.72	6.69	6.68
Temp. (F)	59.7	62.4	61.7	61.5
Spec. Cond. (uS/cm)	5.78	5.79	5.79	5.95
Turbidity (NTU)	716	17.6	10.3	6.2
Dissolved Oxygen (DO)	2.32	0.56	0.36	0.32
ORP	-14	74	59	50
Nitrate (mg/L)	-	-	0.0	0.0
Ferrous Iron (mg/L)	-	-	0.8	0.7
Sulfate (mg/L)	-	-	80	80

Comments: Water was clear, Sudan IV test was negative

WELL SAMPLING RECORD

Site Name Ekono1 Facility Well ID MW-7S

Samplers Andy Janik
Dan Lipp

Total Well Depth (TOC) 12.50 feet
Initial Static Water Level (TOC) 7.89 feet
Well Diameter 2.0 inches

Purging Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/4/02 - 1500

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 12.50 - 7.89 x 0.16
= 0.7 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 2.5 gallons

Sampling Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/4/02 - 1540

Parameters	Bottle	Pres.	Method
<i>TCE; 1,2-DCE;</i>	<i>2-40ml vials</i>	<i>HCl</i>	<i>8260</i>
<i>1,1-DCA; 1,1,1-TCA</i>			
<i>phenol & aniline</i>	<i>2-1L amber bottles</i>	<i>-</i>	<i>8270</i>
<i>Zn & Pb</i>	<i>1- 4 oz. Plastic bottle</i>	<i>HNO₃</i>	<i>6010B</i>

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	6.75	6.66	6.70	6.71
Temp. (F)	61.2	62.4	61.2	60.8
Spec. Cond. (uS/cm)	4.89	4.86	4.90	4.93
Turbidity (NTU)	63.7	122	80.1	88.0
Dissolved Oxygen (DO)	4.32	1.74	2.60	3.44
ORP	70	89	86	87
Nitrate (mg/L)	-	-	0.0	0.0
Ferrous Iron (mg/L)	-	-	0.0	0.0
Sulfate (mg/L)	-	-	80	80

Comments: Water was clear, Sudan IV test was negative

WELL SAMPLING RECORD

Site Name Ekono1 Facility Well ID MW-8S

Samplers Andy Janik
Dan Lipp

Total Well Depth (TOC) 13.65 feet
Initial Static Water Level (TOC) 9.58 feet
Well Diameter 2.0 inches

Purging Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/4/02 - 1220

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 13.65 - 9.58 x 0.16
= 0.7 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 2.5 gallons

Sampling Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/4/02 - 1400

Parameters	Bottle	Pres.	Method
<u>TCE; 1,2-DCE;</u>	<u>2-40ml vials</u>	<u>HCl</u>	<u>8260</u>
<u>1,1-DCA; 1,1,1-TCA</u>			
<u>phenol & aniline</u>	<u>2-1L amber bottles</u>	<u>-</u>	<u>8270</u>
<u>Zn & Pb</u>	<u>1- 4 oz. Plastic bottle</u>	<u>HNO₃</u>	<u>6010B</u>

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	-	-	6.67	6.70
Temp. (F)	59.6	58.5	60.6	61.3
Spec. Cond. (uS/cm)	10.22	10.75	6.89	6.80
Turbidity (NTU)	-	-	1.5	1.6
Dissolved Oxygen (DO)	-	-	1.89	1.40
ORP	-	-	53	65
Nitrate (mg/L)	-	-	0.0	0.0
Ferrous Iron (mg/L)	-	-	0.5	0.5
Sulfate (mg/L)	-	-	80	80

Comments: Water was light brown in color, Sudan IV test was negative

WELL SAMPLING RECORD

Site Name EkonoI Facility Well ID MW-9S

Samplers Andy Janik
Dan Lipp

Total Well Depth (TOC) 14.00 feet
Initial Static Water Level (TOC) 9.62 feet
Well Diameter 2.0 inches

Purging Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/4/02 - 1420

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 14.00 - 9.62 x 0.16
= 0.7 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 3 gallons

Sampling Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/4/02 - 1445

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	6.57	6.58	6.58	6.68
Temp. (F)	60.8	63.7	63.0	60.6
Spec. Cond. (uS/cm)	6.97	6.87	6.82	6.36
Turbidity (NTU)	399	99.1	518	286
Dissolved Oxygen (DO)	2.40	0.64	6.07	0.29
ORP	3	-3	-29	-28
Nitrate (mg/L)	-	-	0.0	0.0
Ferrous Iron (mg/L)	-	-	0.6	1.0
Sulfate (mg/L)	-	-	80	80

Comments: Water was clear, Sudan IV test was negative

WELL SAMPLING RECORD

Site Name Ekono1 Facility Well ID MW-1D

Samplers Andy Janik
Dan Lipp

Total Well Depth (TOC) 31.60 feet
Initial Static Water Level (TOC) 9.45 feet
Well Diameter 2.0 inches

Purging Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/5/02 - 1325

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 31.60 - 9.45 x 0.16
= 3.5 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 11 gallons

Sampling Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/5/02 - 1445

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	6.82	6.88	6.89	6.90
Temp. (F)	55.9	56.3	56.3	56.3
Spec. Cond. (uS/cm)	3.09	2.64	2.58	2.57
Turbidity (NTU)	48.5	11.4	0.3	0
Dissolved Oxygen (DO)	5.24	0.00	0.00	0.00
ORP	-298	-312	-306	-306
Nitrate (mg/L)	-	-	4.0	4.0
Ferrous Iron (mg/L)	-	-	0.8	0.8
Sulfate (mg/L)	-	-	80	80

Comments: Water was clear, Sudan IV test was negative

WELL SAMPLING RECORD

Site Name EkonoI Facility Well ID MW-2D

Samplers Andy Janik
Dan Lipp

Total Well Depth (TOC) 29.85 feet
Initial Static Water Level (TOC) 9.60 feet
Well Diameter 2.0 inches

Purging Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/7/02 - 1240

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 29.85 - 9.60 x 0.16
= 3.2 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5	10 inch	4		

Volume of Purge Water Removed 10 gallons

Sampling Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/7/02 - 1400

Parameters	Bottle	Pres.	Method
<i>TCE; 1,2-DCE;</i>	<i>2-40ml vials</i>	<i>HCl</i>	<i>8260</i>
<i>1,1-DCA; 1,1,1-TCA</i>			
<i>phenol & aniline</i>	<i>2-1L amber bottles</i>	<i>-</i>	<i>8270</i>
<i>Zn & Pb</i>	<i>1- 4 oz. Plastic bottle</i>	<i>HNO₃</i>	<i>6010B</i>

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	6.77	6.80	6.83	6.86
Temp. (F)	58.6	58.5	58.6	58.6
Spec. Cond. (uS/cm)	3.06	3.36	3.18	2.88
Turbidity (NTU)	85.4	85.2	335	365
Dissolved Oxygen (DO)	5.16	0.13	0.00	0.02
ORP	-293	-344	-344	-336
Nitrate (mg/L)	-	-	6.5	7.0
Ferrous Iron (mg/L)	-	-	0.0	0.3
Sulfate (mg/L)	-	-	80	80

Comments: Water was clear, Sudan IV test was negative
Approximately 0.9' of DNAPL in well sump, with 0.5' of separate phase liquid above
DNAPL layer. Positive Sudan IV test on product.

WELL SAMPLING RECORD

Site Name Ekonomol Facility Well ID MW-3D

Samplers Andy Janik
Dan Lipp

Total Well Depth (TOC) 26.50 feet
Initial Static Water Level (TOC) 9.38 feet
Well Diameter 2.0 inches

Purging Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/7/02 - 0955

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 26.50 - 9.38 x 0.16
= 2.7 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 9 gallons

Sampling Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/7/02 - 1130

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE;	2-40ml vials	HCl	8260
1,1-DCA; 1,1,1-TCA			
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	8.55	6.90	6.91	6.29
Temp. (F)	59.2	58.8	59.0	58.8
Spec. Cond. (uS/cm)	0.60	2.63	2.68	2.62
Turbidity (NTU)	54.2	16.2	2.0	0
Dissolved Oxygen (DO)	2.97	0.08	0.02	0.04
ORP	-228	-284	-285	-276
Nitrate (mg/L)	-	-	0.0	0.0
Ferrous Iron (mg/L)	-	-	0.6	0.7
Sulfate (mg/L)	-	-	80	80

Comments: Water was clear, Sudan IV test was negative
Approximately one foot of black, discolored water in well sump

WELL SAMPLING RECORD

Site Name Ekono1 Facility Well ID MW-4D

Samplers Andy Janik
Dan Lipp

Total Well Depth (TOC) 28.80 feet
Initial Static Water Level (TOC) 9.08 feet
Well Diameter 2.0 inches

Purging Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/6/02 - 1240

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 28.80 - 9.08 x 0.16
= 3.2 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 10 gallons

Sampling Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/6/02 - 1355

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE;	2-40ml vials	HCl	8260
1,1-DCA; 1,1,1-TCA			
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

pH
Temp. (F)
Spec. Cond. (uS/cm)
Turbidity (NTU)
Dissolved Oxygen (DO)
ORP
Nitrate (mg/L)
Ferrous Iron (mg/L)
Sulfate (mg/L)

1 Volume	2 Volume	3 Volume	Sample
7.05	6.78	6.82	6.83
59.5	59.5	59.5	59.4
3.02	4.01	3.45	3.32
109	11.9	0	0
5.70	2.85	0.01	0.00
-152	-273	-285	-283.00
-	-	0.0	0.0
-	-	0.0	0.0
-	-	80	80

Comments: Water was clear, Sudan IV test was negative
Approximately one foot of black, discolored water in well sump

WELL SAMPLING RECORD

Site Name EkonoI Facility Well ID MW-10D

Samplers Andy Janik
Dan Lipp

Total Well Depth (TOC) 30.80 feet
Initial Static Water Level (TOC) 9.05 feet
Well Diameter 2.0 inches

Purging Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/6/02 - 1030

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 30.80 - 9.05 x 0.16
= 3.5 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 11 gallons

Sampling Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/6/02 - 1145

Parameters	Bottle	Pres.	Method
<u>TCE; 1,2-DCE;</u>	<u>2-40ml vials</u>	<u>HCl</u>	<u>8260</u>
<u>1,1-DCA; 1,1,1-TCA</u>			
<u>phenol & aniline</u>	<u>2-1L amber bottles</u>	<u>-</u>	<u>8270</u>
<u>Zn & Pb</u>	<u>1- 4 oz. Plastic bottle</u>	<u>HNO₃</u>	<u>6010B</u>

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	6.86	6.89	6.88	6.87
Temp. (F)	59.7	60.3	60.4	60.1
Spec. Cond. (uS/cm)	2.78	2.49	2.47	2.47
Turbidity (NTU)	208	13.5	0	0
Dissolved Oxygen (DO)	3.75	0.02	0.00	0.00
ORP	-293	-289	-283	-280
Nitrate (mg/L)	-	-	2.5	1.0
Ferrous Iron (mg/L)	-	-	0.9	0.8
Sulfate (mg/L)	-	-	80	80

Comments: Water was clear, Sudan IV test was negative
Approximately one foot of black, discolored water in well sump

WELL SAMPLING RECORD

Site Name EkonoI Facility Well ID MW-11D

Samplers Andy Janik
Dan Lipp

Total Well Depth (TOC) 30.75 feet
Initial Static Water Level (TOC) 12.45 feet
Well Diameter 2.0 inches

Purging Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/5/02 - 1005

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 30.75 - 12.45 x 0.16
= 2.9 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 9 gallons

Sampling Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/5/02 - 1115

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	6.96	6.83	6.82	6.83
Temp. (F)	53.8	53.9	53.9	53.8
Spec. Cond. (uS/cm)	3.18	3.29	3.29	3.26
Turbidity (NTU)	39.0	1.4	11.7	14.7
Dissolved Oxygen (DO)	2.84	0.00	0.30	0.00
ORP	-220	-276	-287	-290
Nitrate (mg/L)	-	-	5.0	5.0
Ferrous Iron (mg/L)	-	-	0.4	0.3
Sulfate (mg/L)	-	-	80	80

Comments: Water was clear, Sudan IV test was negative

WELL SAMPLING RECORD

Site Name EkonoI Facility Well ID MW-12D

Samplers Andy Janik
Dan Lipp

Total Well Depth (TOC) 32.10 feet
Initial Static Water Level (TOC) 9.89 feet
Well Diameter 2.0 inches

Purging Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/4/02 - 0930

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 32.10 - 9.89 x 0.16
= 3.6 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 11 gallons

Sampling Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/4/02 - 1115

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

	1 Volume	2 Volume	3 Volume	Sample
pH	6.81	6.76	6.79	6.80
Temp. (F)	65.3	65.5	65.5	63.9
Spec. Cond. (uS/cm)	3.15	3.00	2.98	2.99
Turbidity (NTU)	111	389	>1,000	505
Dissolved Oxygen (DO)	0.76	0.19	0.15	0.14
ORP	-292	-335	-342	-338
Nitrate (mg/L)	-	-	0.0	4.8
Ferrous Iron (mg/L)	-	-	0.2	0.2
Sulfate (mg/L)	-	-	80	80

Comments: Water was clear to light gray in color, Sudan IV test was negative
Duplicate sample taken from this well

WELL SAMPLING RECORD

Site Name EkonoI Facility Well ID MW-13D

Samplers Andy Janik
Dan Lipp

Total Well Depth (TOC) 31.60 feet
Initial Static Water Level (TOC) 11.72 feet
Well Diameter 2.0 inches

Purging Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/6/02 - 0835

Water Volume = (Total Depth of Well - Depth To Water) x Casing Volume per Foot
= 31.60 - 11.72 x 0.16
= 3.2 gallons

Casing Volumes (gal/ft.):					
1-inch	0.041	1.5-inch	0.092	2-inch	0.16
3-inch	0.36	4-inch	0.64	6-inch	1.4
8-inch	2.5			10 inch	4

Volume of Purge Water Removed 10 gallons

Sampling Data

Method Peristaltic Pump @ 500 mL/min. Date/Time 11/6/02 - 1010

Parameters	Bottle	Pres.	Method
TCE; 1,2-DCE; 1,1-DCA; 1,1,1-TCA	2-40ml vials	HCl	8260
phenol & aniline	2-1L amber bottles	-	8270
Zn & Pb	1- 4 oz. Plastic bottle	HNO ₃	6010B

Field Parameters

pH
Temp. (F)
Spec. Cond. (uS/cm)
Turbidity (NTU)
Dissolved Oxygen (DO)
ORP
Nitrate (mg/L)
Ferrous Iron (mg/L)
Sulfate (mg/L)

	1 Volume	2 Volume	3 Volume	Sample
pH	7.32	6.97	6.99	7.00
Temp. (F)	55.0	55.6	55.4	54.7
Spec. Cond. (uS/cm)	2.56	2.58	2.58	2.60
Turbidity (NTU)	75.7	0	0	0
Dissolved Oxygen (DO)	3.68	0.01	0.00	0.00
ORP	-112	-204	-222	-228
Nitrate (mg/L)	-	-	0.0	0.0
Ferrous Iron (mg/L)	-	-	0.6	0.5
Sulfate (mg/L)	-	-	80	80

Comments: Water was clear, Sudan IV test was negative

