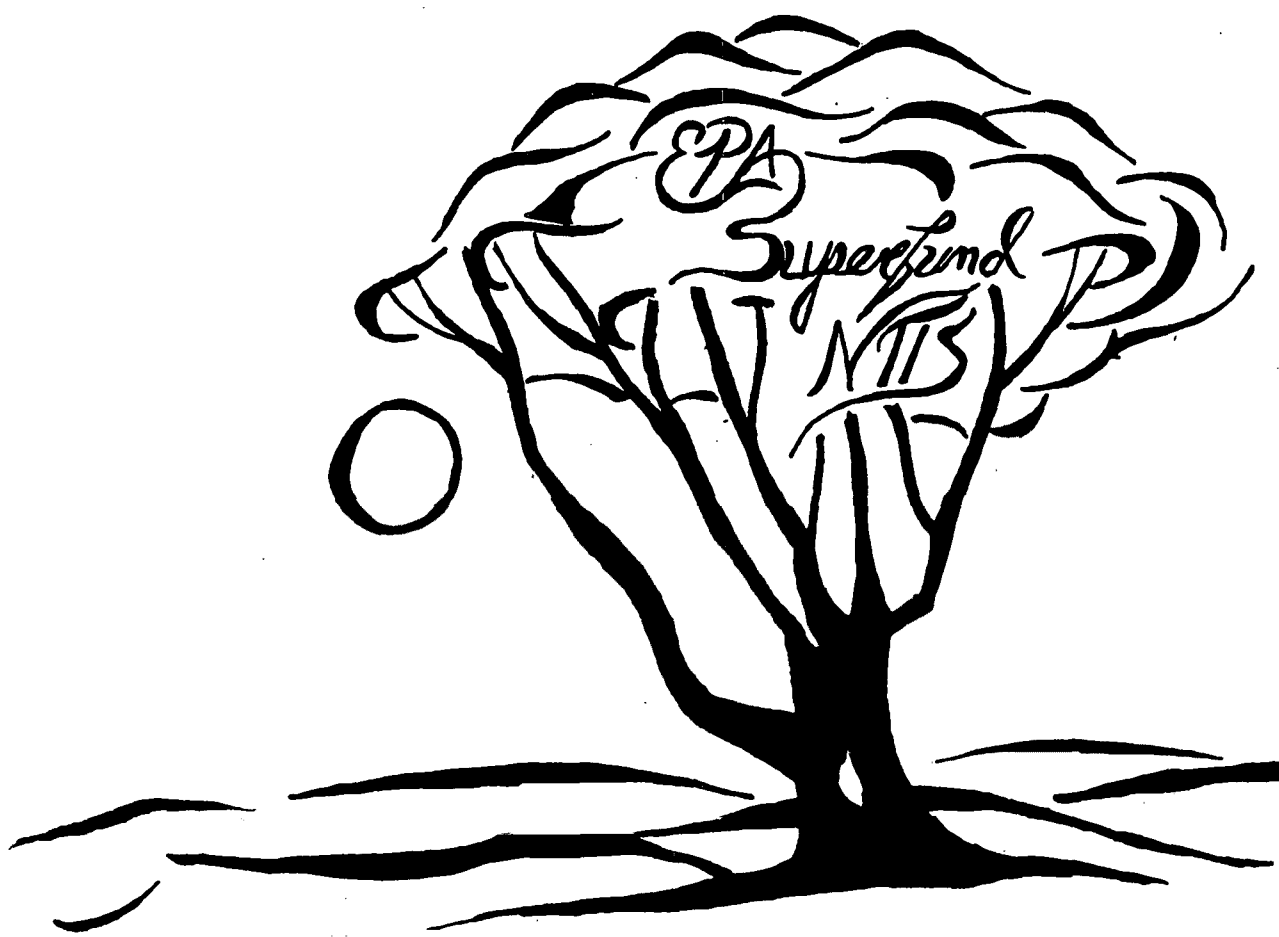
PB94-963837
EPA/ROD/R02-94/232
January 1995

# EPA Superfund Record of Decision:

## Circuitron Corporation, East Farmingdale, NY 9/30/1994



# RECORD OF DECISION FACT SHEET
# EPA REGION II

**Site:**

| | |
|---|---|
| Site name: | Circuitron Corporation |
| Site location: | East Farmingdale, Suffolk County, New York |
| HRS score: | 54.27 (May 1987) |
| Listed on the NPL: | March 30, 1989 |

**Record of Decision:**

| | |
|---|---|
| Date signed: | September 30, 1994 |
| Selected remedy: | Groundwater pumping; groundwater treatment using aeration, coagulation, flocculation, sedimentation, air stripping, and vapor-phase and liquid-phase granular activated carbon; and reinjection of treated groundwater via an infiltration gallery |
| Operable Unit No.: | OU-2 |
| Est. construction completion: | June 1997 |
| Capital cost: | $1,963,000 (in 1994 dollars) |
| Annual O & M cost: | $675,000 (in 1994 dollars) |
| Present worth cost: | $6,492,000 (in 1994 dollars - 8% discount rate for 10 years) |

**Lead:**

| | |
|---|---|
| Lead Agency: | U.S. EPA - Remedial |
| Primary contact: | Lorenzo Thantu, RPM, (212) 264-2719 |
| Secondary contact: | Doug Garbarini, Sec.Chief (212) 264-0109 |
| Main PRP: | Not Applicable |

**Waste:**

| | |
|---|---|
| Waste type: | metals (e.g., copper and chromium) and volatile organics (e.g., 1,1,1-trichloroethane and 1,1-dichloroethene) |
| Waste origin: | Circuitron Corporation facility |
| Estimated waste quantity: | approximately $5.3856 \times 10^7$ gallons of contaminated groundwater |
| Contaminated medium: | groundwater |

# RECORD OF DECISION

Circuitron Corporation

East Farmingdale, Suffolk County, New York

United States Environmental Protection Agency
Region II
New York, New York
September 1994

# DECLARATION FOR THE RECORD OF DECISION

## SITE NAME AND LOCATION

Circuitron Corporation

East Farmingdale, Suffolk County, New York

## STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) documents the selection by the U.S. Environmental Protection Agency (EPA) of the remedial action for the Circuitron Corporation site (Site) in accordance with the requirements of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. §9601 et seq. and to the extent practicable the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 Code of Federal Regulations (C.F.R.) Part 300. An administrative record for the Site, established pursuant to the NCP, 40 C.F.R. §300.800, contains the documents that form the basis for EPA's selection of the remedial action (see Appendix III).

The New York State Department of Environmental Conservation (NYSDEC) has been consulted on the planned remedial action in accordance with CERCLA §121(f), 42 U.S.C. §9621(f), and it concurs with the selected remedy (see Appendix IV).

## ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

## DESCRIPTION OF THE SELECTED REMEDY

This operable unit represents the second of two planned for the Site. It addresses the treatment of groundwater in the immediate vicinity of the property, in the contaminant plume in the upper 40 feet of the saturated Upper Glacial aquifer and laterally extending to approximately 700 feet downgradient of the Circuitron property. The Upper Glacial aquifer is contaminated with inorganic and volatile organic compounds. The selected groundwater remedy constitutes the final action planned for the Site. The ROD for the first operable unit remedy was issued on March 29, 1991 and addressed the remediation of organic and inorganic contamination in soils and sediments at the Site.

The major components of the selected remedy include:

- extraction of the Site-related groundwater contaminant plume present in the upper 40 feet of the saturated Upper Glacial aquifer;
- treatment, via metal precipitation and air stripping, of contaminated groundwater to drinking water standards;
- reinjection of the treated groundwater into the Upper Glacial aquifer via an infiltration gallery; and
- disposal of treatment residuals at a RCRA Subtitle C facility.

**DECLARATION OF STATUTORY DETERMINATIONS**

The selected remedy meets the requirements for remedial actions set forth in CERCLA §121, 42 U.S.C. §9621: (1) it is protective of human health and the environment; (2) it achieves a level or standard of control of the hazardous substances, pollutants, and contaminants, which at least attains the legally applicable or relevant and appropriate requirements (ARARs) under Federal and State laws; (3) it is cost-effective; (4) it utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable; and (5) it satisfies the statutory preference for remedies that employ treatment to reduce the toxicity, mobility, or volume of the hazardous substances, pollutants or contaminants at the Site.

A five-year review of the remedial action pursuant to CERCLA §121(c), 42 U.S.C. §9621(c), will not be necessary, because this remedy will not result in hazardous substances remaining on-Site above health-based levels, once its remediation goals have been achieved.

Jeanne M. Fox
Jeanne M. Fox
Regional Administrator

9/30/94
Date

# RECORD OF DECISION
# DECISION SUMMARY

Circuitron Corporation

East Farmingdale, Suffolk County, New York

United States Environmental Protection Agency
Region II
New York, New York
September 1994

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## SITE NAME, LOCATION AND DESCRIPTION

The Circuitron Corporation site (Site) is located at 82 Milbar Boulevard, East Farmingdale, Suffolk County, New York. The Site is situated near the Nassau County-Suffolk County border in central Long Island. The Site encompasses approximately 1 acre in an industrial/commercial area just east of Route 110 and the State University of New York Agricultural and Technical College campus in Farmingdale (**Figure 1**). The Site is surrounded by similar small manufacturers and is several miles away from any residential area. Except for the State University, there are no schools or any recreational facilities in the immediate vicinity.

The Circuitron Corporation site consists of an abandoned 23,500 square foot building that was used between 1961 and 1986 for the manufacture of electronic circuit boards. Approximately 95% of the Site property is paved or covered by the building. A small area behind the building is not paved. The paved area in front of the building had been used as a parking lot for the employees of Circuitron Corporation. Presently, the entire Site property is fenced and secured. **Figure 2** shows the Site plan and the location of aboveground and underground structures.

Two leaching pools (LP-5 and LP-6) exist below the concrete floor in the plating room inside the building. A circular depression in the concrete floor towards the front of this room indicates the presence of other leaching pools. These are identified on **Figure 2** as LP-3 and LP-4. Several leaching pools lie beneath the parking lot in the front of the building. One of these pools, which is designated as LP-1, is a wastewater discharge pool which was permitted via the New York State Pollutant Discharge Elimination System (SPDES) program. Two other leaching pools, identified as LP-2 and LP-7, are located in the northeast corner of the Site.

Two sanitary cesspools, CP-1 and CP-2, were identified below the parking area in front of the northwest corner of the building. The sanitary cesspools were permitted to accept sanitary wastes only. However, Suffolk County Department of Health Services (SCDHS) analyses indicated that the cesspools were used for disposal of hazardous materials. A line of interconnected storm drains, SD-1 through SD-3, exists on the western portion of the Site. The storm drains range from 10 feet to approximately 13 feet in depth. Three catch basins (identified as CB in **Figure 2**) are also present at the Site.

The Site is generally flat and has a slight slope up to the southeast of less than 1 percent. The Site elevation is approximately 85 to 90 feet above mean sea level. The Site is located on the outwash plain of Long Island. The uppermost aquifer, the Upper Glacial, is estimated to be 80 feet thick beneath the Site. The depth to the water table is approximately 30 feet below grade. The saturated portion of the Upper Glacial aquifer, with a thickness of 50 feet, begins at the water table and extends down to 80 feet below grade. The Upper Glacial aquifer is

underlain by the Magothy aquifer which is approximately 700 feet thick in the vicinity of the Site.

Nineteen (19) public water supply wells are located within two miles of the Site, of which seventeen (17) are screened in the Magothy aquifer. There are eighteen (18) public water supply wells, irrigation or commercial supply wells within a half-mile radius of the Site and the closest wells are shown on **Figure 1**. The Magothy aquifer is the main aquifer of use within the half-mile radius. The closest public water supply wells located downgradient of the Site are in the East Farmingdale Water District (EFWD) wellfield, approximately 1500 feet south of the Site (**Figure 1**). The shallow well (S-20041) has been closed for several years due to the presence of low concentrations of volatile organic compounds (VOCs). The deeper well (S-20042) is still in operation. A new, not yet operational, public water supply well (S-91611) has been installed by the EFWD and has yet to be permitted for operation. Another EFWD public water supply well (S-39709) is located cross gradient, to the west of the Site. The remaining fourteen (14) wells are all commercial supply wells and are typically used for noncontact cooling water purposes.

**SITE HISTORY AND ENFORCEMENT ACTIVITIES**

Circuitron Corporation was incorporated in New York State in 1961. The company operated a manufacturing facility at the Site between 1961 and 1986.

In 1984, an owner of Circuitron Corporation, Mario Lombardo, was charged for discharging organic solvents to unpermitted "hidden" leaching pools between March 1, 1982 and March 22, 1984. In 1985, Mr. Lombardo pleaded guilty to unlawful dumping of hazardous wastes, under New York State Environmental Conservation Law Section 27, Subsection 09-14. He was fined $50,000 and sentenced to 700 hours of community service.

The Circuitron Corporation had an approved SPDES permit, No. NY-007 5655, to discharge industrial wastewater to a leaching pool (LP-1 on **Figure 2**) located below the former parking area in front of the building. The permit expired on September 12, 1986, as a result of a July 1, 1986 inspection by NYSDEC which indicated that the discharge had ceased.

The facility had received numerous warnings from both the SCDHS and NYSDEC concerning SPDES permit violations and unauthorized discharges. An Order on Consent and a Stipulated Agreement, issued by the SCDHS in 1984 and 1985, respectively, required that all leaching pools and storm drains be remediated; all toxic and hazardous materials be removed from the Site including drums, tanks, and piping; and a groundwater quality study be performed. Circuitron Corporation installed 5 monitoring wells at the Site;

however, there are no engineering or well installation reports available concerning the construction of these wells. In addition, the analytical results from the Circuitron Corporation and the SCDHS groundwater sampling of these wells were not fully in agreement with each other. To date, only the unpermitted leaching pool in the southern part of the plating room has been cleaned out and backfilled. This work was performed by Circuitron Corporation. There are no records available regarding the amount of waste removed from this leaching pool or the existence and the extent of contaminated soil in and around the leaching pool.

Circuitron Corporation ceased operations and vacated the Site some time between May and June 1986, during which time all equipment of value was removed. When Circuitron Corporation informed SCDHS that it would be vacating the facility, SCDHS notified the company that a cleanup of toxic and hazardous materials and a groundwater study would be required. SCDHS also required further off-Site groundwater monitoring. Circuitron Corporation refused to comply with, among others, the off-Site groundwater monitoring requirement, and filed for bankruptcy in 1986.

The current owner of the Site is 82 Milbar Blvd., Inc., a New York corporation incorporated in 1968. 82 Milbar Blvd., Inc. filed for bankruptcy in 1987. Both this and Circuitron Corporation's bankruptcy ended when they were dismissed in 1988.

In 1987, EPA initiated an emergency removal of some of the more than 100 chemical containers and storage tanks on-Site. In 1988, EPA conducted another emergency cleanup action and removed approximately 20 waste drums from inside the building, 3 aboveground tanks from the rear of the building, the contents of 7 underground storage tanks, 2 below-surface treatment basins, and several leaching basins. The cleanup action involved consolidating the various wastes, removing the tanks located at the rear of the property, and removing contaminated debris inside the building. In total, 100 cubic yards of contaminated soil and debris, 50 drums of hazardous liquid, and an additional 2,000 to 3,000 gallons of tanked hazardous liquids were removed and properly disposed of off-Site.

EPA sent three sets of general notice letters to the identified potentially responsible parties (PRPs). The first set was sent to five PRPs on July 24, 1987, requesting that they voluntarily undertake the removal work that EPA ultimately conducted in 1987 and 1988. The second set was sent on August 15, 1988, to the same five PRPs inviting them to conduct a Remedial Investigation and Feasibility Study (RI/FS) at the Site. The third set was sent on March 29, 1991, to fourteen PRPs, including the five original parties, requesting that they finance the Remedial Design and Remedial Action (RD/RA) at the Site and demanding payment of past costs for the Removal Action and the RI/FS. None of the parties

came forward to undertake voluntarily the Removal Action, RI/FS, or the RD/RA.

The Site was proposed for the National Priorities List (NPL) in June 1988 and was listed on the NPL in March 1989.

The first RI/FS of the Site was initiated by EPA in September 1988 and was completed in January 1991. The objectives of this study were to define the nature and extent of contaminants in the Site's surface and subsurface soils, in the groundwater, in sediments in the underground structures, and in the abandoned building. Based on the results of the RI/FS, EPA determined that sufficient information was available to select a source control remedy, but additional data were required before a groundwater remedy could be selected. As a result, EPA issued a source control Record of Decision (ROD) on March 29, 1991 and initiated a second operable unit focused feasibility study (FFS) to obtain the additional data necessary to select a groundwater remedy for the Site.

The 1991 ROD called for: (1) the excavation and off-Site treatment and disposal of the contaminated sediments from the leaching pools, cesspools, and storm drains; (2) in situ (in-place) vacuum extraction of the contaminated soils (which involves placing a cover over the soil and applying a vacuum to pull and collect VOCs out of the spaces between soil particles); (3) building decontamination via vacuuming of metals-contaminated dust and replacement of the concrete floor in the building; and (4) repaving of the entire Site. At the time that the 1991 ROD was issued, EPA and the NYSDEC envisioned decontaminating the building located on the Site property, to allow for unrestricted future use of the building. During the past few years, however, the building has deteriorated and currently poses potential safety hazards. In accordance with CERCLA Section 117(c), as part of the second operable unit Proposed Plan, EPA and the NYSDEC informed the public of the agencies' decision to demolish the building and dispose of the building debris off-Site at an appropriate facility.

The remedial design for the source control remedy is expected to be completed late 1994, followed by the advertisement for and award of construction contracts. The actual construction work is expected to begin in the Spring of 1995.

## HIGHLIGHTS OF COMMUNITY PARTICIPATION

The FFS report and the Proposed Plan for the Site were released to the public for comment on July 26, 1994. These documents were made available to the public in the administrative record file at the EPA Docket Room in Region II, New York and two information repositories maintained at the Farmingdale Public Library and the Town of Babylon Department of Environmental Control. The notice of the public meeting and availability of the above-referenced

documents appeared in the Farmingdale Observer and Newsday newspaper on August 5, 1994. A press release announcing the same was issued on July 26, 1994. The public comment period for review of these documents extended from July 26, 1994 to August 24, 1994.

On August 8, 1994, EPA conducted a public meeting at the East Farmingdale Fire House located at 930 Conklin Street, East Farmingdale, New York, to discuss remedial alternatives, to present EPA's preferred remedial alternative, and to provide an opportunity for the interested parties to present comments and questions to EPA.

EPA received several comments on the FFS and the Proposed Plan at the public meeting; however, no written comments were received during the public comment period. Responses to the comments received at the public meeting are included in the Responsiveness Summary (see Appendix V).

## SCOPE AND ROLE OF OPERABLE UNIT

This operable unit represents the second of two planned for the Site. It addresses the treatment of groundwater in the immediate vicinity of the property, in the contaminant plume in the upper 40 feet of the saturated Upper Glacial aquifer and laterally extending to approximately 700 feet downgradient of the Circuitron property. The Upper Glacial aquifer is contaminated with inorganic compounds and VOCs. The selected groundwater remedy constitutes the final action planned for the Site. The ROD for the first operable unit remedy was issued on March 29, 1991 and addressed the remediation of organic and inorganic contamination in soils and sediments at the Site.

## SUMMARY OF SITE CHARACTERISTICS

The first operable unit RI concluded that the groundwater was contaminated in the shallow aquifer underlying the Site. The RI data also indicated the potential for the presence of upgradient sources for the groundwater contamination that was detected in the deeper Upper Glacial aquifer and the shallow Magothy aquifer. The groundwater contaminant levels that were detected in these aquifers upgradient and downgradient of the Site were of the same order of magnitude. As a result, EPA concluded that additional groundwater and hydrogeological information was required before a remedy could be selected for the groundwater.

In July 1992, EPA approved the final Work Plan and Sampling and Analysis Plan, submitted by its contractor, Roy F. Weston, Inc. (Weston), and initiated the implementation of a Focused Feasibility Study (FFS) for the second operable unit. Under the direction of EPA, Weston conducted the FFS for the second operable unit to

supplement the first operable unit RI data, and to delineate further the horizontal and vertical extent of groundwater contamination on-Site as well as off-Site (upgradient and downgradient), in the shallow and deep aquifers.

Weston's field investigation efforts under the FFS included: (1) groundwater elevation measurements and a first round of groundwater sampling of 20 existing first operable unit monitoring wells in May 1993; (2) a drive-point groundwater field screening sampling program in August 1993; (3) installation of two confirmatory monitoring wells in February 1994; (4) a second round of groundwater sampling of the existing RI monitoring wells and the two confirmatory monitoring wells, also in February 1994; (5) hydrogeologic (slug) testing in March 1994; and (6) initiation of a long-term groundwater elevation monitoring, also in March 1994. A drive-point, truck-mounted, hydraulically-powered percussion hammer was utilized for the collection of groundwater samples by driving 1-inch diameter steel probe rods from grade to preselected sampling depths within the aquifer. The drive-point sampling program was primarily a reconnaissance method to delineate the highest concentrations of downgradient Site-related groundwater contamination that would be potentially targeted for remediation. **Figure 3** shows the monitoring well and drive-point sample locations.

A complete round of water level measurements from both on-Site and off-Site monitoring wells was made for hydrogeologic evaluation of the groundwater flow direction and velocity. Groundwater level measurements were also made prior to both rounds of groundwater sampling and during April 1994. Long-term water level measurements were performed at MW-2S and MW-2D during March 15 to 21, 1994, to identify any effects on groundwater flow patterns due to nearby pumping supply wells. Groundwater flow direction was determined to be to the south-southeast for both the Upper Glacial and Magothy aquifers. Average horizontal velocities of 1.84 feet/day and 0.25 feet/day were calculated for the Upper Glacial aquifer and the Magothy aquifer, respectively.

To provide updated groundwater analytical data, the existing 1989 RI monitoring wells were resampled in May 1993 as part of the Round 1 groundwater sampling event. These wells were sampled for Low Detection Level (LDL) Target Compound List (TCL) VOCs and total and dissolved Target Analyte List (TAL) Metals. The existing RI wells included MW-2S/D, MW-3S/D, MW-4S/D, MW-8, MW-9, MW-10, MW-11 and MW-12 located on the Circuitron Corporation property. The remaining existing RI wells were located on adjacent properties and included MW-1S/D, MW-5S/D, MW-6S/D and MW-7S/D. The "S" indicates that the well is a water table well with a screened interval of approximately 25 to 35 feet below grade and is the shallow monitoring well of two collocated wells (couplet). The "D" indicates that the well is the deeper well of the couplet, with a screened interval approximately 90 to 100 feet below grade in the

shallow Magothy aquifer. One supply well was also sampled during Round 1. This well is a deep noncontact cooling water supply well (PW-2) located on the House of Plastics property, downgradient of the Site. **Tables 1 and 2** provide a summary of the analytical testing results for Round 1 groundwater sampling for volatile organics and inorganics, respectively.

A drive-point groundwater sampling program was conducted in conjunction with quick turnaround laboratory analysis during August 1993 at the Site and nearby upgradient and downgradient locations (**Figure 3**) as a reconnaissance method to delineate vertical and lateral volatile organic contamination. Groundwater samples were collected from locations along five (5) transects, located both upgradient and downgradient of the Site, running generally perpendicular to the predominant groundwater flow direction to the south-southeast. Groundwater sampling locations were spaced at approximately 100 to 150 foot intervals along each transect. Two upgradient and three downgradient transects were completed, for a total of seventeen (17) sampling locations. At these 17 sampling locations, a total of 48 groundwater samples were collected at varying depths within the Upper Glacial aquifer. During the drive-point groundwater sampling program, 10% of the samples were collected for off-Site analysis for TCL organics using the Contract Laboratory Program (CLP) to confirm the results of the quick turnaround analysis. A summary of the results of the drive-point sampling analytical data is provided in **Table 3**.

Based upon the results of the drive-point sampling, two (2) additional groundwater monitoring wells were installed to confirm the results of the drive-point sampling program. One new monitoring well (MW-13) was located approximately center-line of the organic plume emanating from the southwest corner of the Site property, 110 feet downgradient of the property line. The second new monitoring well (MW-14) was installed at a location 220 feet further downgradient of the southernmost existing monitoring well MW-6S. This well was installed at the southern portion of the 70 Schmitt Boulevard property to attempt to define the leading edge of the organic plume.

The round 2 groundwater sampling was performed in February 1994 and included the majority of the existing RI monitoring wells (MW-1S/D, MW-2S/D, MW-3S/D, MW-4S/D, MW-5S/D, MW-6S/D and MW-7S/D), two (2) newly installed confirmatory wells (MW-13 and MW-14), a private upgradient monitoring well (PD-1 at Price Driscoll property, located at 75 Milbar Boulevard) and the House of Plastics well, PW-2. These wells were sampled for LDL TCL VOCs and total and dissolved TAL Metals. In addition to these analytes, alkalinity, hardness, total dissolved solids (TDS) and total suspended solids (TSS) were also analyzed for at nine (9) monitoring wells. **Tables 4 and 5** provide a summary of the analytical testing results for the Round 2 groundwater sampling for volatile organics and inorganics, respectively.

The two rounds of groundwater VOC sampling results indicated elevated concentrations of several organic contaminants. The VOCs with the highest concentrations included: 1,1-dichloroethene (1,1-DCE) (58 parts per billion (ppb) at MW-6D), 1,1-dichloroethane (1,1-DCA) (52 ppb at MW-13), 1,1,1-trichloroethane (1,1,1-TCA) (5800 ppb at MW-4S), trichloroethene (TCE) (82 ppb at MW-1D), and tetrachloroethene (PCE) (63 ppb at MW-4D). These concentrations exceed their respective New York State Drinking Water Standards of 5 ppb.

For inorganic compounds, the first round of groundwater sampling results indicated elevated concentrations of arsenic, barium, chromium, copper, iron, lead and manganese. In the second round, only chromium, copper, iron, lead and manganese were reported in elevated concentrations. Of these compounds, it is believed that only arsenic, copper, lead and chromium are associated with past Site-related industrial process operations. These four inorganic compounds were also reported in elevated concentrations in Site soils and sediments during the first operable unit RI. These four inorganic compounds were detected at elevated concentrations (numbers in parentheses denote maximum concentrations) in the groundwater samples collected during the two rounds: arsenic (74 ppb at MW-2S), chromium (788 ppb at MW-7S), copper (14,600 ppb at MW-2S), and lead (55 ppb at MW-9). These concentrations exceed their respective New York State Drinking Water Standards of 25 ppb for arsenic, 100 ppb for chromium, 200 ppb for copper, and 15 ppb for lead.

The FFS groundwater sampling results, in conjunction with the results from the first operable unit RI, confirmed that several on-property contamination source areas exist at the Site, as organic and inorganic contamination is evident in the groundwater in both the Upper Glacial and shallow Magothy aquifers. The drive-point data indicated that a groundwater contaminant plume attributed to the Site exists in the Upper Glacial aquifer extending to an approximate depth of 70 feet below grade (upper 40 feet of the saturated Upper Glacial aquifer). The volatile organic contaminant levels found in upgradient and downgradient samples collected from drive-point installations located in the deep Upper Glacial and monitoring wells located in the shallow Magothy aquifers were of approximately the same order of magnitude, and, therefore, indicate that the groundwater contamination that has been detected beneath the Upper Glacial aquifer, beginning at a depth of approximately 70 feet below grade, is attributed to upgradient sources.

The potential for the presence of upgradient sources is also supported by the vertical distribution of 1,1,1-TCA, shown in **Figure 4**, which is considered to be a fingerprint contaminant for the Site and is indicative of the vertical extent of groundwater contamination that is attributed to the Site. This distribution indicates a zone where 1,1,1-TCA was not detected between the

heavily contaminated shallow Upper Glacial and the deep Upper Glacial aquifer. The absence of 1,1,1-TCA in this zone suggests that the Site-related contaminant plume in the shallow Upper Glacial aquifer is separate and distinct from the 1,1,1-TCA-contaminated groundwater in the deep Upper Glacial and shallow Magothy aquifers, and that there are other sources contributing to the contamination in the deep Upper Glacial and shallow Magothy aquifers.

In addition, the fate and transport of VOCs in the groundwater are primarily affected by adsorption and biodegradation phenomena. As a result of the biodegradation of primary VOCs (e.g., 1,1,1-TCA and TCE), daughter products (e.g., 1,1-DCE and 1,1-DCA) can form rapidly enough for both primary VOCs and daughter products to be present concurrently. The length of residence time, concentrations, and proximity of the primary VOCs in groundwater is directly related to the concentrations of the daughter products, dependent upon the biodegradation rates for specific compounds. In general, concentrations of primary VOCs decrease exponentially at the source, as a function of the distance from the source, and also decrease with time. Therefore, the concentrations of the resultant daughter products are a function of changes that affect the primary VOCs.

A comparison of the concentrations of primary VOCs and their respective daughter degradation products were made for groundwater samples collected from the shallow Upper Glacial aquifer, deep Upper Glacial aquifer, and shallow Magothy aquifer. The concentration of daughter products relative to primary VOCs would be expected to increase with depth from the source. The monitoring well and drive-point sampling data (**Tables 1, 3, and 5**), although not conclusive, does suggest that this is the case throughout the shallow Upper Glacial aquifer. However, the data for the deep Upper Glacial aquifer and shallow Magothy aquifer suggests that this trend reverses itself with increasing depth. This reversing trend implies that other sources are contributing to the contamination in these aquifers and further supports the concept that the Site-related contaminant plume in the shallow Upper Glacial aquifer is separate and distinct from the contaminated groundwater in the deep Upper Glacial and shallow Magothy aquifers.

In the Upper Glacial aquifer, the groundwater contaminant plume attributable to the Site contained elevated concentrations of both organics and inorganics which have migrated to approximately 700 feet beyond the southern property line of the Site. The main organic contaminants were 1,1,1-TCA and 1,1-DCE and the main inorganic contaminants were copper and chromium. The Site-related groundwater contaminant plume has a width of about 600 feet and extends vertically into the shallow portion (upper 40 saturated feet) of the Upper Glacial aquifer.

On March 14, 1994, in situ permeability tests or slug tests were conducted at two existing monitoring wells (MW-3S and MW-5S) and two new confirmatory monitoring wells (MW-13 and MW-14). The objective was to estimate the hydraulic conductivity in the Upper Glacial aquifer. All four of the monitor wells tested were screened across or directly below the groundwater table within the Upper Glacial aquifer. The hydraulic conductivities calculated at the four wells ranged from 118 to 229 ft/day. These results are within the range of values for the regional horizontal hydraulic conductivity of the Upper Glacial aquifer.

Finally, to identify any effects caused by large capacity pumping wells in the vicinity of the Site, groundwater levels were monitored continuously in monitoring wells MW-2S and MW-2D from March 15 through 21, 1994. The results of the long-term water level monitoring for both the Upper Glacial and the Magothy aquifers at the Site indicate that there are currently no large capacity pumping well(s) in the vicinity of the Site which may be locally influencing groundwater flow direction or contaminant plume migration.

## SUMMARY OF SITE RISKS

Based upon the results of the FFS, a baseline risk assessment was conducted to estimate the risks associated with current and future Site conditions. The baseline risk assessment estimates the human health and ecological risk which could result from the contamination at the Site, if no remedial action were taken. This information is used to make a determination as to whether remediation of the Site may be required.

### Human Health Risk Assessment

A four-step process is utilized for assessing Site-related human health risks for a reasonable maximum exposure scenario: Hazard Identification--identifies the contaminants of concern at the Site based on several factors such as toxicity, frequency of occurrence, and concentration. Exposure Assessment--estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting contaminated well-water) by which humans are potentially exposed. Toxicity Assessment--determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response). Risk Characterization--summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of Site-related risks.

EPA conducted a baseline risk assessment to evaluate the potential risks to human health associated with the Circuitron Corporation site in its current state. The Risk Assessment focused on contaminants in the groundwater which are likely to pose significant risks to human health.

The baseline risk assessment began with selecting contaminants of concern which would be indicative of groundwater contaminants at the Site. A total of 24 organic and inorganic compounds, with 12 for each group, were identified as the contaminants of concern. The 12 organic contaminants of concern were acetone, 2-butanone, chlorobenzene, chloroform, 1,1-DCA, 1,1-DCE, cis-1,2-DCE, PCE, toluene, 1,1,1-TCA, 1,1,2-TCA, and TCE. The 12 inorganic contaminants of concern were aluminum, arsenic, barium, beryllium, chromium, copper, lead, manganese, nickel, silver, vanadium, and zinc. Of these 24 contaminants, chloroform, 1,1-DCA, 1,1-DCE, PCE, 1,1,2-TCA, TCE, arsenic, beryllium, chromium, lead, and nickel are classified by EPA as carcinogens (cancer-causing chemicals); the rest are all considered to be noncarcinogens. However, because chromium and nickel are considered carcinogens through the inhalation exposure route only and metals are not of concern through the inhalation route for the groundwater pathway, chromium and nickel were not evaluated as carcinogens in the risk assessment. **Table 6** provides the frequency of detection, the sample quantitation limits, and the range of detected concentrations for the 24 contaminants of concern. **Table 7** provides the 95% upper confidence level (95% UCL) concentration, maximum detected concentration, and exposure point concentrations for the 24 contaminants of concern.

An exposure assessment was conducted utilizing reasonable maximum exposure scenarios to estimate the magnitude, frequency, and duration of actual and/or potential exposures to the contaminants of concern present in groundwater in the upper 40 feet of the saturated Upper Glacial aquifer. Reasonable maximum exposure is defined as the highest exposure that is reasonably expected to occur at the Site for individual and combined pathways. Groundwater underlying the Site in the Upper Glacial aquifer is not currently used for household purposes. The residents in the area are on public water from supply wells in the deeper Magothy aquifer. On this basis, no receptors were evaluated under current-use conditions in the risk assessment. The baseline risk assessment evaluated the health effects which could potentially result from ingestion of groundwater and noningestion uses of groundwater (e.g., showering, bathing, and cooking) by future residents (children and adults), as this is the most conservative exposure scenario. An assumption was made that the Site and the neighboring areas would be developed for residential use in the future, and the groundwater from the upper 40 feet of the saturated aquifer would be used for household purposes. The potential exposure pathways, scenarios, and routes evaluated in this risk assessment are presented in **Table 8**.

Under current EPA guidelines, the likelihood of carcinogenic and noncarcinogenic effects due to exposure to site chemicals are considered separately. It was assumed that the toxic effects of the Site-related chemicals would be additive. Thus, carcinogenic and noncarcinogenic risks associated with exposures to individual compounds of concern were added together to indicate the potential risks associated with mixtures of potential carcinogens and noncarcinogens, respectively.

In the toxicity assessment, the potential carcinogenic and noncarcinogenic potencies of the contaminants of concern are evaluated.

Potential carcinogenic potencies are typically evaluated by using the cancer slope factors (CSFs) developed by EPA for the contaminants of concern. CSFs have been developed by EPA's Carcinogenic Risk Assessment Verification Endeavor for estimating excess lifetime cancer risks associated with exposure to potentially carcinogenic chemicals. CSFs, which are expressed in units of (milligrams/kilogram-day)$^{-1}$ (mg/kg-day)$^{-1}$, are multiplied by the estimated intake of a potential carcinogen, in mg/kg-day, to generate an upper-bound estimate of the excess lifetime cancer risk associated with exposure to the compound at that intake level. The term "upper bound" reflects the conservative estimate of the risks calculated from the CSF. Use of this approach makes the underestimation of the risk highly unlikely. The CSFs for the carcinogenic contaminants of concern are presented in **Table 9**. For known or suspected carcinogens, EPA considers excess upper-bound individual lifetime cancer risks of between $10^{-4}$ to $10^{-6}$ to be acceptable. This level indicates that an individual has no greater than an approximately one in ten thousand to one in a million chance of developing cancer over a lifetime (i.e., 70 years) as a result of site-related exposure under specific exposure conditions.

Noncarcinogenic risks were assessed using a hazard index (HI) approach, based on a comparison of expected contaminant intakes and safe levels of intake (Reference Doses). Reference doses (RfDs) have been developed by EPA for indicating the potential for adverse health effects. RfDs, which are expressed in units of mg/kg-day, are estimates of daily exposure levels for humans which are thought to be safe over a lifetime (including sensitive individuals). The RfDs for the noncarcinogenic contaminants of concern at the Site are presented in **Table 10**. Estimated intakes of chemicals from environmental media (e.g., the amount of a chemical ingested from contaminated drinking water) are compared to the RfD to derive the hazard quotient for the contaminant in the particular medium. The HI is obtained by adding the hazard quotients for all compounds across all media that impact a particular receptor population. An HI greater than 1.0 indicates that the potential exists for noncarcinogenic health effects to occur as a result of site-related exposures. The HI provides a useful reference point for gauging

the potential significance of multiple contaminant exposures within a single medium or across media.

In the risk characterization, carcinogenic and noncarcinogenic risks were evaluated for the 24 contaminants of concern. Total carcinogenic risks are summarized in **Table 11** by exposure pathway for the future resident (child and adult exposure combined). The carcinogenic risks are presented by chemical and exposure route in **Table 12**. The percent distribution of these risks by chemical and exposure route is presented in **Table 13**. The total excess incremental lifetime cancer risk for the future resident (child and adult combined) was calculated to be $1.1 \times 10^{-3}$ (i.e., approximately 1 in 1,000). The majority (86%) of the total carcinogenic risk was contributed by the ingestion of groundwater. Arsenic and 1,1-DCE contributed 98% of the total carcinogenic risk. The carcinogenic risk for arsenic was $9 \times 10^{-4}$ through ingestion of groundwater. The carcinogenic risk for 1,1-DCE was $1.9 \times 10^{-4}$, primarily through noningestion uses of groundwater. These results indicate significant potential carcinogenic risk to the future resident through the groundwater pathway for the reasonable maximum exposure scenario.

Unlike the carcinogenic risk evaluation, noncarcinogenic risks were evaluated separately for the future child and adult residents. For the future child residential scenario, total HQs and HIs by exposure pathway, HQs and HIs by chemical and exposure route, and percent distribution of the HQs and HIs by chemical and exposure route are presented in **Tables 14, 15, and 16**, respectively. For the future adult residential scenario, total HQs and HIs by exposure pathway, HQs and HIs by chemical and exposure route, and percent distribution of the HQs and HIs by chemical and exposure route are presented in **Tables 14, 17, and 18**, respectively. For the future child resident, the total HI for health risks posed by exposure to groundwater was 56. More than 99% of the total HI was contributed by the ingestion of groundwater. Copper, manganese, and arsenic contributed 96% of the total HI. The HIs for copper, manganese, and arsenic were 25, 18, and 10 respectively, through ingestion of groundwater. For the future adult, the total HI for health risks posed by exposure to groundwater was 24. More than 99% of the total HI was contributed by ingestion of groundwater. Copper, manganese, and arsenic contributed 96% of the total HI. The HIs for copper, manganese, and arsenic were 11, 7.8, and 4.3 respectively, also through ingestion of groundwater. These results indicate a potential for adverse noncarcinogenic health effects to the future child and adult residents from exposure to groundwater for the reasonable maximum exposure scenario.

In summary, the human health risk assessment indicated that the contaminants in the groundwater in the shallow portion (upper 40 saturated feet) of the Upper Glacial aquifer at the Site pose an elevated risk to human health. In addition, as noted above, numerous organic and inorganic contaminants are also present in the

shallow Upper Glacial aquifer at levels which exceed the Federal and/or New York State Drinking Water Standards. Although the shallow Upper Glacial aquifer is generally no longer used for public water supply in the area, remediation is warranted to protect the underlying Magothy aquifer from contamination present in the Upper Glacial aquifer. Two active public water supply wells draw water from the Magothy aquifer within a half-mile radius downgradient of and adjacent to the Site. The remedial investigation data and other data sources indicate that the two aquifers are hydraulically interconnected and no confining clay barriers exist between the two aquifers.

Ecological Risk Assessment

The potential exposure routes of Site contamination to terrestrial wildlife were considered. Since 95% of the Circuitron Corporation site is paved or covered by a building and the Site is situated in a densely populated industrial/commercial area, there is little, if any, potential for exposure to contaminated soils or groundwater on-Site, or for wildlife to be present within the general vicinity of the Site. As a result, EPA concluded that conducting a detailed ecological risk assessment was not warranted.

Uncertainties

The procedures and inputs used to assess risks in this evaluation, as in all such assessments, are subject to a wide variety of uncertainties. In general, the main sources of uncertainty include:

- environmental chemistry sampling and analysis
- environmental parameter measurement
- fate and transport modeling
- exposure parameter estimation
- toxicological data.

Uncertainty in environmental sampling arises in part from the potentially uneven distribution of chemicals in the media sampled. Consequently, there is significant uncertainty as to the actual levels present. Environmental chemistry-analysis error can stem from several sources including the errors inherent in the analytical methods and characteristics of the matrix being sampled.

Uncertainties in the exposure assessment are related to estimates of how often an individual would actually come in contact with the chemicals of concern, the period of time over which such exposure would occur, and in the models used to estimate the concentrations of the chemicals of concern at the point of exposure.

Uncertainties in toxicological data occur in extrapolating both from animals to humans and from high to low doses of exposure, as well as from the difficulties in assessing the toxicity of a mixture of chemicals. These uncertainties are addressed by making conservative assumptions concerning risk and exposure parameters throughout the assessment. As a result, the risk assessment provides upper-bound estimates of the risks to populations near the site, and is highly unlikely to underestimate actual risks related to the site.

More specific information concerning public health risks, including a quantitative evaluation of the degree of risk associated with various exposure pathways, is presented in the risk assessment section of the FFS report.

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in the ROD, may present an imminent and substantial endangerment to the public health, welfare, or the environment.

**REMEDIAL ACTION OBJECTIVES**

Remedial action objectives are specific goals to protect human health and the environment. These objectives are based on available information and standards such as applicable or relevant and appropriate requirements (ARARs) and risk-based levels established in the risk assessment.

Organic and inorganic contamination has been detected in concentrations above ARARs in groundwater at the Site. Therefore, the following remedial action objectives have been established for groundwater:

- prevent potential future ingestion of Site-related contaminated groundwater;
- restore the quality of the groundwater contaminated from the Site-related activities to levels consistent with the State and Federal drinking water and groundwater quality standards; and
- mitigate the off-Site migration of the Site-related contaminated groundwater.

**DESCRIPTION OF REMEDIAL ALTERNATIVES**

CERCLA §121(b)(1), 42 U.S.C. §9621(b)(1), mandates that a remedial action be protective of human health and the environment, cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the

maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which employ, as a principal element, treatment to reduce permanently and significantly the volume, toxicity, or mobility of the hazardous substances, pollutants and contaminants at a site. CERCLA §121(d), 42 U.S.C. §9621(d), further mandates that a remedial action attain a level or standard of control of the hazardous substances, pollutants, and contaminants, which at least attains ARARs under Federal and State laws, unless a waiver can be justified pursuant to CERCLA §121(d)(4), 42 U.S.C. §9621(d)(4).

This ROD evaluates in detail three (3) remedial alternatives for addressing the groundwater contamination associated with the Circuitron Corporation site. The "time to implement" a remedial alternative reflects only the time required to construct or implement the remedy and does not include the time required to design the remedy, negotiate with the responsible parties, or procure contracts for design and construction, or conduct operation and maintenance at the Site. The time required for remedial design activities and procurement of contractor services is estimated to take up to 2 years. The "time to achieve cleanup goals" reflects the number of years for which the treatment system must operate in order to achieve State and Federal drinking water and groundwater quality standards in the shallow Upper Glacial aquifer. This time frame assumes that the source control remedial action for the first operable unit will be completed prior to the implementation of the groundwater remedy.

The remedial alternatives are:

**Alternative GW-1: No Action**

| | |
|---|---|
| Capital Cost: | $5,000 |
| Operation and Maintenance (O&M) Cost: | $0 |
| Present Worth Cost*: | $5,000 |
| Time to Implement: | 2 Months |
| Time to Achieve Cleanup Goals: | N/A |

* Present Worth Costs for all alternatives were determined by compounding the annual O&M costs by 8% over the number of years of operation.

The Superfund program requires that the "no-action" alternative be considered as a baseline for comparison of other alternatives. Under the no-action Alternative GW-1, no remedial actions would be implemented. However, it would be recommended that deed and Site restrictions be imposed on the Site in order to prevent the use of the groundwater from the Upper Glacial aquifer.

Under Alternative GW-1, the groundwater contaminants would continue to migrate into deeper portions of the Upper Glacial aquifer as well as into the Magothy aquifer. This no-action alternative would require a review of the remedial action every five years pursuant to CERCLA §121(c), 42 U.S.C. §9621(c), because implementing this alternative would result in hazardous substances remaining on-Site above health-based levels. Additional remedial actions could be required depending on the results of such a review.

**Alternative GW-2: Groundwater Pumping, Treatment Using Aeration, Coagulation, Flocculation and Sedimentation/Air Stripping/Granular Activated Carbon/Reinjection using an Infiltration Gallery**

| | |
|---|---|
| Capital Cost: | $1,963,000 |
| O&M/yr Cost: | $675,000 |
| Present Worth Cost: | $6,492,000 |
| Time to Implement: | 1 Year |
| Time to Achieve Cleanup Goals: | 10 years |

Alternative GW-2 would involve capture and extraction of the contaminated groundwater in the shallow Upper Glacial aquifer through the installation of three groundwater recovery wells; the on-Site treatment of the contaminated groundwater; and reinjection of the groundwater following treatment. This alternative would also involve the quarterly sampling of selected monitoring wells to monitor groundwater cleanup and the periodical sampling of the influent to, and effluent from, the groundwater treatment plant to monitor treatment system effectiveness. An Operation and Maintenance plan for the groundwater monitoring program, as well as the operation of the groundwater treatment system, would be developed during the Remedial Design. The construction of the groundwater extraction, treatment, and reinjection system for this alternative would be completed within approximately 1 year.

An analytical steady-state groundwater flow model, QUICKFLOW (Geraghty & Miller, Inc., 1991), was used in the FFS to simulate and evaluate the location and pumping rates required to provide the most effective hydraulic control and extraction of contaminated groundwater in the shallow, saturated Upper Glacial aquifer. The most effective groundwater-remediation simulation output is provided on **Figure 5**. This information was utilized to devise a conceptual design of the treatment system and associated costs; the actual location of wells, pumping rates, etc. would be established during the Remedial Design phase of the project. **Figure 5** shows the pumping of three recovery wells (RW-1, RW-2, and RW-3) at a combined rate of 135 gallons per minute (gpm). Recovery wells RW-1 and RW-2, located closest to the Site, would recover the most contaminated groundwater and would provide the hydraulic control of the downgradient end of the plume to the Site. Recovery wells RW-1 and RW-2 would be designed as source-control wells pumping at respective rates of 30 gpm, while RW-3, located at the leading edge of the plume, would be the migration control well, pumping at a

rate of 75 gpm. The recovery wells would be screened across the upper 40 feet of the shallow, saturated Upper Glacial aquifer (approximately 70 feet below grade). Approximately 2,000 feet of eight-inch piping would be installed within trenches to connect the recovery wells to the on-Site groundwater treatment system.

It is envisioned that the groundwater treatment system would involve the following major components: flow equalization, aeration, coagulation, flocculation, sedimentation, air stripping, and vapor-phase and liquid-phase granular activated carbon. Aeration, coagulation, flocculation and sedimentation would be used for the removal of dissolved inorganics, such as metals, and suspended solids. Air stripping coupled with liquid- and vapor-phase granular activated carbon treatment would be used specifically for the removal of VOCs. **Figure 6** illustrates a typical groundwater recovery and treatment system. The filter cake or the sludge generated by the metals treatment stage would be disposed of off-Site at a Resource Conservation and Recovery Act (RCRA) Subtitle C Facility. Spent carbon from the vapor- and liquid-phase carbon units would be handled similarly or regenerated. It is assumed that the groundwater treatment system would be designed to handle flows up to 150 gpm (incorporating an excess of 15 gpm) in order to accommodate any variation in future flow rate to effect sufficient capture zones in the shallow Upper Glacial aquifer. It is estimated that groundwater treatment would be required for approximately 10 years based upon volume of contaminated groundwater and concentrations of contaminants requiring treatment.

The extracted groundwater would be treated to State and Federal drinking water and groundwater quality standards and reinjected by means of an infiltration gallery located along the northern boundary of the Site on Milbar Boulevard (see **Figure 5**). **Table 19** lists the groundwater cleanup standards that will be achieved by the treatment system prior to reinjection.

It is noted that an analytical testing for inorganic compounds during the FFS reported sporadic elevated concentrations of these compounds detected at isolated locations on- and off-Site during the two rounds of groundwater sampling. A review and comparison of the turbidity data with the filtered groundwater data indicates that the concentration of many of the inorganic compounds were strongly influenced by the presence of turbidity in excess of 200 Nephelometric Turbidity Units (NTUs). Therefore, additional groundwater sampling for the inorganic compounds present in groundwater, independent of the influence of high turbidity, would be obtained. These groundwater sampling activities would be performed early during the Remedial Design phase for the selected remedial alternative, prior to finalization of the required inorganic groundwater treatment program.

**Alternative GW-3 - Air Sparging/Soil Vapor Extraction/Limited Groundwater Pumping for Hydraulic Containment/Groundwater Treatment using Aeration, Coagulation, Flocculation and Sedimentation/Air Stripping/Granular Activated Carbon/Reinjection using an Infiltration Gallery**

| | |
|---|---|
| Capital Cost: | $2,677,000 |
| O&M/yr Cost: | $1,075,000 |
| Present Worth Cost: | $8,274,000 |
| Time to Implement: | 1 Year |
| Time to Achieve Cleanup Goals: | 7 Years |

Alternative GW-3 includes the installation of two major treatment components, an air sparging/soil vapor extraction system and a limited groundwater pump and treat system.

The air sparging and soil vapor extraction system would address the remediation of on-property and off-property VOC contamination in the groundwater in the shallow Upper Glacial aquifer. A schematic showing the major components for a typical air sparging and soil vapor extraction system appears on **Figure 7**. For planning and cost-estimating purposes, several assumptions were made concerning the design of the system as noted below. Approximately 20 two-inch air sparging wells would be installed. The locations for these wells would be determined based on pilot-plant testing to be conducted prior to Remedial Design activities. The air sparging wells would be screened at a depth of approximately 70 feet below grade. Approximately 15 two-inch vacuum extraction wells would be installed at locations also to be determined based on pilot-plant testing. The vacuum extraction wells would be screened from approximately 10 to 25 feet below grade.

The design of the groundwater extraction, treatment, and reinjection system is assumed to be similar to that of Alternative GW-2, except that the groundwater treatment system would be capable of handling flows up to 75 gpm, instead of 150 gpm. The required groundwater pumping rate for this alternative is estimated to be less than the rate for Alternative GW-2 because its primary purpose is to provide for hydraulic control of the leading (downgradient) edge of the plume and it was determined that such pumping rate of 75 gpm at a single recovery well would be adequate. An eight-inch recovery well would be installed at the leading edge of the plume. The well would be screened across the upper 40 feet of the shallow Upper Glacial aquifer (approximately 70 feet below grade). Approximately 5,000 feet of buried trenching/piping would be required for connecting the air injection wells to the air delivery system, the vacuum extraction wells to the vacuum extraction system, the groundwater recovery well to the groundwater treatment system, and the injection gallery.

This alternative would also involve the quarterly sampling of selected monitoring wells to monitor groundwater cleanup and the sampling of the off-gases from the air sparging/soil vapor extraction process and the influent to, and effluent from, the groundwater treatment plant to monitor treatment system effectiveness. An Operation and Maintenance plan for the groundwater monitoring program as well as the operation of the air sparging and soil vapor extraction system and the groundwater extraction and treatment system would be developed during the Remedial Design.

The construction of the air sparging and soil vapor extraction system and the groundwater extraction and treatment system for this alternative would be completed within approximately 1 year. It is estimated that the groundwater treatment would be required for approximately 7 years based upon volume of contaminated groundwater and concentrations of contaminants requiring treatment.

Residual waste from the treatment process such as sludges would be disposed of off-Site at a RCRA Subtitle C Facility. Spent carbon from the vapor- and liquid-phase carbon units would be handled similarly or regenerated.

**SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES**

In selecting a remedy, EPA considered the factors set out in CERCLA §121, 42 U.S.C. §9621, by conducting a detailed analysis of the viable remedial alternatives pursuant to the NCP, 40 Code of Federal Regulations (C.F.R.) §300.430(e)(9) and OSWER Directive 9355.3-01. The detailed analysis consisted of an assessment of the individual alternatives against each of nine evaluation criteria and a comparative analysis focusing upon the relative performance of each alternative against those criteria.

The following "threshold" criteria must be satisfied by any alternative in order to be eligible for selection:

1. Overall protection of human health and the environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each exposure pathway (based on a reasonable maximum exposure scenario) are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

2. Compliance with ARARs addresses whether or not a remedy would meet all of the applicable (legally enforceable), or relevant and appropriate (requirements that pertain to situations sufficiently similar to those encountered at a Superfund site such that their use is well suited to the site) requirements of Federal and State environmental statutes and requirements or provide grounds for invoking a waiver.

The following "primary balancing" criteria are used to make comparisons and to identify the major trade-offs between alternatives:

3. Long-term effectiveness and permanence refers to the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met. It also addresses the magnitude and effectiveness of the measures that may be required to manage the risk posed by treatment residuals and/or untreated wastes.

4. Reduction of toxicity, mobility, or volume via treatment refers to a remedial technology's expected ability to reduce the toxicity, mobility, or volume of hazardous substances, pollutants or contaminants at the site.

5. Short-term effectiveness addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation periods until cleanup goals are achieved.

6. Implementability refers to the technical and administrative feasibility of a remedy, including the availability of materials and services needed.

7. Cost includes estimated capital and operation and maintenance costs, and the present worth costs.

The following "modifying" criteria are considered fully after the formal public comment period on the Proposed Plan is complete:

8. State acceptance indicates whether, based on its review of the FFS and the Proposed Plan, the State supports, opposes, and/or has identified any reservations with the preferred alternative.

9. Community acceptance refers to the public's general response to the alternatives described in the Proposed Plan and the FFS report. Factors of community acceptance to be discussed include support, reservation, and opposition by the community.

A comparative analysis of the remedial alternatives based upon the evaluation criteria noted above follows.

- Overall Protection of Human Health and the Environment

Alternatives GW-2 and GW-3 would provide effective overall protection of human health and the environment as they would prevent the further degradation of the groundwater quality in the Upper Glacial and Magothy aquifers. These alternatives would reduce inorganic and organic groundwater contaminant levels and

restore groundwater quality to State and Federal drinking water and groundwater quality standards. Alternative GW-1, which offers no groundwater treatment, would not be protective of human health and the environment.

- Compliance with ARARs

Alternative GW-1 would not comply with ARARs because the volatile organic and metals contamination would remain in the groundwater in the shallow Upper Glacial aquifer. Alternatives GW-2 and GW-3 would comply with all ARARs.

- Long-Term Effectiveness and Permanence

Both Alternatives GW-2 and GW-3 would be effective over the long term and permanently protect human health and the environment. However, the time to achieve cleanup goals under Alternative GW-3 is estimated to be 7 years as compared to 10 years under Alternative GW-2. Alternative GW-1, which provides no treatment, would be neither effective nor permanent in protecting human health and the environment.

- Reduction in Toxicity, Mobility, or Volume via Treatment

Both Alternatives GW-2 and GW-3 would reduce the mobility and toxicity of groundwater to the same degree by treatment of the VOCs and inorganic contaminants present in the groundwater in the shallow Upper Glacial aquifer. In addition, as the groundwater contaminants are removed, the volume of groundwater with contaminant concentrations remaining above the New York State Drinking Water Standards would decrease. Alternative GW-1, which offers no treatment of the contaminated groundwater, would not reduce toxicity, mobility, or volume of the groundwater contamination.

- Short-Term Effectiveness

Alternatives GW-2 and GW-3 in the short term will halt the spread of contaminants in the shallow Upper Glacial aquifer. These alternatives will also retard the migration of the contaminants into the deeper Upper Glacial and Magothy aquifers. Alternative GW-2 would provide more effective hydraulic containment of the groundwater contaminant plume than Alternative GW-3 because the groundwater extraction/treatment system for Alternative GW-2 would be designed to handle flows twice those of Alternative GW-3. Alternative GW-1 provides no treatment of groundwater and is not considered to be effective in the short term because the contaminants will remain in the contaminated groundwater in the shallow Upper Glacial aquifer.

In terms of adverse impacts that may be posed to human health or the environment during the construction and implementation period, there is a potential for short-term health risks typically associated with construction activity and worker safety for Alternatives GW-2 and GW-3. A health and safety plan, however, would be prepared to address and minimize risks to the Site workers. The short-term health risks would be greater for Alternative GW-3 than for Alternative GW-2, as Alternative GW-3 employs an additional treatment component (air sparging and soil vapor extraction) and as a result, would require more trenching/piping activities. Alternative GW-2 would require approximately 2,000 feet of buried trenching/piping connecting the recovery wells to the on-Site groundwater treatment system. Alternative GW-3 would require approximately 5,000 feet of buried trenching/piping for connecting the air injection wells to the air delivery system, the vacuum extraction wells to the vacuum extraction system, the groundwater recovery well to the groundwater treatment system and the injection gallery. Since it is envisioned that contaminated source areas and soils would be remediated before groundwater treatment is initiated, risks associated with exposure to these contaminated media are expected to be minimal. As an added safety measure, engineering controls such as air monitoring and other measures would be employed (e.g., restricting the Site to authorized personnel only) to ensure the safety of on-Site workers and off-Site receptors. Implementation of Alternative GW-1 would not pose any construction-related short-term health risks, as it is a "No Action" alternative.

- Implementability

Alternative GW-1 would be the most readily implementable as it is a "No Action" alternative, followed by Alternative GW-2 and then Alternative GW-3. Alternative GW-2 would involve conventional technologies with proven reliability. Alternative GW-3, however, would involve the use of an innovative technology (i.e., air sparging/soil vapor extraction), which may make it less reliable than Alternative GW-2, because Alternative GW-3 has been used less frequently at Superfund sites similar to the Circuitron Corporation site.

- Cost

Alternative GW-1 would have the lowest associated cost, as it is a "No Action" alternative, followed by Alternative GW-2 and then Alternative GW-3. The only cost for the implementation of Alternative GW-1 would be the capital cost of $5,000, which is for deed and Site restrictions to prevent the use of the groundwater from the Upper Glacial aquifer. There would be no O&M costs for Alternative GW-1, so the total present worth cost would be $5,000. Alternative GW-2 would have a capital cost of about $1,963,000 and O&M cost of $675,000 per year. The total present worth cost for Alternative GW-2 would be $6,492,000. Alternative GW-3 would have

a capital cost of $2,677,000, O&M cost of $1,075,000 per year, and total present worth cost of $8,274,000. The higher costs for Alternative GW-3 are associated with air sparging and soil vapor extraction.

- State Acceptance

The NYSDEC concurs with the selected remedy.

- Community Acceptance

No objections from the community were raised regarding the selected remedy. Community comments and questions can be reviewed in the August 8, 1994 public meeting transcript, which has been included in the Administrative Record. A responsiveness summary which addresses all comments received during the public comment period is attached as Appendix V.

**SELECTED REMEDY**

EPA and NYSDEC have determined after reviewing the alternatives and public comments, that Alternative GW-2 is the appropriate remedy for the Site, because it best satisfies the requirements of CERCLA §121, 42 U.S.C. §9621, and the NCP's nine evaluation criteria for remedial alternatives, 40 C.F.R. §300.430(e)(9).

The major components of the selected remedy include:

- extraction of the Site-related groundwater contaminant plume present in the upper 40 feet of the saturated Upper Glacial aquifer;
- treatment, via metal precipitation and air stripping, of contaminated groundwater to drinking water standards;
- reinjection of the treated groundwater into the Upper Glacial aquifer via an infiltration gallery; and
- disposal of treatment residuals at a RCRA Subtitle C facility.

Detailed information for this selected remedy is provided above under Alternative GW-2 in the DESCRIPTION OF REMEDIAL ALTERNATIVES section of this document. As explained in this section, because analytical testing conducted during the FFS for inorganic compounds reported only sporadic elevated concentrations of these compounds likely associated with and influenced by high turbidity, additional groundwater sampling for the inorganic compounds present in groundwater, independent of the influence of high turbidity, will be obtained during the Remedial Design phase prior to finalization of the required inorganic groundwater treatment program.

Remediation Goals

The goal of the selected remedy is to restore the groundwater to drinking water quality. Based on information obtained during the FFS and on a careful analysis of remedial alternatives, NYSDEC and EPA believe that the selected remedy will achieve this goal. The extracted groundwater will be treated until all organic and inorganic contaminant concentrations have been reduced such that they are equal to or less than their respective State and Federal drinking water and groundwater quality standards prior to reinjection. In addition, State and Federal drinking water and groundwater quality standards will also be met in the treatment system effluent prior to reinjection. **Table 19** lists the groundwater cleanup standards that will be achieved by the treatment system prior to reinjection.

However, it may become apparent, during implementation or operation of the groundwater extraction system, that contaminant levels have ceased to decline and are remaining constant at levels higher than the drinking-water standards over some portion of the contaminated plume. In this case, the system performance standards and/or the remedy may be re-evaluated.

The selected remedy will include groundwater extraction for a period which is presently estimated to be 10 years based upon volume of contaminated groundwater and concentrations of contaminants requiring treatment (but which, depending upon the degree of contaminant reduction achieved, may ultimately be a longer or shorter period). During this time, the system's performance will be monitored on a regular basis to determine if modifications to the system are required to improve performance. Modifications may include any or all of the following:

- Discontinuing pumping at individual wells where cleanup goals have been attained.
- Alternating pumping at wells to eliminate stagnation.
- Pulse pumping to allow aquifer equilibration and to allow adsorbed contaminants to partition into groundwater.
- Installing additional extraction wells to facilitate or accelerate cleanup of the contaminated plume.

During the performance of the long-term monitoring, NYSDEC and EPA may determine that the remedial action objective has been met. Periodic monitoring will be used to re-assess the time frame and the technical practicability of achieving cleanup standards. Upon meeting all remedial objectives, or determining that the Site has been sufficiently purged of contaminants so that public health is

no longer threatened by exposure to the Site, EPA will initiate proceedings to delete the Site from the NPL.

**STATUTORY DETERMINATIONS**

As previously noted, CERCLA §121(b)(1), 42 U.S.C. §9621(b)(1), mandates that a remedial action must be protective of human health and the environment, be cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which employ treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants, or contaminants at a site. CERCLA §121(d), 42 U.S.C. §9621(d), further specifies that a remedial action must attain a degree of cleanup that satisfies ARARs under Federal and State laws, unless a waiver can be justified pursuant to CERCLA §121(d)(4), 42 U.S.C. §9621(d)(4).

Protection of Human Health and the Environment

The selected remedy, in conjunction with the source control remedial action for the first operable unit that will be completed prior to the implementation of the groundwater remedy, will eliminate all outstanding threats posed by the Site. It will remove any contribution of contaminants from the Site to the shallow, saturated Upper Glacial aquifer and will reduce contaminant concentration levels in that aquifer to State and Federal drinking water and groundwater quality standards, and concurrently reduce the carcinogenic and noncarcinogenic risks posed by potential exposure to the groundwater.

There are no short-term threats to human health and the environment associated with the selected remedy that cannot be easily addressed.

Compliance with ARARs

The following ARARs and considerations apply to the selected remedy:

**Action-specific ARARs:**

- Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCLs) (40 C.F.R. §141.11 - §141.16), 6 NYCRR Part 703, and 10 NYCRR Part 5 provide standards and goals for toxic compounds for public drinking water systems. The reinjection process for the treated groundwater will meet underground injection well regulations by its status as a Superfund remedial action under 40 C.F.R. Part 147. The extracted groundwater will be

treated to meet all of the above-noted standards prior to reinjection.

- Spent carbon, if regeneration is not feasible, and sludge materials from the groundwater treatment system for removal of organics and inorganics will be disposed of off-Site, as well as any other treatment residuals, consistent with applicable RCRA land disposal restrictions under 40 C.F.R. Part 268.

- Clean Air Act (CAA)

- 40 C.F.R. Part 50 provides National Ambient Air Quality Standards

- 40 C.F.R. Part 262 provides Federal Hazardous Waste Manifest Requirements for Off-Site Waste Transport

- 40 C.F.R. Part 264 provides Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

**Chemical-specific ARARs:**

- Since the groundwater aquifer at the Site is classified as IIb, drinking water standards are relevant and appropriate. Again, these include SDWA MCLs, 6 NYCRR Groundwater Quality Regulations and/or limitations of discharges to Class GA waters (aquifers which serve as a source of potable drinking water) and 10 NYCRR Part 5 standards.

**Location-specific ARARs:**

none

**Other Criteria, Advisories, or Guidance To Be Considered:**

- New York Technical Operations Guidance Series (TOGS) 2.1.2 and 1.1.1 provide standards for reinjection of treated groundwater and are to be considered. SDWA MCL Goals (40 C.F.R. §141.50 - §141.51) provide goals for toxic compounds for public drinking systems and are also to be considered.

- New York State Air Guide 1 (August 1992) provides Guidelines for the Control of Toxic Ambient Air Contaminants.

Cost-Effectiveness

The selected remedy, Alternative GW-2, will provide overall effectiveness proportionate to its cost. It is $1.8 million less costly than Alternative GW-3, while offering comparable or better performance. A detailed cost estimate of the selected remedy is provided in Appendix C of Volume II of the FFS report.

Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

EPA has determined that the selected remedy meets the statutory requirement to utilize permanent solutions and treatment technologies to the maximum extent practicable. The selected remedy provides the best balance of trade-offs among the alternatives with respect to the evaluation criteria.

The selected remedy will reduce the contaminants of concern to health-protective levels prior to reinjection. After treatment is complete, provided that the source control remedial action for the first operable unit will also have been completed, the Site will no longer contribute contaminants to the shallow, saturated Upper Glacial aquifer.

Preference for Treatment as a Principal Element

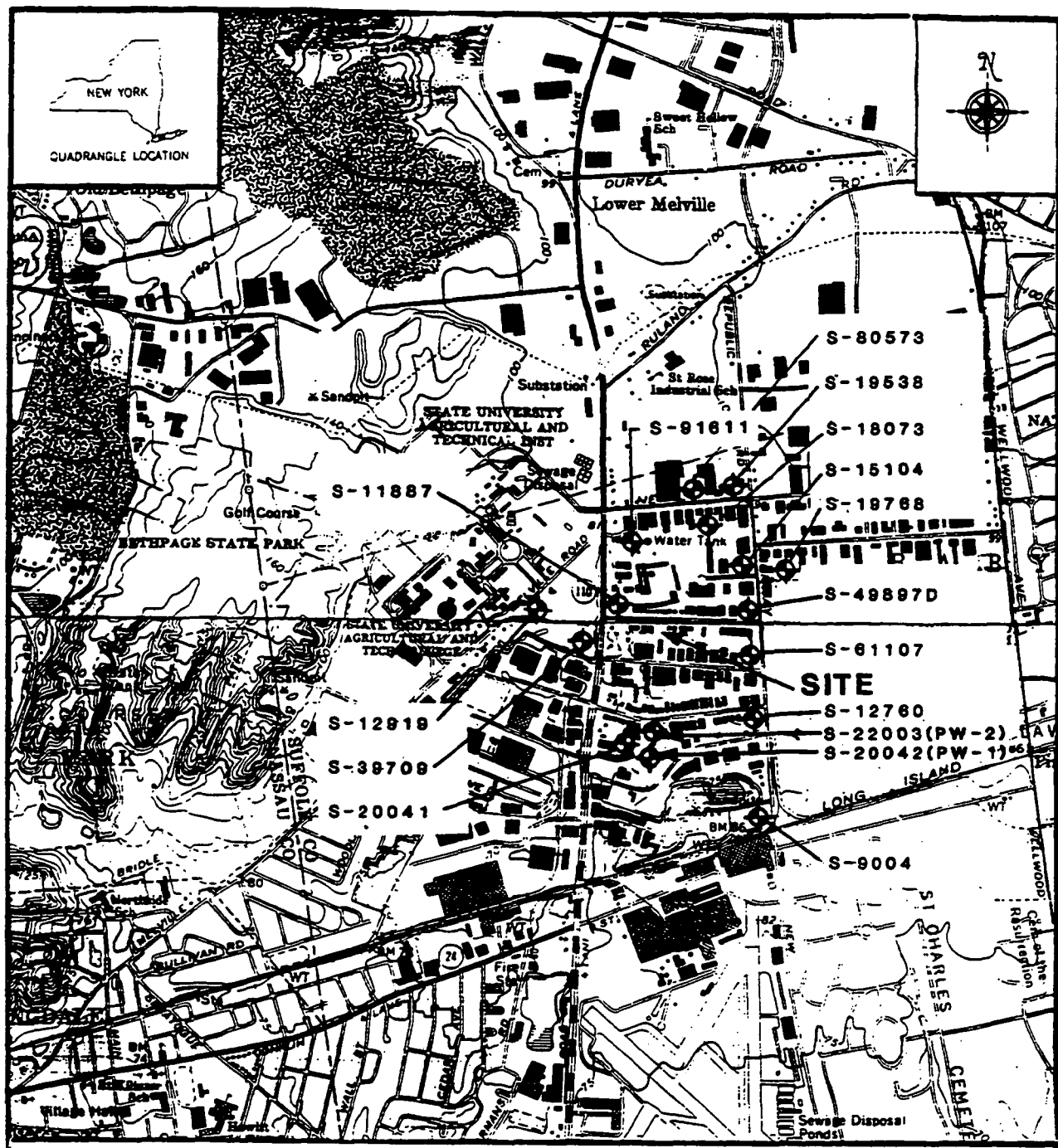
The statutory preference for treatment is satisfied by the selected remedy which employs on-Site treatment of the groundwater through aeration, coagulation, flocculation, sedimentation, air stripping, and vapor-phase and liquid-phase granular activated carbon. These treatment methods effectively reduce the toxicity, mobility, and volume of the contaminants.

## DOCUMENTATION OF SIGNIFICANT CHANGES

There are no significant changes from the preferred alternative presented in the Proposed Plan.

# APPENDIX I

## FIGURES




SOURCE: USGS 7.5 MINUTE SERIES AMITYVILLE AND HUNTINGTON QUADRANGLES (1979)

SCALE 1:24 000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

WESTON
MANAGERS DESIGNERS/CONSULTANTS

# FIGURE 1
## CIRCUITRON CORPORATION SITE LOCATION MAP EAST FARMINGDALE, NY

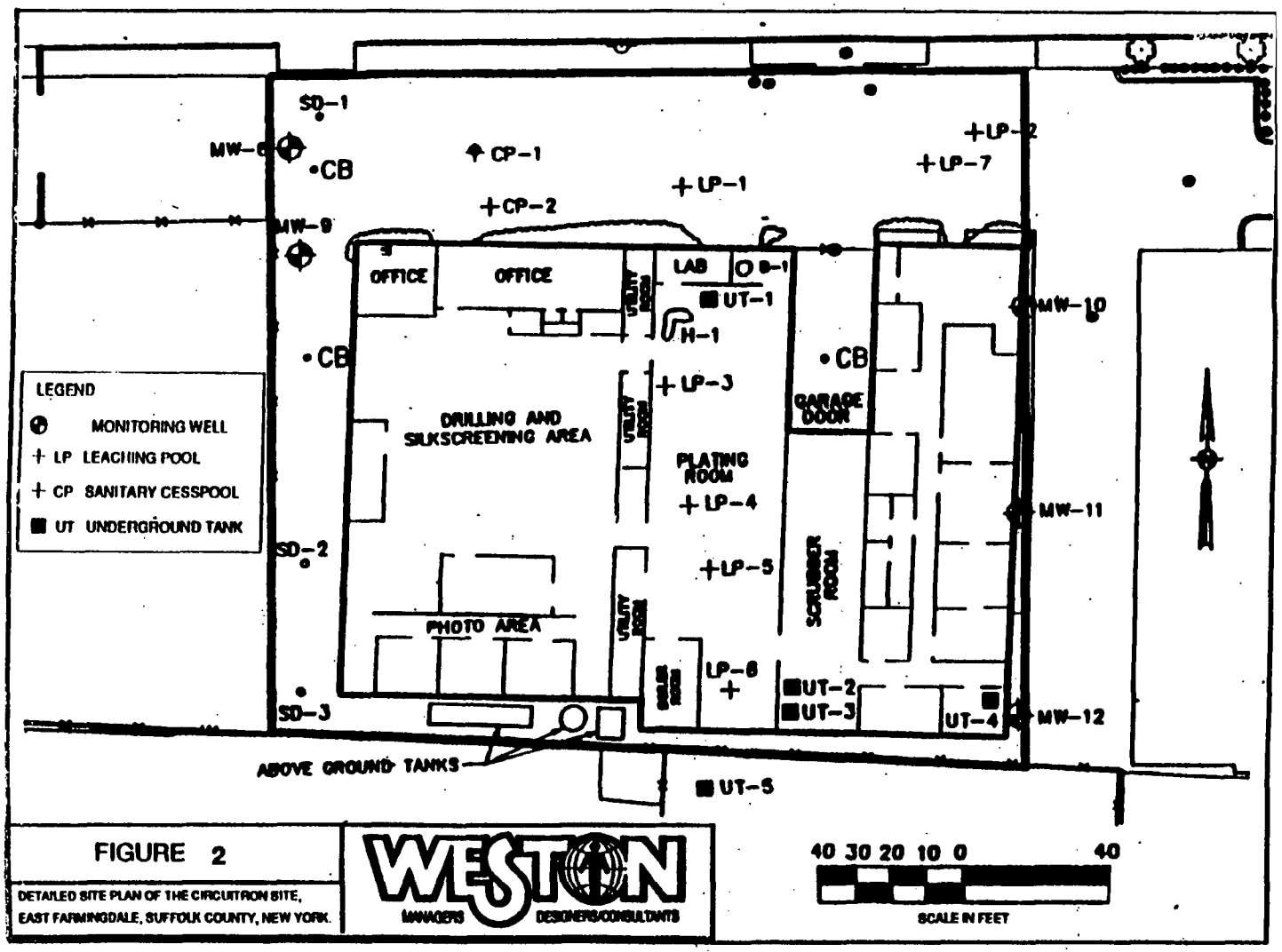
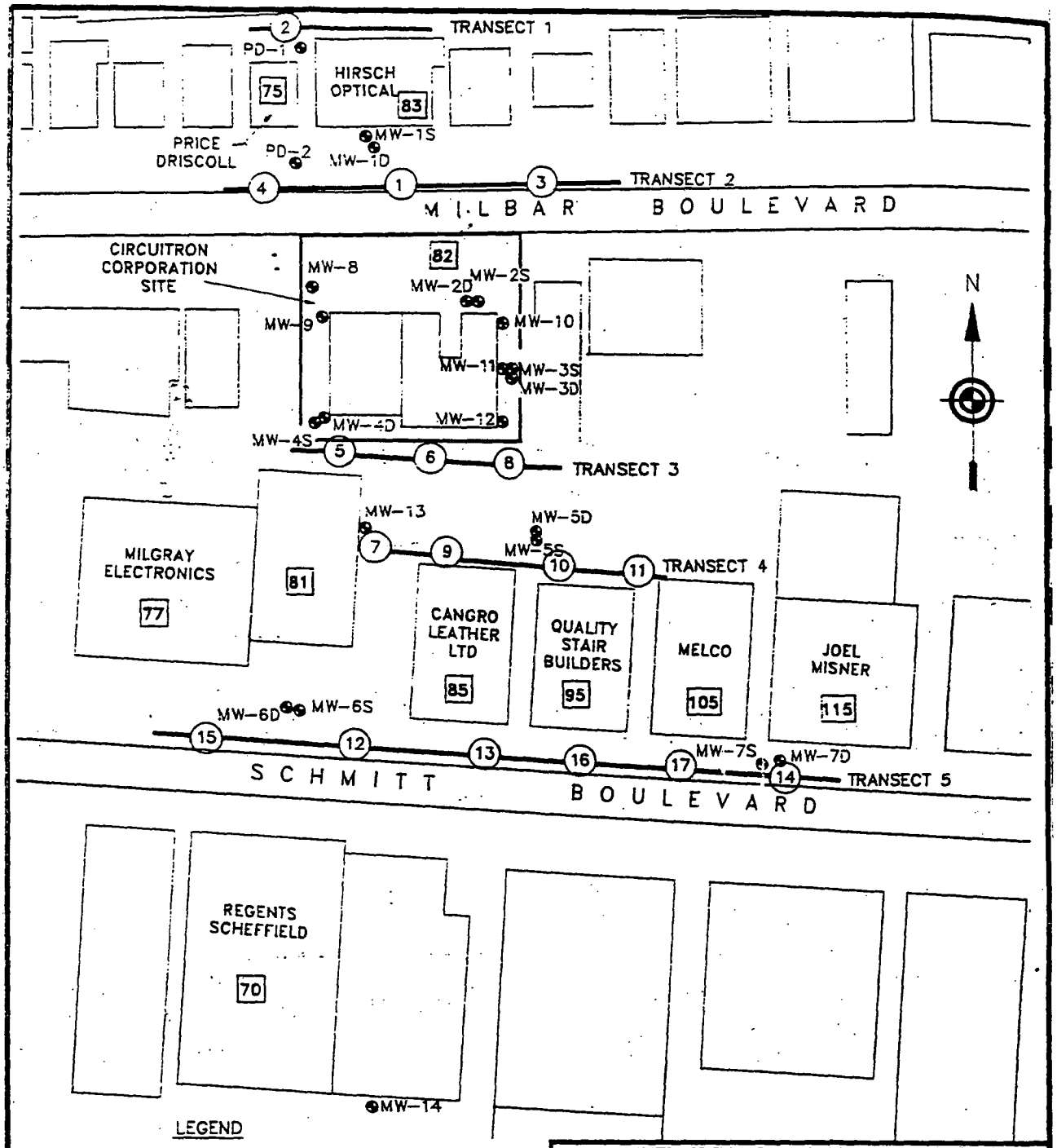



FIGURE 2

DETAILED SITE PLAN OF THE CIRCUITRON SITE, EAST FARMINGDALE, SUFFOLK COUNTY, NEW YORK.




LEGEND

GRAPHIC SCALE

75 0 75 150

(IN FEET)

MW-6D — MONITORING WELL LOCATION

(2) — DRIVE POINT GROUNDWATER SAMPLING LOCATION

LINE OF TRANSECT

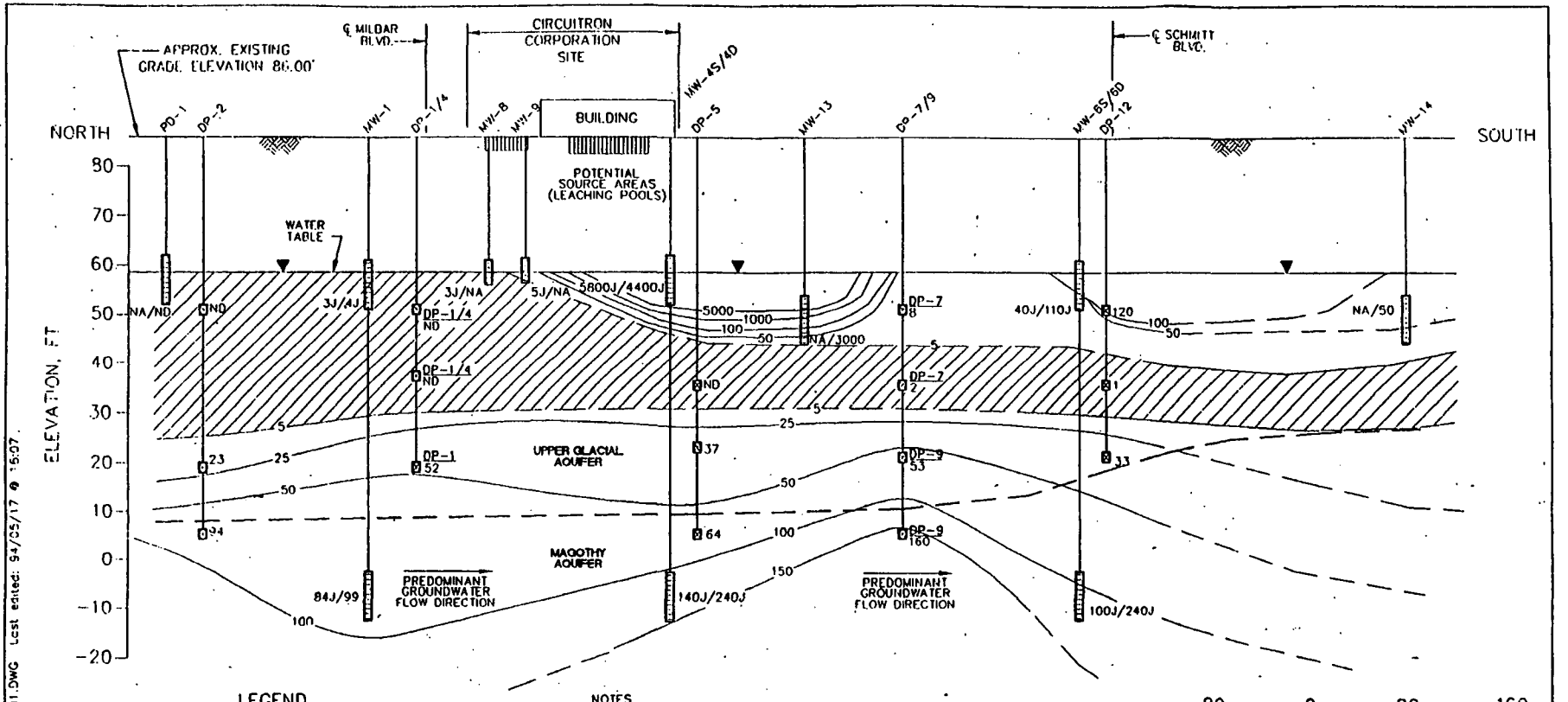
77 — PROPERTY ADDRESS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
CIRCUITRON CORPORATION SITE
EAST FARMINGDALE FOCUSED FEASIBILITY STUDY NEW YORK

WESTON

FIGURE 3
MONITORING WELL AND DRIVE POINT GROUNDWATER SAMPLING LOCATIONS

| | | | |
|---|---|---|---|
| B. MAC | 4/27/94 | 1 | 0000 |
| 1"= 150' | 04200-015-021 | 1 | 1 |

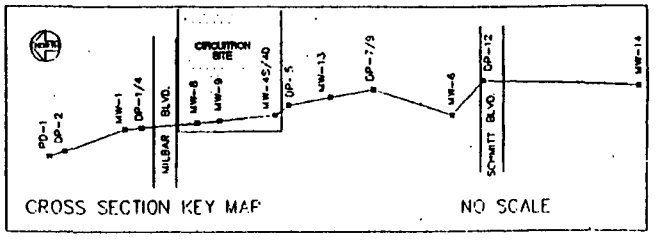



## LEGEND

| | |
|---|---|
| DP | DRIVE POINT GROUNDWATER SAMPLING LOCATION |
| —25— | CONCENTRATION ISOPLETH FOR 1,1,1-TCA IN ug/l |
| 3J/ND | CONCENTRATION OF 1,1,1-TCA FOR ROUND 1/ROUND 2 GROUNDWATER SAMPLING |
| ND | ANALYTE NOT PRESENT ABOVE THE QUANTIFICATION LIMIT OF 1 ug/l FOR DRIVE POINT SAMPLES OR 0.5 ug/l FOR MONITORING WELLS |
| — — — | UNCONFORMABLE GEOLOGIC FORMATION CONTACT |
| ▨ | 1,1,1-TCA LESS THAN 5 ug/l |
| ▭ | MONITORING WELL SCREENED INTERVAL |
| ▯ | DRIVE POINT SAMPLING SCREENED INTERVAL |
| NA | NOT SAMPLED OR ANALYZED |

NOTES

1. ROUND 1 GROUNDWATER SAMPLING WAS PERFORMED DURING MAY 10-14, 1993; ROUND 2 GROUNDWATER SAMPLING WAS PERFORMED DURING FEBRUARY 21-25, 1994 ONLY ROUND 1 DATA AND DRIVE POINT DATA WAS USED FOR THE CONTOURING OF ISOCONCENTRATIONS WITH THE EXCEPTION OF MW-13 AND 14 ONLY SAMPLED DURING ROUND 2.
2. DRIVE POINT GROUNDWATER SAMPLING WAS PERFORMED DURING AUGUST 18-24, 1993.




CROSS SECTION KEY MAP NO SCALE

80 0 80 160

HORIZONTAL SCALE - FEET

WESTON

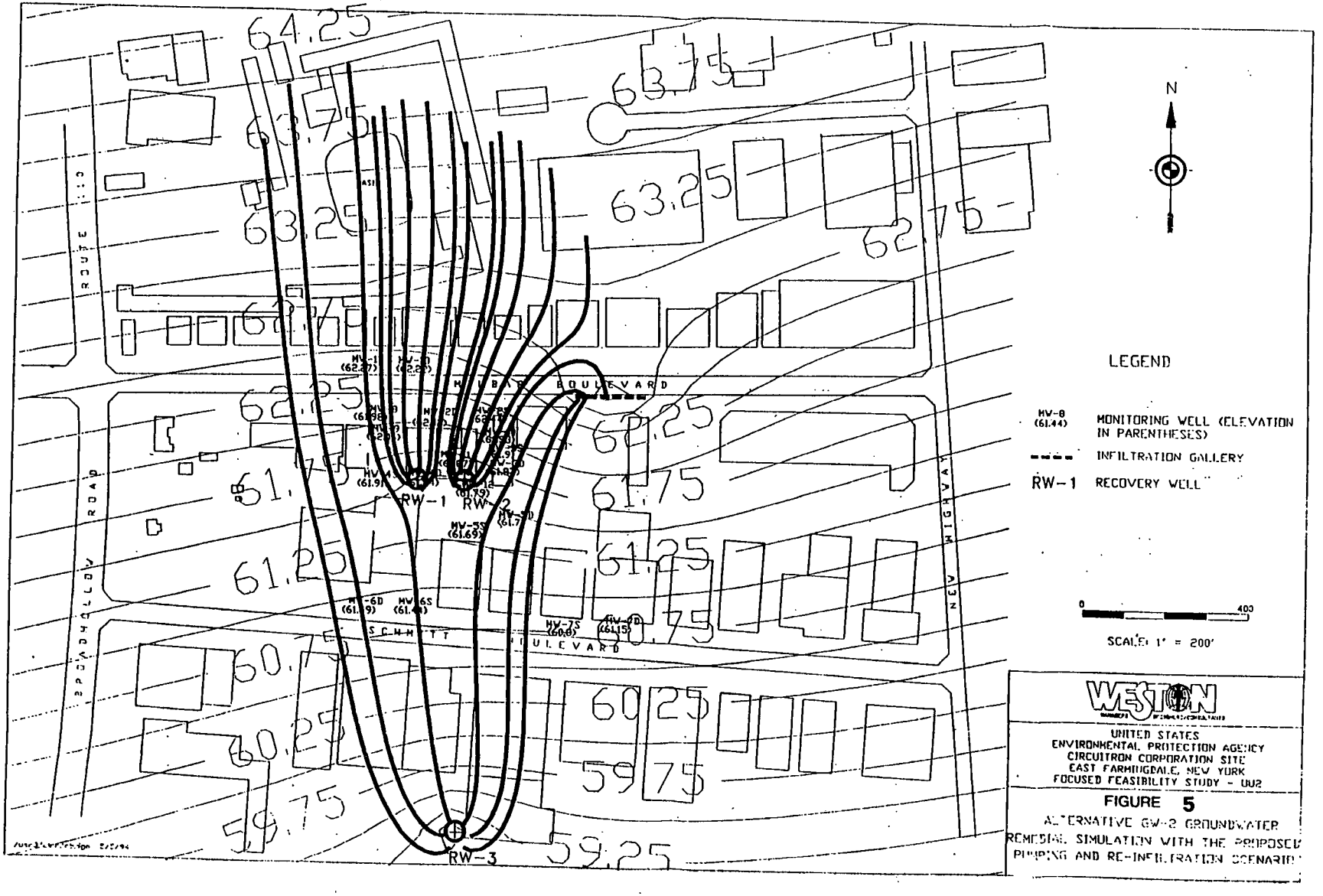
UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
CIRCUITRON CORPORATION SITE
EAST FARMINGDALE, NEW YORK
FOCUSED FEASIBILITY STUDY - OU2

FIGURE 4

CONCENTRATIONS OF 1,1,1-TCA IN GROUNDWATER, ug/l

MAY 1993, AUGUST 1993, AND FEBRUARY 1994

File name: C:\ACAD\PROJECT\CIRCUIT\42001501.DWG Last edited: 94/05/17 @ 15:07


64.25
63.75
63.25
62.75
62.25
61.75
61.25
60.75
60.25
59.75
59.25
ROUTE 110
SPOADWALLOW ROAD
NEW HIGHWAY
SCHMITT BOULEVARD
RW-1
RW-2
RW-3
MV-5S (61.69)
MV-7S (60.6)
MV-8D (61.15)
N
LEGEND
MV-8 (61.44) MONITORING WELL (ELEVATION IN PARENTHESES)
INFILTRATION GALLERY
RW-1 RECOVERY WELL
0
400
SCALE: 1" = 200'
WESTON
UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
CIRCUITRON CORPORATION SITE
EAST FARMINGDALE, NEW YORK
FOCUSED FEASIBILITY STUDY - OU2
FIGURE 5
ALTERNATIVE GW-2 GROUNDWATER
REMEDIAL SIMULATION WITH THE PROPOSED
PUMPING AND RE-INFILTRATION SCENARIO

# FIGURE 6
## MAJOR COMPONENTS FOR ALTERNATIVE GW-2 GROUNDWATER TREATMENT via METALS PRECIPITATION/AIR STRIPPING/GRANULAR ACTIVATED CARBON CIRCUITRON CORPORATION SITE, EAST FARMINGDALE, NEW YORK

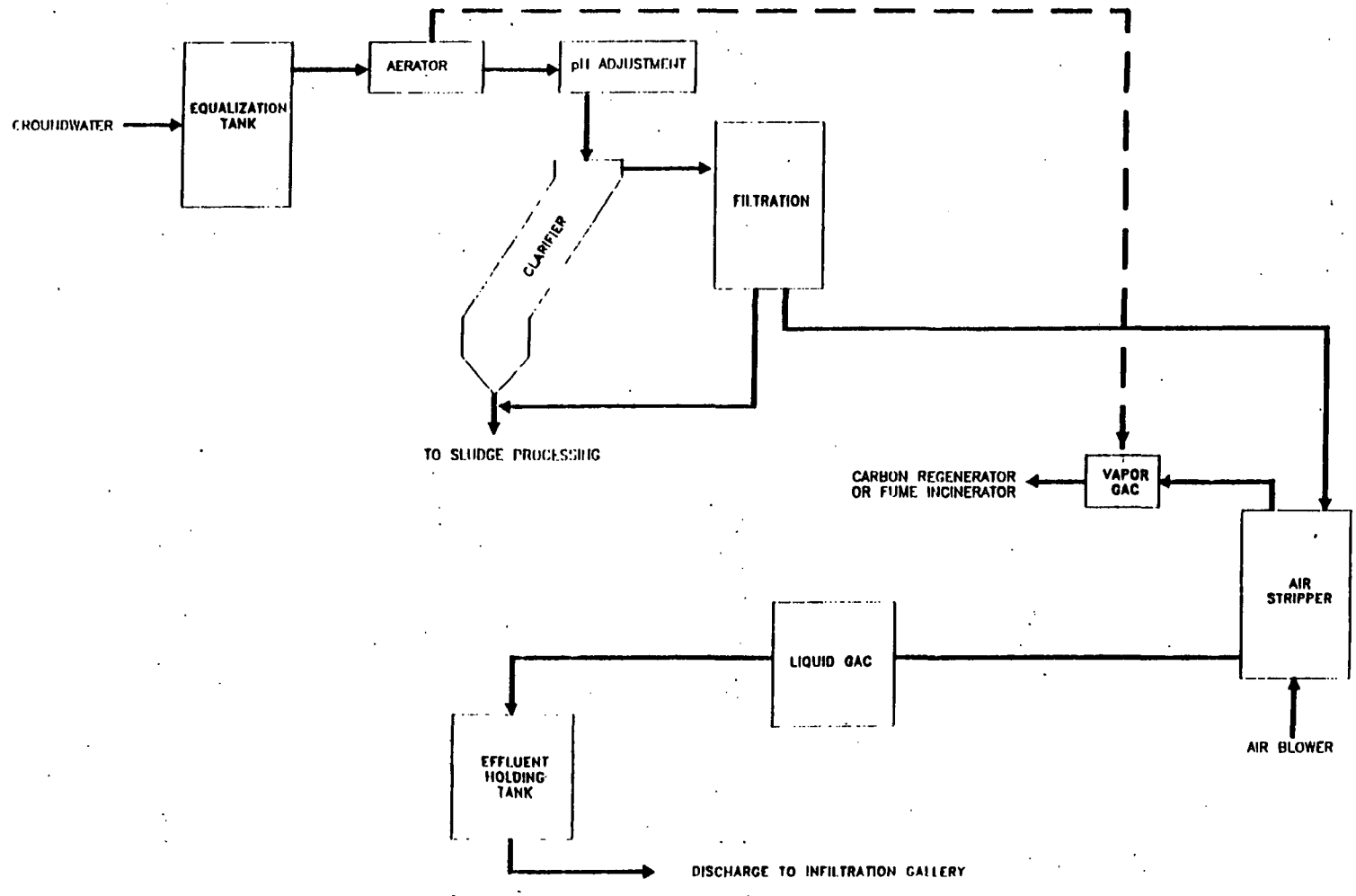
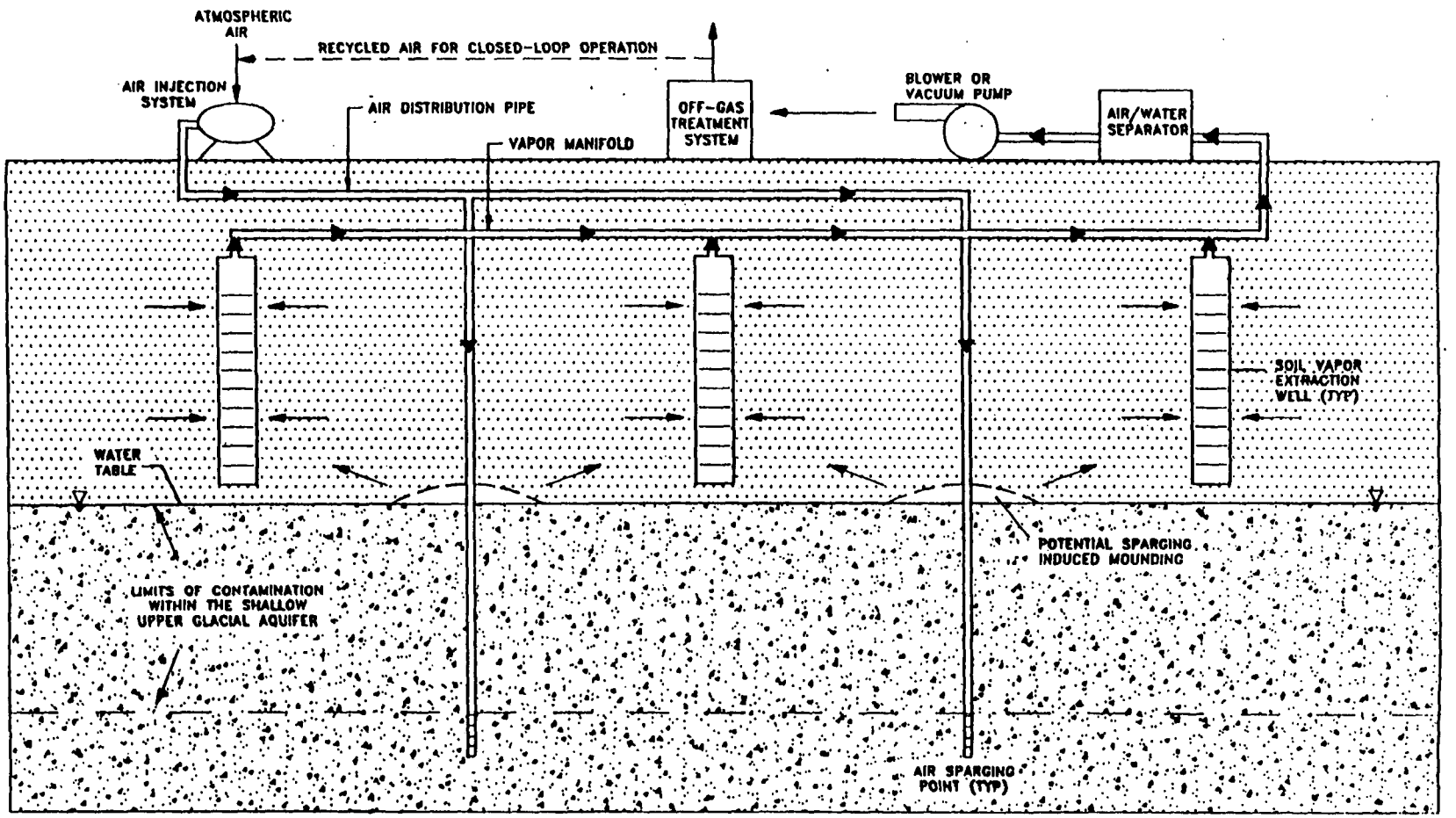


FIGURE 7
MAJOR COMPONENTS FOR ALTERNATIVE GW-3
TYPICAL AIR SPARGING SYSTEM CONFIGURATION
CIRCUITRON CORPORATION SITE, EAST FARMINGDALE, NEW YORK



# APPENDIX II

## TABLES

**TABLE 1**
**CIRCUITRON CORPORATION SITE**
**ROUND I DATA**
**FOCUSED FEASIBILITY STUDY - GROUNDWATER SAMPLING**
**MONITORING WELLS**
**VOLATILE ORGANICS ANALYTICAL RESULTS (ug/l)**

| NYS Drinking Water Quality Standards | Sample Number / Screened Interval (ft) / Date Collected | MW-2D 90-100 5/10/93 | Field Blank - 5/10/93 | MW-2S 25-35 5/11/93 | MW-2S-DUP 25-35 5/11/93 | MW-3S 28-38 5/11/93 | MW-4S 24-34 5/11/93 | MW-4D 90-100 5/11/93 |
|---|---|---|---|---|---|---|---|---|
| - | Chloromethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Bromomethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 2 | Vinyl Chloride | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Chloro[illegible]ane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 2.00 J | 1.00 UJ |
| 5 | Meth[illegible] Chloride | 2.00 UJ | 2.00 R | 2.00 UJ | 2.00 UJ | 2.00 UJ | 2.00 UJ | 2.00 R |
| - | Acetone | 5.00 R | 5.00 J | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R |
| - | Carbon Disulfide | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,1-Dichloroethene | **6.00 J** | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | **66.00 J** | **44.00 X1J** |
| 5 | 1,1-Dichloroethane | 1.00 J | 1.00 UJ | 1.00 UJ | 1.00 UJ | 0.60 J | **42.00 X1** | 2.00 J |
| 5 | cis-1,2-Dichloroethene | 2.00 J | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 2.00 J | 5.00 J |
| 5 | trans-1,2-Dichloroethene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 7 | Chloroform | 1.00 UJ | 4.00 J | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 2.00 UJ |
| 5 | 1,2-Dichloroethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 J |
| - | 2-Butanone | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R |
| - | Bromochloromethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,1,1-Trichloroethane | **25.00 J** | 1.00 UJ | 2.00 J | 2.00 J | 3.00 J | **5800.00 X2J** | **140.00 X2J** |
| 5 | Carbon Tetrachloride | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Bromodichloromethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,2-Dichloropropane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | cis-1,3-Dichloropropene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Trichloroethene | 5.00 J | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 3.00 J | **22.00 J** |
| - | Dibromochloromethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,1,2-Trichloroethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 3.00 J | 1.00 J |
| 0.7 | Benzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | trans-1,3-Dichloropropene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| - | Bromoform | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| - | 4-Methyl-2-Pentanone | 5.00 UJ | 5.00 UJ | 5.00 UJ | 5.00 UJ | 5.00 UJ | 5.00 UJ | 5.00 UJ |
| - | 2-Hexanone | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R |
| 5 | Tetrachloroethene | **6.00 J** | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 U | **21.00 J** | **63.00 X1J** |
| 5 | 1,1,2,2-Tetrachloroethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 U | 1.00 UJ | 1.00 UJ |
| - | 1,2-Dibromoethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Toluene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 U | 0.70 J | 1.00 UJ |
| 5 | Chlorobenzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 U | 0.60 J | 1.00 UJ |
| 5 | Ethylbenzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 U | 1.00 UJ | 1.00 UJ |
| 5 | Styrene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 U | 1.00 UJ | 1.00 UJ |
| 5 | Xylenes(total) | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 U | 1.00 UJ | 1.00 UJ |
| 4.7 | 1,3-Dichlorobenzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 U | 1.00 UJ | 1.00 UJ |
| 4.7 | 1,4-Dichlorobenzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 U | 1.00 UJ | 1.00 UJ |
| 4.7 | 1,2-Dichlorobenzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 U | 1.00 UJ | 1.00 UJ |
| 5 | 1,2-Dibromo-3-chloropropane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 U | 1.00 UJ | 1.00 UJ |
| | Total VOCs | 45.00 J | 9.00 J | 2.00 J | 2.00 J | 3.60 J | 5940.30 J | 278.00 J |
| | Total TICs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 |
| | Total TIC Concentration | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 250.00 J | 0.00 |

Notes
Concentrations above the New York State Drinking Water Standards referenced in Table 2-12 are highlighted
- = No standard available
U= Analyte was not detected at the instrument detection limit given
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
J= Estimated value
R= Rejected during data validation
X1=1:5 Dilution
X2=1:12.5 Dilution
JN=Presumptive evidence for presence of analyte, estimated quantity

**TABLE 1**
**CIRCUITRON CORPORATION SITE**
**ROUND I DATA**
**FOCUSED FEASIBILITY STUDY - GROUNDWATER SAMPLING**
**MONITORING WELLS**
**VOLATILE ORGANICS ANALYTICAL RESULTS (ug/l)**

| NYS Drinking Water Quality Standards | Sample Number / Screened Interval (ft) / Date Collected | Field Blank - 5/11/93 | Trip Blank - 5/11/93 | MW-1S 25-35 5/12/93 | MW-3D 90-100 5/12/93 | MW-5S 24-34 5/12/93 | MW-5D 90-100 5/12/93 | MW-8 24.8-29.8 5/12/93 |
|---|---|---|---|---|---|---|---|---|
| - | Chloromethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Bromomethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 2 | Vinyl Chloride | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Chloroethane | 1.00 UJ | 1.00 UJ | 1.00 U | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Methylene Chloride | 1.00 J | 4.00 J | 2.00 R | 2.00 R | 2.00 UJ | 2.00 UJ | 2.00 UJ |
| - | Acetone | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 6.00 J | 5.00 R |
| - | Carbon Disulfide | 1.00 J | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,1-Dichloroethene | 1.00 UJ | 1.00 UJ | 1.00 UJ | **6.00 J** | 1.00 UJ | **9.00 J** | 1.00 UJ |
| 5 | 1,1-Dichloroethane | 1.00 UJ | 1.00 UJ | 0.80 J | 0.90 J | 0.50 J | 1.00 J | 1.00 J |
| 5 | cis-1,2-Dichloroethene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 0.90 J | 1.00 UJ | 1.00 J | 1.00 UJ |
| 5 | trans-1,2-Dichloroethene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 7 | Chloroform | 4.00 J | 1.00 J | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,2-Dichloroethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| - | 2-Butanone | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R |
| - | Bromochloromethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,1,1-Trichloroethane | 1.00 UJ | 1.00 UJ | 3.00 J | **35.00 J** | **6.00 J** | **28.00 X1J** | 3.00 J |
| 5 | Carbon Tetrachloride | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Bromodichloromethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,2-Dichloropropane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | cis-1,3-Dichloropropene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Trichloroethene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 4.00 J | 1.00 UJ | 4.00 J | 1.00 UJ |
| - | Dibromochloromethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,1,2-Trichloroethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 0.7 | Benzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | trans-1,3-Dichloropropene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| - | Bromoform | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 R |
| - | 4-Methyl-2-Pentanone | 5.00 UJ | 5.00 UJ | 5.00 UJ | 5.00 UJ | 5.00 UJ | 5.00 R | 5.00 R |
| - | 2-Hexanone | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R |
| 5 | Tetrachloroethene | 1.00 UJ | 1.00 UJ | 1.00 UJ | **10.00 J** | 1.00 UJ | **7.00 J** | 1.00 UJ |
| 5 | 1,1,2,2-Tetrachloroethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| - | 1,2-Dibromoethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Toluene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Chlorobenzene | 1.00 UJ | 1.00 UJ | 0.60 J | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Ethylbenzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Styrene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Xylenes(total) | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 4.7 | 1,3-Dichlorobenzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 R |
| 4.7 | 1,4-Dichlorobenzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 R |
| 4.7 | 1,2-Dichlorobenzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 R |
| 5 | 1,2-Dibromo-3-chloropropane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 R |
| | Total VOCs | 6.00 J | 5.00 J | 4.40 J | 56.80 J | 6.50 J | 56.00 J | 4.00 J |
| | Total TICs | 0.00 | 0.00 | 2.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| | Total TIC Concentration | 0.00 | 0.00 | 69.00 JN | 0.00 | 4.00 JN | 0.00 | 55.00 J |

Notes:
Concentrations above the New York State Drinking Water Standards referenced in Table 2-12 are highlighted
- = No standard available
U= Analyte was not detected at the instrument detection limit given
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
J= Estimated value
R= Rejected during data validation.
X1=1:5 Dilution
X2=1:12.5 Dilution
N=Presumptive evidence for presence of analyte, estimated quantity

TABLE 1
CIRCUITRON CORPORATION SITE
ROUND I DATA
FOCUSED FEASIBILITY STUDY - GROUNDWATER SAMPLING
MONITORING WELLS
VOLATILE ORGANICS ANALYTICAL RESULTS (ug/l)

| NYS Drinking Water Quality Standards | Sample Number | MW-9 | Field Blank | Trip Blank | MW-1D | MW-6S | MW-10 | MW-11 |
|---|---|---|---|---|---|---|---|---|
| | Screened Interval (ft) | 24.1-29.1 | - | - | 90-100 | 24.8-34.8 | 23.9-28.9 | 25.1-30.1 |
| | Date Collected | 5/12/93 | 5/12/93 | 5/12/93 | 5/13/93 | 5/13/93 | 5/13/93 | 5/13/93 |
| - | Chloromethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Bromomethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 2 | Vinyl Chloride | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Chloroethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Methylene Chloride | 2.00 UJ | 3.00 J | 3.00 J | 2.00 R | 2.00 UJ | 2.00 UJ | 2.00 UJ |
| - | Acetone | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 8.00 J | 5.00 R | 5.00 R |
| - | Carbon Disulfide | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,1-Dichloroethene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 31.00 J | 3.00 J | 1.00 UJ | 1.00 UJ |
| 5 | 1,1-Dichloroethane | 1.00 J | 1.00 UJ | 1.00 UJ | 4.00 J | **10.00 J** | 0.50 J | 1.00 UJ |
| 5 | cis-1,2-Dichloroethene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 4.00 J | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | trans-1,2-Dichloroethene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 7 | Chloroform | 1.00 UJ | 1.00 J | 1.00 J | 3.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,2-Dichloroethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| - | 2-Butanone | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 UR | 5.00 R | 5.00 R |
| - | Bromochloromethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,1,1-Trichloroethane | 5.00 J | 1.00 UJ | 1.00 UJ | **84.00 J** | **40.00 X1J** | 3.00 J | 5.00 J |
| 5 | Carbon Tetrachloride | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Bromodichloromethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,2-Dichloropropane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | cis-1,3-Dichloropropene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Trichloroethene | 1.00 UJ | 1.00 UJ | 1.00 UJ | **76.00 J** | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| - | Dibromochloromethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,1,2-Trichloroethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 0.7 | Benzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | trans-1,3-Dichloropropene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| - | Bromoform | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| - | 4-Methyl-2-Pentanone | 5.00 UJ | 5.00 R | 5.00 R | 5.00 UJ | 5.00 UJ | 5.00 UJ | 5.00 UJ |
| - | 2-Hexanone | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R |
| 5 | Tetrachloroethene | 1.00 UJ | 1.00 UJ | 1.00 UJ | **38.00 J** | 0.70 J | 1.00 UJ | 1.00 UJ |
| 5 | 1,1,2,2-Tetrachloroethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| - | 1,2-Dibromoethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Toluene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Chlorobenzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Ethylbenzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Styrene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Xylenes(total) | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 4.7 | 1,3-Dichlorobenzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 4.7 | 1,4-Dichlorobenzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 4.7 | 1,2-Dichlorobenzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,2-Dibromo-3-chloropropane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| | Total VOCs | 6.00 J | 4.00 J | 4.00 J | 237.00 J | 61.70 J | 3.50 J | 5.00 J |
| | Total TICs | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | Total TIC Concentration | 71.00 J | 0.00 | 0.00 | 3.00 JN | 5.00 J | 4.00 JN | 4.00 JN |

Notes
Concentrations above the New York State Drinking Water Standards referenced in Table 2-12 are highlighted
- = No standard available
U= Analyte was not detected at the instrument detection limit given.
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
J= Estimated value
R= Rejected during data validation
X1=1:5 Dilution
X2=1:12.5 Dilution
JN=Presumptive evidence for presence of analyte; estimated quantity

**TABLE 1**
**CIRCUITRON CORPORATION SITE**
**ROUND I DATA**
**FOCUSED FEASIBILITY STUDY - GROUNDWATER SAMPLING**
**MONITORING WELLS**
**VOLATILE ORGANICS ANALYTICAL RESULTS (ug/l)**

| NYS Drinking Water Quality Standards | Sample Number / Screened Interval (ft) / Date Collected | MW-12 25-35 5/13/93 | Field Blank - 5/13/93 | Trip Blank - 5/13/93 | MW-6D 90-100 5/14/93 | MW-7S 27-37 5/14/93 | MW-7D 90-100 5/14/93 | PW-2 216.3-226.3 5/14/93 |
|---|---|---|---|---|---|---|---|---|
| - | Chloromethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Bromomethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 2 | Vinyl Chloride | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Chloroethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Methylene Chloride | 2.00 UJ | 2.00 J | 3.00 J | 2.00 UJ | 2.00 UJ | 2.00 UJ | 2.00 UJ |
| - | Acetone | 18.00 J | 5.00 R | 5.00 R | 4.00 J | 3.00 J | 3.00 J | 4.00 J |
| - | Carbon Disulfide | 1.00 UJ | 1.00 J | 1.00 UJ | 1.00 J | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,1-Dichloroethene | 2.00 J | 1.00 UJ | 1.00 UJ | **22.00 J** | 1.00 UJ | **14.00 J** | 2.00 J |
| 5 | 1,1-Dichloroethane | 1.00 J | 1.00 UJ | 1.00 UJ | 2.00 J | 1.00 UJ | 2.00 J | 1.00 UJ |
| 5 | cis-1,2-Dichloroethene | 1.00 UJ | 1.00 UJ | 1.00 UJ | **6.00 J** | 1.00 UJ | 1.00 J | **11.00 J** |
| 5 | trans-1,2-Dichloroethene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 7 | Chloroform | 1.00 UJ | 1.00 J | 1.00 J | **12.00 J** | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,2-Dichloroethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 J | 1.00 UJ | 1.00 UJ | 2.00 J |
| - | 2-Butanone | 6.00 J | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R |
| - | Bromochloromethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,1,1-Trichloroethane | **50.00 X1J** | 1.00 UJ | 1.00 UJ | **100.00 X1J** | 1.00 JN | **54.00 X1J** | **10.00 J** |
| 5 | Carbon Tetrachloride | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Bromodichloromethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,2-Dichloropropane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | cis-1,3-Dichloropropene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Trichloroethene | 1.00 UJ | 1.00 UJ | 1.00 UJ | **19.00 J** | 1.00 UJ | **10.00 J** | **21.00 J** |
| - | Dibromochloromethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,1,2-Trichloroethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 0.7 | Benzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | trans-1,3-Dichloropropene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| - | Bromoform | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| - | 4-Methyl-2-Pentanone | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R |
| - | 2-Hexanone | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R |
| 5 | Tetrachloroethene | 5.00 J | 1.00 UJ | 1.00 UJ | **31.00 X1J** | 1.00 UJ | **30.00 X1J** | **7.00 J** |
| 5 | 1,1,2,2-Tetrachloroethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| - | 1,2-Dibromoethane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Toluene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Chlorobenzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Ethylbenzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Styrene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | Xylenes(total) | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 4.7 | 1,3-Dichlorobenzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 4.7 | 1,4-Dichlorobenzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 4.7 | 1,2-Dichlorobenzene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,2-Dibromo-3-chloropropane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| | Total VOCs | 82.00 | 4.00 | 4.00 | 198.00 | 4.00 | 114.00 | 57.00 |
| | Total TICs | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 |
| | Total TIC Concentration | 0.00 | 0.00 | 0.00 | 5.00 JN | 0.00 | 0.00 | 10.00 R |

Notes
Concentrations above the New York State Drinking Water Standards referenced in Table 2-12 are highlighted
- = No standard available
U= Analyte was not detected at the instrument detection limit given.
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
J= Estimated value
R= Rejected during data validation
X1=1.5 Dilution
X2=1.12.5 Dilution
JN=Presumptive evidence for presence of analyte, estimated quantity

**TABLE 1**
**CIRCUITRON CORPORATION SITE**
**ROUND I DATA**
**FOCUSED FEASIBILITY STUDY - GROUNDWATER SAMPLING**
**MONITORING WELLS**
**VOLATILE ORGANICS ANALYTICAL RESULTS (ug/l)**

| NYS Drinking Water Quality Standards | Sample Number<br>Screened Interval (ft)<br>Date Collected | Field Blank<br>-<br>5/14/93 | Trip Blank<br>-<br>5/14/93 |
|---|---|---|---|
| - | Chloromethane | 1.00 UJ | 1.00 UJ |
| 5 | Bromomethane | 1.00 UJ | 1.00 UJ |
| 2 | Vinyl Chloride | 1.00 UJ | 1.00 UJ |
| | Chloroethane | 1.00 UJ | 1.00 UJ |
| 5 | Methylene Chloride | 3.00 J | 3.00 J |
| - | Acetone | 5.00 R | 5.00 R |
| - | Carbon Disulfide | 1.00 UJ | 1.00 UJ |
| 5 | 1,1-Dichloroethene | 1.00 UJ | 1.00 UJ |
| 5 | 1,1-Dichloroethane | 1.00 UJ | 1.00 UJ |
| 5 | cis-1,2-Dichloroethene | 1.00 UJ | 1.00 UJ |
| 5 | trans-1,2-Dichloroethene | 1.00 UJ | 1.00 UJ |
| 7 | Chloroform | 1.00 J | 1.00 J |
| 5 | 1,2-Dichloroethane | 1.00 UJ | 1.00 UJ |
| - | 2-Butanone | 5.00 R | 5.00 R |
| - | Bromochloromethane | 1.00 UJ | 1.00 UJ |
| 5 | 1,1,1-Trichloroethane | 1.00 UJ | 1.00 UJ |
| 5 | Carbon Tetrachloride | 1.00 UJ | 1.00 UJ |
| 5 | Bromodichloromethane | 1.00 UJ | 1.00 UJ |
| 5 | 1,2-Dichloropropane | 1.00 UJ | 1.00 UJ |
| 5 | cis-1,3-Dichloropropene | 1.00 UJ | 1.00 UJ |
| 5 | Trichloroethene | 1.00 UJ | 1.00 UJ |
| - | Dibromochloromethane | 1.00 UJ | 1.00 UJ |
| 5 | 1,1,2-Trichloroethane | 1.00 UJ | 1.00 UJ |
| 0.7 | Benzene | 1.00 UJ | 1.00 UJ |
| 5 | trans-1,3-Dichloropropene | 1.00 UJ | 1.00 UJ |
| - | Bromoform | 1.00 UJ | 1.00 UJ |
| - | 4-Methyl-2-Pentanone | 5.00 R | 5.00 R |
| - | 2-Hexanone | 5.00 R | 5.00 R |
| 5 | Tetrachloroethene | 1.00 UJ | 1.00 UJ |
| 5 | 1,1,2,2-Tetrachloroethane | 1.00 UJ | 1.00 UJ |
| - | 1,2-Dibromoethane | 1.00 UJ | 1.00 UJ |
| 5 | Toluene | 1.00 UJ | 1.00 UJ |
| 5 | Chlorobenzene | 1.00 UJ | 1.00 UJ |
| 5 | Ethylbenzene | 1.00 UJ | 1.00 UJ |
| 5 | Styrene | 1.00 UJ | 1.00 UJ |
| 5 | Xylenes(total) | 1.00 UJ | 1.00 UJ |
| 4.7 | 1,3-Dichlorobenzene | 1.00 UJ | 1.00 UJ |
| 4.7 | 1,4-Dichlorobenzene | 1.00 UJ | 1.00 UJ |
| 4.7 | 1,2-Dichlorobenzene | 1.00 UJ | 1.00 UJ |
| 5 | 1,2-Dibromo-3-chloropropane | 1.00 UJ | 1.00 UJ |
| | Total VOCs | 4.00 | 4.00 |
| | Total TICs | 1.00 | 0.00 |
| | Total TIC Concentration | 3.00 JN | 0.00 |

Notes:
Concentrations above the New York State Drinking Water Standards referenced in Table 2-12 are highlighted
- = No standard available
U= Analyte was not detected at the instrument detection limit given
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
J= Estimated value
R= Rejected during data valication
X1=1.5 Dilution
X2=1:12.5 Dilution
JN=Presumptive evidence for presence of analyte, estimated quantity

# TABLE 2
## CIRCUITRON CORPORATION SITE
## ROUND I DATA
## FOCUSED FEASIBILITY STUDY - GROUNDWATER SAMPLING
## EXISTING MONITORING WELLS
## INORGANICS ANALYTICAL RESULTS (ug/l)

| NYS Drinking Water Quality Standards | Sample Number / Analysis / Screened Interval (ft) / Date Collected | MW-2D Total 90-100 5/10/93 | MW-2D Dissolved 90-100 5/10/93 | MW-2S Total 25-35 5/11/93 | MW-2S Dissolved 25-35 5/11/93 | MW-2S-DUP Total 25-35 5/11/93 | MW-2S-DUP Dissolved 25-35 5/11/93 | MW-3S Total 28-38 5/11/93 | MW-3S Dissolved 28-38 5/11/93 | MW-4S Total 24-34 5/11/93 |
|---|---|---|---|---|---|---|---|---|---|---|
| - | Aluminum | 180.00 BJ | 31.00 B | 652.00 R | 25.10 R | 436.00 R | 31.30 R | 193.00 BJ | 31.40 R | 1,510.00 R |
| - | Antimony | 24.30 BJ | 17.90 U | 17.90 UJ | 17.90 UJ | 17.90 UJ | 17.90 UJ | 17.90 UJ | 17.90 UJ | 17.90 UJ |
| 25.00 | Arsenic | 2.30 UJWN* | 3.50 UJW | **73.80 JN*** | 3.50 UJW | **81.20 JSN*** | 3.50 UJ | 16.00 JN* | 3.50 UJ | 2.30 UJN* |
| 1,000.00 | Barium | 100.00 BJ | 82.70 B | **1,390.00 J** | 72.40 BJ | **1,010.00 J** | 51.70 BJ | 40.00 BJ | 5.20 BJ | 61.70 BJ |
| - | Beryllium | 0.50 UJ | 0.50 U | 0.50 UJ | 0.50 UJ | 0.50 UJ | 0.50 UJ | 0.50 UJ | 0.50 UJ | 0.50 UJ |
| 10.00 | Cadmium | 1.70 UJN | 1.70 U | 1.70 UJN | 1.70 UJ | 1.70 UJN | 1.70 UJ | 1.70 UJN | 1.70 UJ | 1.70 UJN |
| - | Calcium | 15,400.00 J | 11,000.00 | 39,700.00 J | 29,000.00 J | 38,600.00 J | 27,800.00 J | 22,200.00 J | 19,200.00 J | 31,700.00 J |
| 50.00 | Chromium | 42.90 J | 29.70 | 38.70 J | 5.80 UJ | **73.10 J** | 5.80 UJ | 11.70 J | 5.80 UJ | **597.00 J** |
| - | Cobalt | 3.80 UJ | 3.80 U | 4.60 BJ | 3.80 UJ | 3.80 UJ | 3.80 UJ | 3.80 UJ | 3.80 UJ | 3.80 UJ |
| 200.00 | Copper | 17.40 BJ | 9.40 B | **14,600.00 J** | 18.80 BJ | **10,500.00 J** | 34.70 J | **262.00 J** | 18.90 BJ | 125.00 J |
| 300.00 | Iron | **885.00 J** | 62.50 B | **467,000.00 J** | **714.00 J** | **280,000.00 J** | **515.00 J** | **42,200.00 J** | **1,150.00 J** | **6,210.00 J** |
| 15.00 | Lead | 7.10 J | 2.60 R | 8.50 J | 1.90 R | 5.30 J | 2.90 R | 6.30 J | 1.50 R | 10.90 J |
| 35,000.00 | Magnesium | 2,560.00 BJ | 2,290.00 B | 4,340.00 BJ | 3,930.00 BJ | 4,540.00 BJ | 3,970.00 BJ | 3,290.00 BJ | 2,900.00 BJ | 3,350.00 BJ |
| 300.00 | Manganese | 159.00 J | 84.70 | **1,790.00 J** | **402.00 J** | **1,400.00 J** | **397.00 J** | **467.00 J** | **370.00 J** | **458.00 J** |
| 2.00 | Mercury | 0.10 UJN | 0.10 U | 0.10 UJN | 0.10 UJ | 0.10 UJN | 0.10 UJ | 0.10 UJN | 0.10 UJ | 0.10 UJN |
| - | Nickel | 14.10 BJ | 6.10 U | 7.00 BJ | 6.10 UJ | 20.70 BJ | 6.10 UJ | 6.10 UJ | 6.10 UJ | 23.80 BJ |
| - | Potassium | 15,900.00 J | 16,700.00 J | 5,570.00 J | 5,840.00 J | 5,730.00 J | 5,100.00 J | 7,120.00 J | 7,490.00 J | 4,350.00 BJ |
| 10.00 | Selenium | 3.30 R | 2.90 UJW | 16.50 R | 2.90 UJ | 16.50 R | 2.90 UJ | 3.30 R | 2.90 UJ | 3.30 R |
| 50.00 | Silver | 3.80 UJ | 3.80 U | 27.70 J | 3.80 UJ | 17.40 J | 3.80 UJ | 3.80 UJ | 3.80 UJ | 3.80 UJ |
| 20,000.00 | Sodium | **20,200.00 J** | **20,600.00** | 10,100.00 J | 10,400.00 J | 10,800.00 J | 9,920.00 J | 15,200.00 J | 14,200.00 J | 9,250.00 J |
| - | Thallium | 1.20 UJW | 1.20 UJWN | 1.20 UJ | 1.20 UJWN | 1.20 UJ | 1.20 UJWN | 1.20 UJ | 6.00 UJN | 1.20 UJW |
| - | Vanadium | 3.30 UJ | 3.30 U | 46.20 BJ | 3.30 UJ | 29.20 BJ | 3.30 UJ | 7.10 BJ | 3.30 UJ | 6.90 BJ |
| 300.00 | Zinc | 80.90 JE | 61.90 | 281.00 JE | 3.40 UJ | 209.00 JE | 9.00 BJ | 28.20 JE | 30.20 J | 81.90 JE |

Notes:
Concentrations above the New York State Drinking Water Quality Standards referenced in Table 2-12 are highlighted
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**TABLE 2**
**CIRCUITRON CORPORATION SITE**
**ROUND I DATA**
**FOCUSED FEASIBILITY STUDY - GROUNDWATER SAMPLING**
**EXISTING MONITORING WELLS**
**INORGANICS ANALYTICAL RESULTS (ug/l)**

| NYS Drinking Water Quality Standards | Sample Number / Analysis / Screened Interval (ft) / Date Collected | MW-4S Dissolved 24-34 5/11/93 | MW-4D Total 90-100 5/11/93 | MW-4D Dissolved 90-100 5/11/93 | Field Blank Total Pump 5/11/93 | Field Blank Total Bailer 5/11/93 | Field Blank Dissolved Filter 5/11/93 | MW-1S Total 25-35 5/12/93 | MW-1S Dissolved 25-35 5/12/93 | MW-3D Total 90-100 5/12/93 |
|---|---|---|---|---|---|---|---|---|---|---|
| - | Aluminum | 23.50 UJ | 373.00 R | 27.00 R | 604.00 J | 426.00 J | 23.50 UJ | 254.00 | 30.10 B | 104.00 B |
| - | Antimony | 17.90 UJ | 17.90 UJ | 17.90 UJ | 17.90 UJ | 17.90 UJ | 17.90 UJ | 17.90 U | 17.90 U | 17.90 U |
| 25.00 | Arsenic | 3.50 UJ | 2.30 UJWN* | 3.50 UJ | 2.30 UJN | 2.30 UJN* | 3.50 UJ | 7.50 BJN* | 6.10 B | 2.30 UJN* |
| 1,000.00 | Barium | 56.90 BJ | 21.70 BJ | 82.70 BJ | 2.50 UJ | 2.50 UJ | 2.50 UJ | 217.00 | 164.00 B | 100.00 B |
| - | Beryllium | 0.50 UJ | 0.50 UJ | 0.50 UJ | 0.50 UJ | 0.50 UJ | 0.50 UJ | 0.50 U | 0.50 U | 0.50 U |
| 10.00 | Cadmium | 1.70 UJ | 1.70 UJN | 1.70 UJ | 1.70 UJN | 1.70 UJN | 1.70 UJ | 1.70 U | 1.70 U | 1.70 UJN |
| - | Calcium | 30,700.00 J | 18,300.00 J | 9,890.00 J | 730.00 BJ | 458.00 BJ | 97.50 BJ | 80,700.00 | 76,200.00 | 14,500.00 |
| 50.00 | Chromium | 36.00 J | **73.30 J** | 5.80 UJ | 5.80 UJ | 5.80 UJ | 5.80 UJ | 19.10 | 5.80 U | 81.90 R |
| - | Cobalt | 3.80 UJ | 3.80 UJ | 3.80 UJ | 3.80 UJ | 3.80 UJ | 3.80 UJ | 6.40 B | 3.90 B | 19.80 B |
| 200.00 | Copper | 31.80 J | 5.60 BJ | 9.40 BJ | 9.10 BJ | 5.50 BJ | 4.20 UJ | 38.50 | 4.60 B | 8.30 B |
| 300.00 | Iron | **436.00 J** | **803.00 J** | 18.90 BJ | 116.00 J | 41.60 BJ | 8.20 BJ | **66,600.00** | **21,300.00** | **528.00** |
| 15.00 | Lead | 1.90 R | 3.10 J | 1.50 R | 3.90 JW | 2.20 BJ | 6.70 J | 7.10 | 2.60 R | 7.30 R |
| 35,000.00 | Magnesium | 2,910.00 BJ | 2,580.00 BJ | 2,840.00 BJ | 160.00 BJ | 114.00 BJ | 46.40 UJ | 5,920.00 | 5,580.00 | 2,830.00 B |
| 300.00 | Manganese | **446.00 J** | 257.00 J | 17.40 J | 17.80 J | 11.50 BJ | 1.80 UJ | **806.00** | **783.00** | **1,970.00** |
| 2.00 | Mercury | 0.10 UJ | 0.10 UJN | 0.10 UJ | 0.10 UJN | 0.10 UJN | 0.10 UJ | 0.10 UJN | 0.10 U | 0.10 UJN |
| - | Nickel | 37.30 BJ | 39.30 BJ | 6.10 UJ | 6.10 UJ | 6.10 UJ | 6.10 UJ | 7.50 B | 7.10 B | 22.90 B |
| - | Potassium | 4,230.00 BJ | 2,390.00 R | 6,420.00 R | 188.00 UJ | 188.00 UJ | 188.00 UJ | 13,900.00 | 12,400.00 J | 4,950.00 B |
| 10.00 | Selenium | 2.90 UJ | 3.30 R | 2.90 UJ | 3.30 R | 3.30 R | 2.90 UJ | 3.30 R | 2.90 UJW | 3.30 R |
| 50.00 | Silver | 4.60 BJ | 3.80 UJ | 4.00 BJ | 3.80 UJ | 3.80 UJ | 3.80 UJ | 3.80 U | 3.80 U | 3.80 U |
| 20,000.00 | Sodium | 9,040.00 J | 12,000.00 J | 16,700.00 J | 434.00 BJ | 135.00 BJ | 66.20 UJ | 18,600.00 | 17,100.00 | **21,100.00** |
| - | Thallium | 1.20 UJWN | 1.20 UJW | 1.20 UJWN | 1.20 UJ | 1.20 UJ | 1.20 UJN | 1.20 UJW | 1.20 UJWN | 1.20 UJW |
| - | Vanadium | 3.30 UJ | 3.30 UJ | 3.30 UJ | 3.30 UJ | 3.30 UJ | 3.30 UJ | 12.00 B | 3.30 U | 3.30 U |
| 300.00 | Zinc | 48.00 J | 70.90 JE | 17.00 BJ | 16.00 BJE | 7.70 BJE | 3.40 UJ | 133.00 JE | 38.40 J | 23.40 JE |

Notes:
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# TABLE 2
## CIRCUITRON CORPORATION SITE
## ROUND I DATA
## FOCUSED FEASIBILITY STUDY - GROUNDWATER SAMPLING
## EXISTING MONITORING WELLS
## INORGANICS ANALYTICAL RESULTS (ug/l)

| NYS Drinking Water Quality Standards | Sample Number | MW-3D | MW-5S | MW-5S | MW-5D | MW-5D | MW-8 | MW-8 | MW-9 | MW-9 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Analysis | Dissolved | Total | Dissolved | Total | Dissolved | Total | Dissolved | Total | Dissolved |
| | Screened Interval (ft) | 90-100 | 24-34 | 24-34 | 90-100 | 90-100 | 24.8-29.8 | 24.8-29.8 | 24.1-29.1 | 24.1-29.1 |
| | Date Collected | 5/12/93 | 5/12/93 | 5/12/93 | 5/12/93 | 5/12/93 | 5/12/93 | 5/12/93 | 5/12/93 | 5/12/93 |
| - | Aluminum | 30.60 B | 133.00 BJ | 45.10 B | 350.00 J | 128.00 BJ | 1,270.00 J | 23.50 UJ | 2,700.00 J | 109.00 B |
| - | Antimony | 17.90 U | 17.90 UJ | 17.90 U | 17.90 UJ | 17.90 UJ | 17.90 UJ | 41.60 BJ | 17.90 UJ | 17.90 U |
| 25.00 | Arsenic | 3.50 U | 2.30 UJN* | 3.50 U | 2.30 UJWN* | 3.50 UJW | 5.00 BJN* | 3.50 UJ | 2.60 BJN* | 3.50 U |
| 1,000.00 | Barium | 31.00 B | 93.30 BJ | 31.00 B | 35.00 BJ | 32.70 BJ | 80.00 BJ | 72.40 BJ | 88.30 BJ | 56.90 B |
| - | Beryllium | 0.50 U | 0.51 BJ | 0.50 U | 0.50 UJ | 0.50 UJ | 0.50 UJ | 0.50 UJ | 0.50 UJ | 0.50 U |
| 10.00 | Cadmium | 1.70 U | 1.70 UJN | 1.70 U | 2.70 BJN | 1.70 UJ | 1.70 UJN | 1.70 UJ | 1.70 UJN | 1.70 U |
| - | Calcium | 15,100.00 | 11,400.00 R | 25,900.00 R | 9,060.00 J | 9,260.00 J | 29,000.00 J | 32,800.00 J | 32,900.00 J | 30,400.00 |
| 50.00 | Chromium | 216.00 R | **40.00 J** | 5.80 U | 5.80 UJ | 5.80 UJ | 5.80 UJ | 5.80 UJ | 5.80 UJ | 9.00 B |
| - | Cobalt | 3.80 U | 3.80 UJ | 4.50 B | 3.80 UJ | 3.80 UJ | 3.80 UJ | 3.80 UJ | 5.80 BJ | 3.80 U |
| 200.00 | Copper | 10.30 B | 4.60 R | 34.90 R | 110.00 J | 108.00 J | 23.80 BJ | 23.90 BJ | 57.90 J | 15.00 B |
| 300.00 | Iron | 92.10 B | 467.00 R | 1,980.00 R | **368.00 J** | 34.90 BJ | **13,500.00 J** | **3,610.00 J** | **9,680.00 J** | 93.80 B |
| 15.00 | Lead | 24.80 R | 3.90 JM | 2.10 R | 7.70 JW | 1.40 R | **25.00 J** | 2.70 R | 54.90 J | 4.60 R |
| 35,000.00 | Magnesium | 2,890.00 B | 3,400.00 BJ | 2,780.00 B | 1,630.00 BJ | 1,740.00 BJ | 3,780.00 BJ | 3,770.00 BJ | 4,470.00 BJ | 3,620.00 B |
| 300.00 | Manganese | **394.00** | 23.30 R | 441.00 R | 49.10 J | 51.60 J | 207.00 J | 229.00 J | **305.00 J** | 30.10 |
| .00 | Mercury | 0.10 U | 0.10 UJN | 0.10 U | 0.10 UJN | 0.10 UJ | 0.10 UJN | 0.10 UJ | 0.10 UJN | 0.10 U |
| - | Nickel | 15.90 B | 15.40 R | 53.60 R | 7.00 BJ | 9.60 BJ | 6.10 UJ | 6.10 UJ | 10.10 BJ | 6.10 U |
| - | Potassium | 4,750.00 B | 5,010.00 J | 5,570.00 J | 3,840.00 BJ | 4,120.00 BJ | 5,690.00 J | 7,460.00 J | 5,420.00 J | 5,000.00 BJ |
| 10.00 | Selenium | 2.90 U | 3.30 R | 2.90 U | 16.50 R | 2.90 UJ | 3.30 R | 2.90 UJ | 3.30 R | 2.90 U |
| 50.00 | Silver | 3.80 U | 3.80 UJ | 3.80 U | 3.80 UJ | 3.80 UJ | 3.80 UJ | 3.80 UJ | 3.80 UJ | 3.80 U |
| 20,000.00 | Sodium | 19,400.00 | 16,500.00 J | 12,700.00 | 9,470.00 J | 10,900.00 J | **26,600.00 J** | **26,600.00 J** | 19,200.00 J | 16,600.00 |
| - | Thallium | 1.20 UJWN | 1.20 UJW | 1.20 UJWN | 1.20 UJW | 1.20 UJWN | 1.20 UJW | 1.20 UJWN | 1.20 UJW | 1.20 UJWN |
| - | Vanadium | 3.30 U | 5.00 BJ | 3.30 U | 6.20 BJ | 3.30 UJ | 7.40 BJ | 3.30 UJ | 7.90 BJ | 3.30 U |
| 300.00 | Zinc | 34.60 J | 22.50 JE | 9.90 B | 33.80 JE | 20.40 J | 19.60 BJE | 7.00 BJ | 33.30 JE | 20.00 BJ |

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**TABLE 2**
**CIRCUITRON CORPORATION SITE**
**ROUND 1 DATA**
**FOCUSED FEASIBILITY STUDY - GROUNDWATER SAMPLING**
**EXISTING MONITORING WELLS**
**INORGANICS ANALYTICAL RESULTS (ug/l)**

| NYS Drinking Water Quality Standards | Sample Number / Analysis / Screened Interval (ft) / Date Collected | Field Blank Total Pump 5/12/93 | Field Blank Dissolved Filter 5/12/93 | MW-1D Total 90-100 5/13/93 | MW-1D Dissolved 90-100 5/13/93 | MW-6S Total 24.8-34.8 5/13/93 | MW-6S Dissolved 24.8-34.8 5/13/93 | MW-10 Total 23.9-28.9 5/13/93 | MW-10 Dissolved 23.9-28.9 5/13/93 | MW-11 Total 25.1-30.1 5/13/93 |
|---|---|---|---|---|---|---|---|---|---|---|
| - | Aluminum | 23.50 U | 23.50 BJ | 264.00 | 45.00 BJ | 615.00 J | 119.00 B | 3,460.00 J | 40.80 BJ | 1,910.00 J |
| - | Antimony | 17.90 U | 17.90 UJ | 17.90 U | 17.90 UJ | 17.90 UJ | 17.90 U | 17.90 UJ | 17.90 UJ | 17.90 UJ |
| 25.00 | Arsenic | 2.30 UJN* | 3.50 UJ | 2.30 UJN* | 3.50 UJ | 2.30 UJWN* | 3.50 U | 2.30 UJN* | 3.50 UJ | 2.30 UJN* |
| 1,000.00 | Barium | 2.50 U | 2.50 UJ | 103.00 B | 68.90 BJ | 155.00 BJ | 20.70 B | 26.70 BJ | 5.20 BJ | 30.00 BJ |
| - | Beryllium | 0.51 B | 0.50 UJ | 0.50 U | 0.50 UJ | 0.50 UJ | 0.50 U | 0.50 UJ | 0.50 UJ | 0.50 UJ |
| 10.00 | Cadmium | 1.70 UJN | 1.70 UJ | 1.70 UJN | 1.70 UJ | 1.70 UJN | 1.70 U | 1.70 UJN | 1.70 UJ | 1.70 UJN |
| - | Calcium | 44.60 B | 101.00 BJ | 13,600.00 | 12,100.00 J | 28,500.00 J | 17,100.00 | 22,600.00 J | 21,600.00 J | 32,700.00 J |
| 50.00 | Chromium | 5.80 U | 5.80 UJ | 31.40 | 16.20 J | **186.00 J** | **161.00** | 5.80 UJ | 5.80 UJ | 5.80 UJ |
| - | Cobalt | 3.80 U | 3.80 UJ | 3.80 U | 3.80 UJ | 4.60 BJ | 3.80 U | 5.20 BJ | 3.80 UJ | 3.80 UJ |
| 200.00 | Copper | 7.30 B | 5.60 BJ | 16.50 B | 5.60 BJ | **222.00 J** | 11.30 B | **347.00 J** | 53.30 J | 137.00 J |
| 300.00 | Iron | 93.80 B | 4.80 UJ | **659.00** | 15.50 BJ | **11,100.00 J** | **660.00** | **6,560.00 J** | 9.70 BJ | **2,450.00 J** |
| 15.00 | Lead | 3.10 J | 2.20 R | **16.40** | 2.10 R | 8.90 J | 1.50 R | 14.80 J | 2.40 R | 7.70 J |
| 35,000.00 | Magnesium | 103.00 B | 46.40 UJ | 2,980.00 B | 1,400.00 BJ | 3,020.00 BJ | 2,390.00 B | 4,520.00 BJ | 3,760.00 BJ | 5,470.00 J |
| 300.00 | Manganese | 1.80 U | 1.80 UJ | 31.20 | 10.30 BJ | **503.00 J** | 237.00 | 158.00 J | 10.00 BJ | 108.00 J |
| 2.00 | Mercury | 0.10 UJN | 0.10 UJ | 0.10 UJN | 0.10 UJ | 0.10 UJN | 0.10 U | 0.10 UJN | 0.10 UJ | 0.10 UJN |
| - | Nickel | 6.10 U | 6.10 UJ | 10.60 B | 6.10 UJ | 71.90 J | 108.00 J | 7.90 BJ | 6.10 UJ | 6.10 UJ |
| - | Potassium | 188.00 U | 188.00 UJ | 5,370.00 J | 7,830.00 J | 5,600.00 J | 2,440.00 B | 4,170.00 BJ | 4,190.00 BJ | 4,090.00 BJ |
| 10.00 | Selenium | 3.30 R | 2.90 UJW | 3.30 R | 2.90 UJ | 3.30 R | 2.90 U | 3.30 R | 2.90 UJ | 3.30 R |
| 50.00 | Silver | 3.80 U | 3.80 UJ | 3.80 U | 3.80 UJ | 3.80 UJ | 3.80 U | 3.80 UJ | 3.80 UJ | 3.80 UJ |
| 20,000.00 | Sodium | 974.00 B | 66.20 UJ | 19,700.00 | 18,300.00 J | 13,200.00 J | 11,600.00 | 14,000.00 J | 13,900.00 J | 13,500.00 J |
| - | Thallium | 1.20 U | 1.20 UJN | 1.20 UJW | 1.20 UJWN | 1.20 UJW | 1.20 UJWN | 1.20 UJW | 1.20 UJWN | 1.20 UJW |
| - | Vanadium | 4.10 B | 3.30 UJ | 3.30 U | 3.30 UJ | 4.50 BJ | 3.30 U | 6.60 BJ | 3.30 UJ | 4.50 BJ |
| 300.00 | Zinc | 7.10 BE | 3.40 UJ | 35.50 JE | 27.30 J | 28.30 R | 62.30 R | 47.50 JE | 23.90 J | 29.90 JE |

Notes:
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**ROUND I DATA**
**FOCUSED FEASIBILITY STUDY - GROUNDWATER SAMPLING**
**EXISTING MONITORING WELLS**
**INORGANICS ANALYTICAL RESULTS (ug/l)**

| NYS Drinking Water Quality Standards | Sample Number<br>Analysis<br>Screened Interval (ft)<br>Date Collected | MW-11<br>Dissolved<br>25.1-30.1<br>5/13/93 | MW-12<br>Total<br>25.1-30.1<br>5/13/93 | MW-12<br>Dissolved<br>25-35<br>5/13/93 | Field Blank<br>Total<br>Pump<br>5/13/93 | Field Blank<br>Dissolved<br>Filter<br>5/13/93 | MW-6D<br>Total<br>90-100<br>5/14/93 | MW-6D<br>Dissolved<br>90-100<br>5/14/93 | MW-7S<br>Total<br>27-37<br>5/14/93 | MW-7S<br>Dissolved<br>27-37<br>5/14/93 |
|---|---|---|---|---|---|---|---|---|---|---|
| - | Aluminum | 45.70 B | 3,700.00 J | 431.00 | 23.50 UJ | 39.50 B | 82.30 BJ | 23.50 UJ | 309.00 J | 23.50 UJ |
| - | Antimony | 17.90 U | 18.60 UJ | 17.90 U | 17.90 UJ | 17.90 U | 18.60 UJ | 17.90 UJ | 18.60 U | 17.90 UJ |
| 25.00 | Arsenic | 3.50 U | 2.30 UJ | 3.50 U | 2.30 UJN* | 3.50 U | 2.30 UJ | 3.50 UJ | 2.30 UJW | 3.50 UJ |
| 1,000.00 | Barium | 22.40 B | 48.20 BJ | 25.80 B | 2.50 UJ | 2.50 U | 111.00 BJ | 77.80 BJ | 54.30 B | 18.20 BJ |
| - | Beryllium | 0.50 U | 0.36 BJ | 0.50 U | 0.50 UJ | 0.50 U | 0.30 UJ | 0.50 UJ | 0.30 U | 0.50 UJ |
| 10.00 | Cadmium | 1.70 U | 1.40 UJ | 1.70 U | 1.70 UJN | 1.70 U | 1.40 UJ | 1.70 UJ | 1.40 U | 1.70 UJ |
| - | Calcium | 31,700.00 | 26,900.00 J | 26,500.00 | 42.30 UJ | 87.20 B | 21,800.00 J | 12,000.00 J | 16,600.00 | 15,500.00 J |
| 50.00 | Chromium | 5.80 U | 6.30 BJ | 5.80 U | 5.80 UJ | 5.80 U | **437.00 J** | **336.00 J** | 25.40 | 5.80 UJ |
| - | Cobalt | 3.80 U | 7.80 BJ | 3.80 U | 3.80 UJ | 3.80 U | 2.90 UJ | 3.80 UJ | 2.90 U | 3.80 UJ |
| 200.00 | Copper | 47.70 | **327.00 J** | 119.00 | 6.40 BJ | 4.70 B | 9.70 BJ | 4.20 UJ | 4.20 B | 7.10 BJ |
| 300.00 | Iron | 4.80 U | **6,360.00 J*** | 106.00 | 90.30 BJ | 11.60 B | **898.00 J*** | 4.60 UJ | 249.00 * | 4.80 UJ |
| 15.00 | Lead | 3.40 R | **22.30 J** | 7.20 | 2.80 BJ | 2.40 R | 4.30 J | 2.10 BJW* | 3.50 J | 1.80 BJW* |
| 35,000.00 | Magnesium | 5,300.00 | 4,840.00 BJ | 4,130.00 B | 68.50 BJ | 46.40 U | 1,500.00 BJ | 311.00 BJ | 3,420.00 B | 3,210.00 BJ |
| 300.00 | Manganese | 4.70 B | 235.00 JN | 9.70 B | 1.80 UJ | 1.80 U | 32.70 JN | 1.80 UJ | **1,720.00 JN** | 1.80 UJ |
| 2.00 | Mercury | 0.10 U | 0.10 UJ | 0.10 U | 0.10 UJN | 0.10 U | 0.10 UJ | 0.10 UJ | 0.10 U | 0.10 UJ |
| - | Nickel | 8.40 B | 9.80 BJ | 6.10 U | 6.10 UJ | 6.10 U | 57.20 J | 6.10 UJ | 15.90 B | 6.10 UJ |
| - | Potassium | 3,780.00 B | 2,960.00 BJ | 2,670.00 B | 188.00 UJ | 227.00 B | 14,200.00 J | 14,700.00 J | 2,500.00 B | 2,530.00 BJ |
| 10.00 | Selenium | 2.90 U | 3.30 UJWN | 2.90 U | 3.30 R | 2.90 U | 3.30 UJN | 2.90 UJ | 16.50 UJWN | 2.90 UJ |
| 50.00 | Silver | 3.80 U | 3.30 UJ | 3.80 U | 3.80 UJ | 3.80 U | 3.30 UJ | 3.80 UJ | 3.30 U | 3.80 UJ |
| 20,000.00 | Sodium | 13,000.00 | 7,780.00 J | 7,630.00 | 148.00 BJ | 67.10 B | **31,900.00 J** | **32,400.00 J** | 7,860.00 | 7,600.00 J |
| - | Thallium | 1.20 UJWN | 1.20 UJW | 1.20 UJWN | 1.20 UJ | 1.20 UJN | 1.20 UJW | 1.20 UJWN | 1.20 UJW | 1.20 UJWN |
| - | Vanadium | 3.30 U | 5.00 BJ | 3.30 U | 3.30 UJ | 3.30 U | 2.70 BJ | 3.30 UJ | 2.10 U | 3.30 UJ |
| 300.00 | Zinc | 23.60 J | 32.80 J | 24.00 J | 4.30 BJE | 5.10 BJ | 33.60 J | 3.40 UJ | 4.90 B | 5.70 BJ |

Notes:
Concentrations above the New York State Drinking Water Quality Standards referenced in Table 2-12 are highlighted
- = No standard available
U= Analyte was not detected at the instrument detection limit given
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
N= Spiked sample recovery was not within control limits
*= Duplicate analysis was not within control limits
J= Estimated value
R= Rejected during data validation
M=Duplicate injection precision criteria was not met.
S=Determined by Method of Standard Addition (MSA)

**TABLE 2**
**CIRCUITRON CORPORATION SITE**
**ROUND I DATA**
**FOCUSED FEASIBILITY STUDY - GROUNDWATER SAMPLING**
**EXISTING MONITORING WELLS**
**INORGANICS ANALYTICAL RESULTS (ug/l)**

| NYS Drinking Water Quality Standards | Sample Number<br>Analysis<br>Screened Interval (ft)<br>Date Collected | MW-7D<br>Total<br>90-100<br>5/14/93 | MW-7D<br>Dissolved<br>90-100<br>5/14/93 | PW-2<br>Total<br>216.3-226.3<br>5/14/93 | PW-2<br>Dissolved<br>216.3-226.3<br>5/14/93 | Field Blank<br>Total<br>Pump<br>5/14/93 | Field Blank<br>Dissolved<br>Filter<br>5/14/93 |
|---|---|---|---|---|---|---|---|
| - | Aluminum | 237.00 J | 23.50 UJ | 36.50 B | 28.60 BJ | 32.00 B | 23.50 UJ |
| - | Antimony | 18.60 U | 17.90 UJ | 18.60 U | 20.10 BJ | 18.60 U | 17.90 UJ |
| 25.00 | Arsenic | 2.30 UJW | 3.50 UJW | 2.30 UJW | 3.50 UJ | 2.30 U | 3.50 UJ |
| 1,000.00 | Barium | 88.30 B | 77.80 BJ | 33.80 B | 34.00 BJ | 1.10 U | 2.50 UJ |
| - | Beryllium | 0.30 U | 0.50 UJ | 0.30 U | 0.50 UJ | 0.30 U | 0.50 UJ |
| 10.00 | Cadmium | 1.40 U | 1.70 UJ | 1.40 U | 1.70 UJ | 1.40 U | 1.70 UJ |
| - | Calcium | 13,400.00 | 11,000.00 J | 4,990.00 B | 4,820.00 BJ | 109.00 B | 42.30 UJ |
| 50.00 | Chromium | 22.00 | 5.80 UJ | 3.30 U | 5.80 UJ | **68.50** | 5.80 UJ |
| - | Cobalt | 2.90 U | 3.80 UJ | 2.90 U | 3.80 UJ | 2.90 U | 3.80 UJ |
| 200.00 | Copper | 5.90 B | 4.20 UJ | **462.00** | **203.00 J** | 2.70 U | 4.20 UJ |
| 300.00 | Iron | **327.00** * | 4.80 UJ | 55.70 B* | 29.50 BJ | 275.00 * | 4.80 UJ |
| 15.00 | Lead | 5.10 J | 2.00 BJW* | 14.60 | 11.70 J* | 3.30 J | 1.70 BJ* |
| 35,000.00 | Magnesium | 3,640.00 B | 3,350.00 BJ | 2,290.00 B | 2,230.00 BJ | 31.20 B | 46.40 UJ |
| 300.00 | Manganese | 21.00 JN | 10.90 BJ | 28.30 JN | 28.20 J | 6.00 BJN | 1.80 UJ |
| 2.00 | Mercury | 0.10 U | 0.10 UJ | 0.10 U | 0.10 UJ | 0.10 U | 0.10 UJ |
| - | Nickel | 13.30 B | 6.10 UJ | 4.20 U | 6.10 UJ | 30.00 B | 6.10 UJ |
| - | Potassium | 3,120.00 B | 2,940.00 BJ | 1,390.00 B | 1,140.00 BJ | 93.60 U | 188.00 UJ |
| 10.00 | Selenium | 3.30 UJWN | 2.90 UJ | 3.30 UJWN | 2.90 UJ | 3.30 UJN | 2.90 UJ |
| 50.00 | Silver | 3.30 U | 3.80 UJ | 3.30 U | 3.80 UJ | 3.30 U | 3.80 UJ |
| 20,000.00 | Sodium | 11,400.00 | 11,100.00 J | 7,130.00 | 7,080.00 J | 172.00 B | 66.20 UJ |
| - | Thallium | 1.20 UJW | 1.20 UJWN | 1.20 UJW | 1.20 UJN | 1.20 U | 1.20 UJN |
| - | Vanadium | 2.10 U | 3.30 UJ | 2.10 U | 3.30 UJ | 2.10 U | 3.30 UJ |
| 300.00 | Zinc | 25.70 | 9.30 BJ | 89.20 | 43.30 J | 4.80 U | 3.40 UJ |

Notes:
Concentrations above the New York State Drinking Water Quality Standards referenced in Table 2-12 are highlighted
- = No standard available
U= Analyte was not detected at the instrument detection limit given
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
N= Spiked sample recovery was not within control limits
*= Duplicate analysis was not within control limits
J= Estimated value
R= Rejected during data validation
M=Duplicate injection precision criteria was not met.
S=Determined by Method of Standard Addition (MSA)

TABLE 3
CIRCUITRON CORPORATION SITE
FOCUSED FEASIBILITY STUDY
DRIVEPOINT GROUNDWATER SAMPLING
VOLATILE ORGANICS ANALYTICAL RESULTS (ug/l)

| Sample Number<br>Sample Type<br>Depth Interval (ft)<br>Date Collected | DP1-34-36<br>Groundwater<br>34-36<br>08/16/93 | DP1-48-50<br>Groundwater<br>48-50<br>08/16/93 | DP1-66-68<br>Groundwater<br>66-68<br>08/16/93 | DP2-34-36<br>Groundwater<br>34-36<br>08/16/93 | DP2-66-68<br>Groundwater<br>66-68<br>08/16/93 | DP3-34-36<br>Groundwater<br>34-36<br>08/16/93 | DP3-50-52<br>Groundwater<br>50-52<br>08/16/93 | DP-PW-081693<br>Decon water<br>-<br>08/16/93 | DP-FB-081693<br>Field Blank<br>-<br>08/16/93 |
|---|---|---|---|---|---|---|---|---|---|
| Chloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Vinyl Chloride | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Bromomethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Chloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Fluorotrichloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-Dichloroethene | 1 U | 1 U | 12 | 1 U | 5 | 5 | 1 U | 1 U | 1 U |
| Methylene Chloride | 1 U | 1 U | 8 | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| trans-1,2-Dichloroethene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-Dichloroethane | 1 U | 1 U | 3 | 1 U | 2 | 1 U | 1 U | 1 U | 1 U |
| cis-1,2-Dichloroethene | 1 U | 1 U | 1 | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Chloroform | 1 U | 1 U | 3 | 1 U | 2 | 1 U | 1 U | 1 U | 1 U |
| 1,1,1-Trichloroethane | 1 U | 1 U | 52 | 1 U | 23 | 1 U | 2 | 1 U | 1 U |
| Carbon Tetrachloride | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-Dichloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Trichloroethene | 1 U | 1 U | 25 | 1 U | 13 | 1 U | 1 U | 1 U | 1 U |
| 1,2-Dichloropropane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Bromodichloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| trans-1,3-Dichloropropene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| cis-1,3-Dichloropropene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2-Trichloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Tetrachloroethene | 1 U | 1 U | 4 | 1 U | 3 | 1 U | 1 U | 1 U | 1 U |
| Chlorodibromomethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Chlorobenzene | 1 | 1 U | 1 U | 2 | 1 U | 1 U | 1 U | 1 U | 1 U |
| Bromoform | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2,2-Tetrachloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| M-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| P-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| O-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |

Notes:
U= Analyte was not detected at the instrument detection limit given
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
J= Estimated value
W= Post-digestion spike for Furnace AA analysis out of control limits, while
R= Rejected during data validation
X1=1.5 Dilution
X2=1.250 Dilution

TABLE 3
CIRCUITRON CORPORATION SITE
FOCUSED FEASIBILITY STUDY
DRIVEPOINT GROUNDWATER SAMPLING
VOLATILE ORGANICS ANALYTICAL RESULTS (ug/l)

| Sample Number | DP-TB-081693 | DP4-34-36 | DP4-50-52 | DP5-50-52 | DP5-62-64 | DP5-80-82 | DP6-34-36 | DP6-50-52 | DP6-64-66 |
|---|---|---|---|---|---|---|---|---|---|
| Sample Type | Trip Blank | Groundwater | Groundwater | Groundwater | Groundwater | Groundwater | Groundwater | Groundwater | Groundwater |
| Depth Interval (ft) | - | 34-36 | 50-52 | 50-52 | 62-64 | 80-82 | 34-36 | 50-52 | 64-66 |
| Date Collected | 08/16/93 | 08/17/93 | 08/17/93 | 08/17/93 | 08/17/93 | 08/17/93 | 08/17/93 | 08/17/93 | 08/17/93 |
| Chloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Vinyl Chloride | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Bromomethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Chloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Fluorotrichloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-Dichloroethene | 1 U | 1 U | 1 U | 3 | 10 | 17 | 1 U | 1 U | 5 |
| Methylene Chloride | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| trans-1,2-Dichloroethene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-Dichloroethane | 1 U | 1 U | 4 | 16 | 9 | 5 | 1 | 1 U | 2 |
| cis-1,2-Dichloroethene | 1 U | 1 U | 1 U | 3 | 2 | 4 | 1 U | 1 U | 1 U |
| Chloroform | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,1-Trichloroethane | 1 U | 1 U | 1 U | 1 U | 37 | 64 | 2 | 1 U | 25 |
| Carbon Tetrachloride | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-Dichloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Trichloroethene | 1 U | 1 U | 2 | 10 | 34 | 78 | 1 U | 1 U | 11 |
| 1,2-Dichloropropane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Bromodichloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| trans-1,3-Dichloropropene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| cis-1,3-Dichloropropene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2-Trichloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Tetrachloroethene | 1 U | 1 U | 1 U | 1 U | 3 | 5 | 1 U | 1 U | 2 |
| Chlorodibromomethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Chlorobenzene | 1 U | 8 | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Bromoform | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2,2-Tetrachloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| M-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| P-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| O-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |

Notes:
U= Analyte was not detected at the instrument detection limit given
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
J= Estimated value
W= Post-digestion spike for Furnace AA analysis out of control limits, while
R= Rejected during data validation
X1=1.5 Dilution
X2=1.250 Dilution

TABLE 3
CIRCUITRON CORPORATION SITE
FOCUSED FEASIBILITY STUDY
DRIVEPOINT GROUNDWATER SAMPLING
VOLATILE ORGANICS ANALYTICAL RESULTS (ug/l)

| Sample Number<br>Sample Type<br>Depth Interval (ft)<br>Date Collected | DP-FB-081793<br>Field Blank<br>-<br>08/17/93 | DP-TB-081793<br>Trip Blank<br>-<br>08/17/93 | DP6-80-82<br>Groundwater<br>80-82<br>08/18/93 | DP7-34-36<br>Groundwater<br>34-36<br>08/18/93 | DP7-50-52<br>Groundwater<br>50-52<br>08/18/93 | DP8-50-52<br>Groundwater<br>50-52<br>08/18/93 | DP8-64-66<br>Groundwater<br>64-66<br>08/18/93 | DP8-80-82<br>Groundwater<br>80-82<br>08/18/93 | DP9-34-36<br>Groundwater<br>34-36<br>08/18/93 |
|---|---|---|---|---|---|---|---|---|---|
| Chloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Vinyl Chloride | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Bromomethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Chloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Fluorotrichloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-Dichloroethene | 1 U | 1 U | 23 | 1 U | 5 | 1 U | 1 | 2 | 1 U |
| Methylene Chloride | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| trans-1,2-Dichloroethene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-Dichloroethane | 1 U | 1 U | 3 | 3 | 22 | 2 | 1 U | 2 | 2 |
| cis-1,2-Dichloroethene | 1 U | 1 U | 3 | 1 U | 10 | 1 U | 1 U | 1 U | 1 U |
| Chloroform | 1 U | 1 U | 2 | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,1-Trichloroethane | 1 U | 1 U | 110 | 8 | 2 | 1 U | 9 | 10 | 1 U |
| Carbon Tetrachloride | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-Dichloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Trichloroethene | 1 U | 1 U | 23 | 1 U | 21 | 2 | 5 | 5 | 1 U |
| 1,2-Dichloropropane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Bromodichloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| trans-1,3-Dichloropropene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| cis-1,3-Dichloropropene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2-Trichloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Tetrachloroethene | 1 U | 1 U | 20 | 1 U | 1 | 1 U | 1 | 2 | 1 U |
| Chlorodibromomethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Chlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Bromoform | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2,2-Tetrachloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| M-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| P-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| O-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |

Notes:
U= Analyte was not detected at the instrument detection limit given
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
J= Estimated value
W= Post-digestion spike for Furnace AA analysis out of control limits, while
R= Rejected during data validation
X1=1.5 Dilution
X2=1.250 Dilution

TABLE 3
CIRCUITRON CORPORATION SITE
FOCUSED FEASIBILITY STUDY
DRIVEPOINT GROUNDWATER SAMPLING
VOLATILE ORGANICS ANALYTICAL RESULTS (ug/l)

| Sample Number<br>Sample Type<br>Depth Interval (ft)<br>Date Collected | DP9-50-52<br>Groundwater<br>50-52<br>08/18/93 | DP9-64-66<br>Groundwater<br>64-66<br>08/18/93 | DP9-80-82<br>Groundwater<br>80-82<br>08/18/93 | DP-TB-081893<br>Trip Blank<br>-<br>08/18/93 | DP-FB-081893<br>Field Blank<br>-<br>08/18/93 | DP7-64-66<br>Groundwater<br>64-66<br>08/19/93 | DP2-80-82<br>Groundwater<br>80-82<br>08/19/93 | DP10-34-36<br>Groundwater<br>34-36<br>08/19/93 | DP10-50-52<br>Groundwater<br>50-52<br>08/19/93 |
|---|---|---|---|---|---|---|---|---|---|
| Chloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Vinyl Chloride | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Bromomethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Chloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Fluorotrichloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-Dichloroethene | 1 U | 14 | 48 | 1 U | 1 U | 1 | 23 | 1 U | 1 U |
| Methylene Chloride | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| trans-1,2-Dichloroethene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-Dichloroethane | 2 | 3 | 7 | 1 U | 1 U | 12 | 5 | 1 U | 1 |
| cis-1,2-Dichloroethene | 1 U | 1 | 5 | 1 U | 1 U | 6 | 3 | 1 U | 1 U |
| Chloroform | 1 U | 3 | 1 | 1 U | 1 U | 1 U | 1 | 1 U | 1 U |
| 1,1,1-Trichloroethane | 1 U | 53 | 160 | 1 U | 1 U | 6 | 94 | 1 | 1 U |
| Carbon Tetrachloride | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-Dichloroethane | 1 U | 1 U | 1 | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Trichloroethene | 1 | 22 | 22 | 1 U | 1 U | 14 | 78 | 1 U | 1 |
| 1,2-Dichloropropane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Bromodichloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| trans-1,3-Dichloropropene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| cis-1,3-Dichloropropene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2-Trichloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Tetrachloroethene | 1 U | 5 | 27 | 1 U | 1 U | 1 U | 6 | 1 U | 1 U |
| Chlorodibromomethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Chlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Bromoform | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2,2-Tetrachloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| M-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| P-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| O-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |

Notes:
U= Analyte was not detected at the instrument detection limit given
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
J= Estimated value
W= Post-digestion spike for Furnace AA analysis out of control limits, while
R= Rejected during data validation
X1=1.5 Dilution
X2=1.250 Dilution

TABLE 3
CIRCUITRON CORPORATION SITE
FOCUSED FEASIBILITY STUDY
DRIVEPOINT GROUNDWATER SAMPLING
VOLATILE ORGANICS ANALYTICAL RESULTS (ug/l)

| Sample Number<br>Sample Type<br>Depth Interval (ft)<br>Date Collected | DP10-64-66<br>Groundwater<br>64-66<br>08/19/93 | DP11-34-36<br>Groundwater<br>34-36<br>08/19/93 | DP11-50-52<br>Groundwater<br>50-52<br>08/19/93 | DP-FB-081993<br>Field Blank<br>-<br>08/19/93 | DP-TB-081993<br>Trip Blank<br>-<br>08/19/93 | DP12-34-36<br>Groundwater<br>34-36<br>08/20/93 | DP12-50-52<br>Groundwater<br>50-52<br>08/20/93 | DP12-64-66<br>Groundwater<br>64-66<br>08/20/93 | DP13-34-36<br>Groundwater<br>34-36<br>08/20/93 |
|---|---|---|---|---|---|---|---|---|---|
| Chloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Vinyl Chloride | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Bromomethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Chloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Fluorotrichloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-Dichloroethene | 3 | 1 U | 1 U | 1 U | 1 U | 1 U | 1 | 10 | 1 U |
| Methylene Chloride | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| trans-1,2-Dichloroethene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-Dichloroethane | 3 | 1 U | 1 U | 1 U | 1 U | 21 | 17 | 13 | 9 |
| cis-1,2-Dichloroethene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 | 3 | 1 U |
| Chloroform | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,1-Trichloroethane | 11 | 1 U | 1 U | 1 U | 1 U | 120 | 1 | 33 | 45 |
| Carbon Tetrachloride | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-Dichloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Trichloroethene | 9 | 1 U | 1 U | 1 U | 1 U | 1 | 2 | 43 | 1 U |
| 1,2-Dichloropropane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Bromodichloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| trans-1,3-Dichloropropene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| cis-1,3-Dichloropropene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2-Trichloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Tetrachloroethene | 2 | 1 U | 1 U | 1 U | 1 U | 3 | 1 | 5 | 1 U |
| Chlorodibromomethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Chlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 3 | 1 U | 1 U |
| Bromoform | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2,2-Tetrachloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| M-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| P-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| O-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |

Notes:
U= Analyte was not detected at the instrument detection limit given
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
J= Estimated value
W= Post-digestion spike for Furnace AA analysis out of control limits, while
R= Rejected during data validation
X1=1.5 Dilution
X2=1.250 Dilution

TABLE 3
CIRCUITRON CORPORATION SITE
FOCUSED FEASIBILITY STUDY
DRIVEPOINT GROUNDWATER SAMPLING
VOLATILE ORGANICS ANALYTICAL RESULTS (ug/l)

| Sample Number<br>Sample Type<br>Depth Interval (ft)<br>Date Collected | DP13-50-52<br>Groundwater<br>50-52<br>08/20/93 | DP13-64-66<br>Groundwater<br>64-66<br>08/20/93 | DP13-80-82<br>Groundwater<br>80-82<br>08/20/93 | DP14-64-66<br>Groundwater<br>64-66<br>08/20/93 | DP-TB-082093<br>Trip Blank<br>-<br>08/20/93 | DP-FB-082093<br>Field Blank<br>-<br>08/20/93 | DP15-34-36<br>Groundwater<br>34-36<br>08/24/93 | DP15-50-52<br>Groundwater<br>50-52<br>08/24/93 | DP16-34-36<br>Groundwater<br>34-36<br>08/24/93 |
|---|---|---|---|---|---|---|---|---|---|
| Chloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Vinyl Chloride | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Bromomethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Chloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Fluorotrichloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-Dichloroethene | 1 | 10 | 5 | 2 | 1 U | 1 U | 1 U | 1 U | 1 U |
| Methylene Chloride | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| trans-1,2-Dichloroethene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-Dichloroethane | 8 | 8 | 5 | 1 U | 1 U | 1 U | 4 | 1 U | 1 U |
| cis-1,2-Dichloroethene | 4 | 2 | 6 | 1 U | 1 U | 1 U | 9 | 2.2 | 1 U |
| Chloroform | 1 U | 1 | 52 | 2 | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,1-Trichloroethane | 2 | 40 | 21 | 12 | 1 U | 1 U | 4 | 1 U | 12 |
| Carbon Tetrachloride | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-Dichloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Trichloroethene | 1 | 36 | 21 | 4 | 1 U | 1 U | 3 | 1 U | 1 U |
| 1,2-Dichloropropane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Bromodichloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| trans-1,3-Dichloropropene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| cis-1,3-Dichloropropene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2-Trichloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Tetrachloroethene | 1 U | 2 | 15 | 1 | 1 U | 1 U | 4 | 1 U | 1 U |
| Chlorodibromomethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Chlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Bromoform | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2,2-Tetrachloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| M-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| P-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| O-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |

Notes:
U= Analyte was not detected at the instrument detection limit given
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
J= Estimated value
W= Post-digestion spike for Furnace AA analysis out of control limits, while
R= Rejected during data validation
X1=1.5 Dilution
X2=1.250 Dilution

TABLE 3
CIRCUITRON CORPORATION SITE
FOCUSED FEASIBILITY STUDY
DRIVEPOINT GROUNDWATER SAMPLING
VOLATILE ORGANICS ANALYTICAL RESULTS (ug/l)

| Sample Number<br>Sample Type<br>Depth Interval (ft)<br>Date Collected | DP16-50-52<br>Groundwater<br>50-52<br>08/24/93 | DP16-64-66<br>Groundwater<br>64-66<br>08/24/93 | DP17-34-36<br>Groundwater<br>34-36<br>08/24/93 | DP17-50-52<br>Groundwater<br>50-52<br>08/24/93 | DP17-64-66<br>Groundwater<br>64-66<br>08/24/93 | DP-TB-082493<br>Trip Blank<br>-<br>08/24/93 | DP-FB-082493<br>Field Blank<br>-<br>08/24/93 |
|---|---|---|---|---|---|---|---|
| Chloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Vinyl Chloride | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Bromomethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Chloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Fluorotrichloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-Dichloroethene | 1 U | 1 U | 1 U | 1 U | 3 | 1 U | 1 U |
| Methylene Chloride | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| trans-1,2-Dichloroethene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1-Dichloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| cis-1,2-Dichloroethene | 1 U | 1 U | 1 U | 1 | 1 | 1 U | 1 U |
| Chloroform | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,1-Trichloroethane | 1 U | 1 U | 1 U | 2 | 15 | 1 U | 1 U |
| Carbon Tetrachloride | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,2-Dichloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Trichloroethene | 1 U | 1 U | 1 U | 1 U | 7 | 1 U | 1 U |
| 1,2-Dichloropropane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Bromodichloromethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| trans-1,3-Dichloropropene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| cis-1,3-Dichloropropene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2-Trichloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Tetrachloroethene | 1 U | 1 U | 1 U | 1 U | 1 | 1 U | 1 U |
| Chlorodibromomethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Chlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| Bromoform | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 1,1,2,2-Tetrachloroethane | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| M-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| P-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| O-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |

Notes:
U= Analyte was not detected at the instrument detection limit given
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
J= Estimated value
W= Post-digestion spike for Furnace AA analysis out of control limits, while
R= Rejected during data validation
X1=1.5 Dilution
X2=1.250 Dilution

# TABLE 4
## CIRCUITRON CORPORATION SITE
## ROUND II DATA
## FOCUSED FEASIBILITY STUDY - GROUNDWATER SAMPLING
## MONITORING WELLS
## VOLATILE ORGANICS ANALYTICAL RESULTS (ug/l)

| NYS Drinking Water Quality Standards | Sample Number / Depth Interval (ft) / Date Collected | MW-2D 90-100 2/24/94 | MW-2S 25-35 2/22/94 | MW-3S 28-38 2/22/94 | MW-4S 24-34 2/21/94 | MW-4D 90-100 2/21/94 | Field Blank - 2/22/94 | Trip Blank - 2/21/94 | MW-1S 25-35 2/22/94 | MW-3D 90-100 2/22/94 |
|---|---|---|---|---|---|---|---|---|---|---|
| - | Chloromethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Bromomethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 2 | Vinyl Chloride | 1.00 U | 1.00 U | 1.00 U | 0.20 J | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Chloroethane | 1.00 U | 1.00 U | 1.00 U | 2.00 | 1.00 U | 1.00 U | 1.00 U | 0.20 J | 1.00 U |
| 5 | Methylene Chloride | 2.00 U | 2.00 U | 2.00 U | 2.00 U | 2.00 U | 2.00 | 3.00 | 2.00 U | 2.00 U |
| - | Acetone | 5.00 J | 2.00 J | 3.00 R | 5.00 R | 5.00 R | 5.00 R | 3.00 J | 3.00 J | 5.00 R |
| - | Carbon Disulfide | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | 1,1-Dichloroethene | 3.00 | 1.00 U | 1.00 U | 2.00 | 26.00 | 1.00 U | 1.00 U | 1.00 U | 9.00 |
| 5 | 1,1-Dichloroethane | 1.00 | 0.50 J | 2.00 | 18.00 | 11.00 | 1.00 U | 1.00 U | 0.70 J | 4.00 |
| 5 | cis-1,2-Dichloroethene | 3.00 | 1.00 U | 1.00 U | 1.00 | 6.00 | 1.00 U | 1.00 U | 1.00 U | 1.00 |
| 5 | trans-1,2-Dichloroethene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 0.20 J | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 7 | Chloroform | 2.00 | 1.00 U | 1.00 U | 1.00 U | 3.00 | 0.10 J | 0.20 J | 1.00 U | 1.00 U |
| 5 | 1,2-Dichloroethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 2.00 | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| - | 2-Butanone | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U |
| 5 | 1,1,1-Trichloroethane | 23.00 J | 2.00 J | 6.00 J | 4400.00 J | 240.00 J | 1.00 UJ | 1.00 UJ | 0.40 J | 37.00 J |
| 5 | Carbon Tetrachloride | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Bromodichloromethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | 1,2-Dichloropropane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | cis-1,3-Dichloropropene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Trichloroethene | 7.00 | 1.00 U | 0.05 J | 1.00 | 23.00 | 1.00 U | 1.00 U | 1.00 U | 17.00 |
| 5 | Dibromochloromethane | 1.00 U | 1.00 UJ | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | 1,1,2-Trichloroethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 0.70 J | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | 1,2-Dibromoethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 0.7 | Benzene | 1.00 U | 1.00 U | 1.00 U | 0.10 J | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | trans-1,3-Dichloropropene | 1.00 U | 1.00 U | 1.00 U | 1.00 UJ | 1.00 UJ | 1.00 U | 1.00 UJ | 1.00 U | 1.00 U |
| - | Bromoform | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| - | 4-Methyl-2-Pentanone | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U |
| - | 2-Hexanone | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U |
| 5 | Tetrachloroethene | 4.00 | 1.00 U | 0.20 J | 22.00 | 38.00 | 1.00 U | 1.00 U | 1.00 U | 7.00 |
| - | Bromochloromethane | 1.00 UJ | 1.00 U | 1.00 UJ | 1.00 U | 1.00 U | 1.00 UJ | 1.00 U | 1.00 UJ | 1.00 UJ |
| 5 | 1,1,2,2-Tetrachloroethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Toluene | 1.00 U | 1.00 U | 1.00 U | 0.06 J | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Chlorobenzene | 1.00 U | 1.00 U | 1.00 U | 0.70 J | 1.00 U | 1.00 U | 1.00 U | 0.70 J | 1.00 U |
| 5 | Ethylbenzene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Styrene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 0.07 J | 1.00 U | 1.00 U | 1.00 U |
| 4.7 | 1,2-Dichlorobenzene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Xylenes(total) | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 0.08 J | 1.00 U | 1.00 U | 1.00 U |
| 4.7 | 1,3-Dichlorobenzene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 4.7 | 1,4-Dichlorobenzene | 1.00 U | 0.10 J | 1.00 U | 0.10 J | 1.00 U | 1.00 U | 1.00 U | 0.20 J | 0.10 J |
| 5 | 1,2-Dibromo-3-chloropropane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| | Total VOC's | 48.00 J | 4.60 J | 8.25 J | 4447.06 J | 359.90 J | 2.25 J | 6.20 J | 5.20 J | 75.10 J |
| | Total TICs | 0 | 0 | 0 | 5 | 2 | 0 | 0 | 3 | 0 |
| | Total TIC Concentration | 0.00 | 0.00 | 0.00 | 24.37 JN | 7.70 JN | 0.00 | 0.00 | 81.30 JN | 0.00 |

Concentrations above the New York State Drinking Water Standards referenced in Table 2-12 are highlighted
- = No standard available
U= Analyte was not detected at the instrument detection limit given
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
J= Estimated value
JN = Presumptive evidence for presence of analyte, estimated quantity
R= Rejected during data validation
X1=1.5 Dilution
X2=1.250 Dilution

# TABLE 4
## CIRCUITRON CORPORATION SITE
## ROUND II DATA
## FOCUSED FEASIBILITY STUDY - GROUNDWATER SAMPLING
## MONITORING WELLS
## VOLATILE ORGANICS ANALYTICAL RESULTS (ug/l)

| NYS Drinking Water Quality Standards | Sample Number / Depth Interval (ft) / Date Collected | MW-5S 24-34 2/23/94 | MW-5D 90-100 2/23/94 | Field Blank - 2/23/94 | Trip Blank - 2/23/94 | MW-1D 90-100 2/23/94 | MW-6S 24.8-34.8 2/24/94 | Field Blank - 2/24/94 | Trip Blank - 2/24/94 | MW-6D 90-100 2/24/94 |
|---|---|---|---|---|---|---|---|---|---|---|
| - | Chloromethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Bromomethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 2 | Vinyl Chloride | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Chloroethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Methylene Chloride | 2.00 U | 2.00 U | 3.00 | 3.00 | 2.00 U | 2.00 U | 2.00 | 2.00 | 2.00 U |
| - | Acetone | 5.00 R | 5.00 R | 5.00 R | 3.00 J | 5.00 R | 5.00 R | 5.00 R | 5.00 R | 5.00 R |
| - | Carbon Disulfide | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | 1,1-Dichloroethene | 1.00 U | 2.00 | 1.00 U | 1.00 U | 24.00 | 0.60 J | 1.00 U | 1.00 U | 20.00 E |
| 5 | 1,1-Dichloroethane | 1.00 | 0.40 J | 1.00 U | 1.00 U | 6.00 | 21.00 | 1.00 U | 1.00 U | 4.00 |
| 5 | cis-1,2-Dichloroethene | 1.00 U | 0.40 J | 1.00 U | 1.00 U | 4.00 | 1.00 | 1.00 U | 1.00 U | 3.00 |
| 5 | trans-1,2-Dichloroethene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 0.30 J |
| 7 | Chloroform | 1.00 U | 1.00 U | 0.30 J | 0.30 J | 1.00 U | 1.00 U | 0.30 J | 0.20 J | 2.00 |
| 5 | 1,2-Dichloroethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 0.50 J | 1.00 U | 1.00 U | 1.00 U | 2.00 |
| - | 2-Butanone | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U |
| 5 | 1,1,1-Trichloroethane | 27.00 | 17.00 | 1.00 U | 1.00 U | 99.00 | 110.00 J | 1.00 UJ | 1.00 UJ | 320.00 J |
| 5 | Carbon Tetrachloride | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Bromodichloromethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | 1,2-Dichloropropane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | cis-1,3-Dichloropropene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Trichloroethene | 0.09 J | 1.00 | 1.00 U | 1.00 U | 32.00 | 0.70 J | 1.00 U | 1.00 U | 43.00 |
| 5 | Dibromochloromethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | 1,1,2-Trichloroethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 0.70 J | 1.00 U | 1.00 U | 1.00 U | 1.00 |
| 5 | 1,2-Dibromoethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 0.7 | Benzene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | trans-1,3-Dichloropropene | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| - | Bromoform | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| - | 4-Methyl-2-Pentanone | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U |
| - | 2-Hexanone | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U |
| 5 | Tetrachloroethene | 1.00 | 3.00 | 1.00 U | 1.00 U | 18.00 | 2.00 | 1.00 U | 1.00 U | 37.00 |
| 5 | Bromochloromethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ |
| 5 | 1,1,2,2-Tetrachloroethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Toluene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 0.10 J | 1.00 U |
| 5 | Chlorobenzene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 0.50 J | 1.00 U | 1.00 U | 1.00 U |
| 5 | Ethylbenzene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Styrene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 4.7 | 1,2-Dichlorobenzene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Xylenes(total) | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 4.7 | 1,3-Dichlorobenzene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 4.7 | 1,4-Dichlorobenzene | 1.00 U | 0.06 J | 1.00 U | 1.00 U | 1.00 U | 0.06 J | 1.00 U | 1.00 U | 0.03 J |
| 5 | 1,2-Dibromo-3-chloropropane | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| | Total VOCs | 29.09 J | 22.86 J | 3.30 J | 6.30 J | 234.20 J | 127.86 J | 2.30 J | 2.30 J | 575.33 J |
| | Total TICs | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 2 |
| | Total TIC Concentration | 0.00 | 0.00 | 0.00 | 0.00 | 6.80 JN | 33.90 JN | 0.00 | 0.00 | 1.95 JN |

Concentrations above the New York State Drinking Water Standards referenced in Table 2-12 are highlighted
- = No standard available
U= Analyte was not detected at the instrument detection limit given
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
J= Estimated value
JN = Presumptive evidence for presence of analyte, estimated quantity
R= Rejected during data validation
X1=1.5 Dilution
X2=1.250 Dilution

# TABLE 4
## CIRCUITRON CORPORATION SITE
## ROUND II DATA
## FOCUSED FEASIBILITY STUDY - GROUNDWATER SAMPLING
## MONITORING WELLS
## VOLATILE ORGANICS ANALYTICAL RESULTS (ug/l)

| NYS Drinking Water Quality Standards | Sample Number / Depth Interval (ft) / Date Collected | MW-7S 27-37 2/24/94 | MW-7D 90-100 2/23/94 | Trip Blank - 2/22/94 | PW-2-02 216.3-226.3 2/22/94 | MW-3D-DUP 90-100 2/22/94 | PD-1-02 17-32 2/24/94 | Trip Blank - 2/25/94 | MW-13 31-41 2/25/94 | MW-14 33-43 2/25/94 |
|---|---|---|---|---|---|---|---|---|---|---|
| - | Chloromethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Bromomethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 2 | Vinyl Chloride | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 UJ | 0.50 J | 1.00 U |
| 5 | Chloroethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 0.10 J | 1.00 U | 0.40 J | 1.00 U |
| 5 | Methylene Chloride | 2.00 U | 2.00 U | 3.00 | 2.00 U | 2.00 U | 2.00 U | 3.00 | 2.00 U | 2.00 U |
| - | Acetone | 5.00 J | 5.00 R | 5.00 R | 2800.00 J | 5.00 R | 5.00 J | 5.00 R | 5.00 R | 5.00 R |
| - | Carbon Disulfide | 1.00 U | 1.00 U | 1.00 U | 2.00 | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | 1,1-Dichloroethene | 1.00 U | 22.00 | 1.00 U | 1.00 U | 6.00 | 1.00 U | 1.00 U | [illegible] | 1.00 |
| 5 | 1,1-Dichloroethane | 1.00 U | 2.00 | 1.00 U | 1.00 U | 4.00 | 0.30 J | 1.00 U | [illegible] | [illegible] |
| 5 | cis-1,2-Dichloroethene | 1.00 U | 2.00 | 1.00 U | 0.30 J | 1.00 | 0.08 J | 1.00 U | 2.00 | 0.90 J |
| 5 | trans-1,2-Dichloroethene | 1.00 U | 0.05 J | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 7 | Chloroform | 1.00 U | 1.00 U | 0.20 J | 1.00 U | 1.00 U | 1.00 U | 0.30 J | 1.00 U | 1.00 U |
| 5 | 1,2-Dichloroethane | 1.00 U | 0.50 J | 1.00 U | 0.10 J | 0.10 J | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| - | 2-Butanone | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U |
| 5 | 1,1,1-Trichloroethane | 1.00 UJ | 120.00 | 1.00 UJ | 6.00 J | 34.00 J | 1.00 UJ | 1.00 U | [illegible] | [illegible] |
| 5 | Carbon Tetrachloride | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Bromodichloromethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | 1,2-Dichloropropane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | cis-1,3-Dichloropropene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Trichloroethene | 1.00 U | 16.00 | 1.00 U | 0.10 J | 16.00 | 1.00 U | 1.00 U | 4.00 | 3.00 |
| 5 | Dibromochloromethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | 1,1,2-Trichloroethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | 1,2-Dibromoethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 0.7 | Benzene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 0.40 J | 1.00 U | 0.06 J | 0.30 J |
| 5 | trans-1,3-Dichloropropene | 1.00 U | 1.00 UJ | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| - | Bromoform | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| - | 4-Methyl-2-Pentanone | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U |
| - | 2-Hexanone | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U | 5.00 U |
| 5 | Tetrachloroethene | 1.00 U | 23.00 | 1.00 U | 1.00 U | 7.00 | 1.00 U | 1.00 U | 18.00 | 1.00 |
| - | Bromochloromethane | 1.00 UJ | 1.00 U | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 UJ | 1.00 U | 1.00 U | 1.00 U |
| 5 | 1,1,2,2-Tetrachloroethane | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Toluene | 1.00 U | 1.00 U | 1.00 U | 0.10 J | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Chlorobenzene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 3.00 | 1.00 U | 0.40 J | 0.40 J |
| 5 | Ethylbenzene | 1.00 U | 1.00 U | 1.00 U | 0.09 J | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Styrene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 4.7 | 1,2-Dichlorobenzene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 5 | Xylenes(total) | 1.00 U | 1.00 U | 1.00 U | 0.70 J | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U |
| 4.7 | 1,3-Dichlorobenzene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 0.09 J | 1.00 U | 1.00 U | 1.00 U |
| 4.7 | 1,4-Dichlorobenzene | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 0.10 J | 0.4 J | 1.00 U | 1.00 U | 1.00 U |
| 5 | 1,2-Dibromo-3-chloropropane | 1.00 U | 1.00 UJ | 1.00 U | 1.00 U | 1.00 U | 1 U | 1.00 U | 1.00 U | 1.00 U |
| | Total VOC's | 5.00 J | 185.55 J | 3.20 J | 2809.39 J | 70.20 J | 9.37 J | 3.30 J | 3083.36 J | 70.60 J |
| | Total TICs | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 2 |
| | Total TIC Concentration | 0.00 | 0.00 | 0.00 | 3.1 J | 0.00 | 54.90 JN | 0.00 | 257.00 JN?? | 11.19 JN |

Concentrations above the New York State Drinking Water Standards referenced in Table 2-12 are highlighted
- = No standard available
U= Analyte was not detected at the instrument detection limit given
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
J= Estimated value
JN = Presumptive evidence for presence of analyte, estimated quantity
R= Rejected during data validation
X1=1.5 Dilution
X2=1.250 Dilution

# TABLE 5
## CIRCUITRON CORPORATION SITE
## ROUND II DATA
## FOCUSED FEASIBLILITY STUDY
## MONITORING WELLS
## INORGANICS ANALYTICAL RESULTS (ug/l)

| Sample Number | MW-2D | MW-2D | MW-2S | MW-2S | MW-3S | MW-3S | MW-4S | MW-4S | MW-4D | MW-4D | NYS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Analysis | Total | Dissolved | Total | Dissolved | Total | Dissolved | Total | Dissolved | Total | Dissolved | Drinking Water |
| Depth Interval (ft) | 90-100 | 90-100 | 25-35 | 25-35 | 28-38 | 28-38 | 24-34 | 24-34 | 90-100 | 90-100 | Quality Standards |
| Date Collected | 2/24/94 | 2/24/94 | 2/21/94 | 2/22/94 | 2/22/94 | 2/22/94 | 2/21/94 | 2/21/94 | 2/21/94 | 2/21/94 | |
| Aluminum | 460.00 J | 20.80 U | 172.00 B | 20.80 U | 553.00 J | 20.80 U | 598.00 J | 20.80 U | 69[illegible] J | 20.80 U | - |
| Antimony | 28.30 U | 28.30 U | 28.30 U | 28.30 U | 28.30 UJ | 28.30 UJ | 28.30 UJ | 28.30 UJ | [illegible] UJ | 28.30 U | - |
| Arsenic | 1.30 U | 1.30 U | R | 1.30 UJN | R | 1.30 UJN | R | 1.30 UJN | R | 1.30 UJN | 25.00 |
| Barium | 81.80 B | 62.70 B | 355.00 | 58.10 B | 177.00 B | 11.10 B | 91.00 B | 91.40 B | 105.00 B | 96.90 B | 1,000.00 |
| Beryllium | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.25 B | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | - |
| Cadmium | 3.60 B | 2.70 U | 2.70 U | 2.70 U | 2.70 U | 2.70 U | 2.90 B | 2.70 U | 2.70 U | 2.70 U | 10.00 |
| Calcium | 13,600.00 | 11,700.00 | 39,400.00 | 39,700.00 | 31,500.00 | 29,200.00 | 35,400.00 J | 39,000.00 J | 15,200.00 | 15,200.00 | - |
| Chromium | 17.80 | 2.60 U | 4.20 B | 2.60 U | 40.90 J | 2.60 U | **282.00 J** | 2.60 U | **72.20 J** | 2.60 U | 50.00 |
| Cobalt | 2.90 U | 2.90 U | 6.30 B | 2.90 B | 18.40 B | 2.90 U | 4.20 B | 6.30 B | 5.40 B | 5.00 B | - |
| Copper | 21.50 B | 5.50 B | **2,550.00** | 17.60 B | **992.00** | 8.10 B | 108.00 | 9.90 B | 12.30 B | 3.90 B | 200.00 |
| Iron | **3,570.00** | **277.00** | **136,000.00** | **1,360.00** | **327,000.00** | **4,940.00** | **10,800.00** | **9,060.00** | **2,750.00** | 178.00 | 300.00 |
| Lead | **28.70** | 3.40 | 3.20 JWN | R | 6.60 JWN | | 3.70 JWN | R | 5.40 JWN | R | 15.00 |
| Magnesium | 2,800.00 BE | 2,290.00 BE | 3,980.00 B | 4,270.00 B | 3,450.00 B | 3,380.00 B | 3,330.00 B | 3,590.00 B | 3,480.00 B | 3,480.00 B | 35,000.00 |
| Manganese | **304.00** | 260.00 | **879.00** | **646.00** | **977.00** | **620.00** | **602.00** | **650.00** | 244.00 | 220.00 | 300.00 |
| Mercury | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.00 |
| Nickel | 16.20 B | 10.80 U | 10.80 U | 10.80 U | 13.30 B | 10.80 U | 14.40 B | 10.80 U | 25.20 B | 10.80 U | - |
| Potassium | 3,220.00 B | 3,000.00 B | 6,630.00 | 7,040.00 | 5,180.00 | 5,160.00 | 5,490.00 | 5,990.00 | 5,950.00 | 6,410.00 | - |
| Selenium | 1.20 BJW | 1.10 U | 1.10 U | 1.10 U | 1.10 U | 1.10 U | 1.10 U | 1.10 U | 1.10 U | 1.10 U | 10.00 |
| Silver | 2.80 U | 2.80 U | 9.90 B | 2.80 U | 21.60 | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 50.00 |
| Sodium | 13,300.00 | 13,100.00 | 13,700.00 | 14,700.00 | 11,400.00 | 11,900.00 | 12,500.00 | 13,600.00 | 16,500.00 | 17,100.00 | 20,000.00 |
| Thallium | 1.50 BJW | 1.20 BJW | R | 1.00 UJWN | R | 1.00 UJWN | R | 1.10 BJWN | R | 1.20 BJWN | - |
| Vanadium | 2.30 U | 2.30 U | 2.90 B | 2.30 U | 6.60 B | 2.30 U | 3.40 B | 2.30 U | 3.10 B | 2.30 U | - |
| Zinc | 256.00 J | 170.00 J | 76.80 | 5.80 B | 178.00 | 10.70 B | 20.50 | 8.30 B | 48.80 | 22.30 | 300.00 |

Concentrations above the NYS Drinking Water Quality Standards referenced in table 2-12 are highlighted
- = No standard available
U= Analyte was not detected at the instrument detection limit given
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
N= Spiked sample recovery was not within control limits
*= Duplicate analysis was not within control limits
J= Estimated value
W= Post-digestion spike for Furnace AA analysis out of control limits, while sample absorbance is less than 50% of spike absorbance
R= Rejected during data validation
M=Duplicate injection precision criteria was not met

# TABLE 5
## CIRCUITRON CORPORATION SITE
## ROUND II DATA
## FOCUSED FEASIBLILITY STUDY
## MONITORING WELLS
## INORGANICS ANALYTICAL RESULTS (ug/l)

| Sample Number | Field Blank | Field Blank | Field Blank | MW-1S | MW-1S | MW-3D | MW-3D | MW-3D-DUP | MW-3D-DUP | MW-3S | NYS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Analysis | Total | Dissolved | Dissolved | Total | Dissolved | Total | Dissolved | Total | Dissolved | Total | Drinking Water |
| Depth Interval (ft) | - | - | - | 25-35 | 25-35 | 90-100 | 90-100 | 90-100 | 90-100 | 24-34 | Quality Standards |
| Date Collected | 2/22/94 | 2/22/94 | 2/22/94 | 2/22/94 | 2/22/94 | 2/22/94 | 2/22/94 | 2/22/94 | 2/22/94 | 2/23/94 | |
| Aluminum | 20.80 U | 20.80 U | 20.80 U | 175.00 B | 20.80 U | 71.90 B | 20.80 U | 60.10 B | 20.80 U | 201.00 | - |
| Antimony | 28.30 U | 28.30 U | 28.30 U | 28.30 U | 28.30 U | 28.30 U | 28.30 U | 28.30 U | 28.30 U | 28.30 UJ | - |
| Arsenic | N | 1.30 UJN | 1.30 UJN | R | 9.80 BJN | R | 1.30 UJN | | 1.30 UJN | 2.60 BJW | 25.00 |
| Barium | 0.80 U | 0.80 U | 0.80 U | 193.00 B | 163.00 B | 154.00 B | 156.00 B | 154.00 B | 142.00 B | 139.00 B | 1,000.00 |
| Beryllium | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | - |
| Cadmium | 2.70 U | 2.70 U | 2.70 U | 2.70 U | 2.70 U | 2.90 BJ | 2.70 U | 2.70 U | 2.70 U | 2.70 U | 10.00 |
| Calcium | 26.40 B | 70.40 B | 70.40 B | 75,100.00 | 77,600.00 | 13,700.00 | 14,500.00 | 13,700.00 | 14,300.00 | 31,700.00 | - |
| Chromium | 2.60 U | 2.60 U | 2.60 U | 7.70 B | 2.60 U | **75.20 J** | 3.40 B | **73.40 J** | 3.60 B | 45.80 | 50.00 |
| Cobalt | 2.90 U | 2.90 U | 2.90 U | 5.90 B | 2.90 B | 26.40 B | 21.80 B | 26.80 B | 19.70 B | 2.90 U | - |
| Copper | 2.40 B | 2.40 U | 2.40 U | 17.80 B | 5.50 B | 10.70 B | 5.80 B | 13.20 B | 9.20 B | **218.00** | 200.00 |
| Iron | 28.90 B | 6.10 U | 6.10 U | **52,600.00** | **23,200.00** | **687.00** | 189.00 | **661.00** | 184.00 | **9,790.00** | 300.00 |
| Lead | 0.60 UN | 0.60 UN | 0.60 UN | 2.90 BJWN | | 9.50 N | R | 8.60 JWN | R | 3.00 BJW | 15.00 |
| Magnesium | 26.80 U | 26.80 U | 26.80 U | 5,230.00 | 5,580.00 | 2,600.00 B | 2,800.00 B | 2,620.00 B | 2,700.00 B | 3,540.00 BE | 35,000.00 |
| Manganese | 1.70 U | 1.70 U | 1.70 U | **714.00** | **679.00** | **2,680.00** | **2,290.00** | **2,610.00** | **2,270.00** | **682.00** | 300.00 |
| Mercury | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.00 |
| Nickel | 10.80 U | 10.80 U | 10.80 U | 10.80 U | 10.80 U | 22.60 B | 10.80 U | 16.40 B | 11.70 B | 18.40 B | - |
| Potassium | 348.00 U | 348.00 U | 348.00 U | 11,100.00 | 15,300.00 J | 6,170.00 | 6,440.00 | 6,300.00 | 6,420.00 | 4,970.00 B | - |
| Selenium | 1.10 U | 1.10 U | 1.10 UJW | 1.10 UJW | 1.10 U | 1.10 U | 1.10 U | 1.10 U | 1.10 U | 1.10 U | 10.00 |
| Silver | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 50.00 |
| Sodium | 33.70 B | 37.80 B | 129.00 B | 19,200.00 J | **23,000.00 J** | 15,700.00 J | 17,300.00 J | 15,600.00 | 16,500.00 | 13,500.00 | 20,000.00 |
| Thallium | | 1.00 UN | 1.00 UN | R | 1.30 BJWN | R | 1.00 UJWN | R | 1.30 UJWN | 1.00 U | - |
| Vanadium | 2.30 U | 2.30 U | 2.30 U | 5.00 B | 2.30 U | 2.30 U | 2.30 U | 2.30 U | 2.30 U | 2.30 U | - |
| Zinc | 3.10 U | 3.10 U | 3.10 U | 21.50 | 5.00 B | 67.90 | 33.10 | 62.10 | 46.40 | 11.30 B | 300.00 |

Concentrations above the NYS Drinking Water Quality Standards referenced in table 2-12 are highlighted
- = No standard available
U = Analyte was not detected at the instrument detection limit given
B = Reported value is between the instrument detection limit and the contract required detection limit
E = Value is estimated due to interferences
N = Spiked sample recovery was not within control limits
* = Duplicate analysis was not within control limits
J = Estimated value
W = Post-digestion spike for Furnace AA analysis out of control limits, while sample absorbance is less than 50% of spike absorbance
R = Rejected during data validation
M = Duplicate injection precision criteria was not met.

# TABLE 5
## CIRCUITRON CORPORATION SITE
## ROUND II DATA
## FOCUSED FEASIBILITY STUDY
## MONITORING WELLS
## INORGANICS ANALYTICAL RESULTS (ug/l)

| Sample Number | MW-3S | MW-3D | MW-3D | Field Blank | Field Blank | MW-1D | MW-1D | MW-6S | MW-6S | MW-6D | NYS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Analysis | Dissolved | Total | Dissolved | Total | Dissolved | Total | Dissolved | Total | Dissolved | Total | Drinking Water |
| Depth Interval (ft) | 24-34 | 90-100 | 90-100 | - | - | 90-100 | 90-100 | 24.8-34.8 | 24.8-34.8 | 90-100 | Quality Standards |
| Date Collected | 2/23/94 | 2/23/94 | 2/23/94 | 2/23/94 | 2/21/94 | 2/23/94 | 2/23/94 | 2/24/94 | 2/24/94 | 2/24/94 | |
| Aluminum | 20.80 U | 89.50 B | 20.80 U | 20.80 U | 20.80 U | 223.00 J | 20.80 U | 298.00 J | 98.00 B | 306.00 J | - |
| Antimony | 28.30 UJ | 28.30 U | 28.30 U | 28.30 U | 28.30 U | 28.30 UJ | 28.30 UJ | 28.30 U | 28.30 U | 28.30 UJ | - |
| Arsenic | 1.30 UJW | 1.30 UJW | 1.30 U | 1.30 UJW | 1.30 UJN | 1.30 UJW | 1.30 UJW | 1.30 UJW | 1.30 U | 1.30 UJW | 25.00 |
| Barium | 43.10 B | 25.30 B | 20.50 B | 0.80 U | 0.80 U | 117.00 B | 105.00 B | 39.30 B | 36.40 B | 120.00 B | 1,000.00 |
| Beryllium | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | - |
| Cadmium | 2.70 U | 5.50 | 4.80 B | 2.70 U | 2.70 U | 4.30 B | 2.70 U | 2.70 U | 3.40 B | 2.70 U | 10.00 |
| Calcium | 39,400.00 | 8,990.00 | 8,840.00 | 23.10 U | 106.00 B | 13,100.00 | 12,600.00 | 20,900.00 | 20,500.00 | 25,800.00 | - |
| Chromium | 2.60 U | 10.40 | 2.60 U | 2.60 U | 2.60 U | 36.20 | 6.40 B | 70.90 | 2.60 U | **69.40** | 50.00 |
| Cobalt | 2.90 U | 2.90 U | 2.90 U | 2.90 U | 2.90 U | 2.90 U | 2.90 U | 2.90 U | 2.90 U | 2.90 U | - |
| Copper | 29.70 | 44.80 | 20.30 B | 2.40 U | 2.40 U | 9.00 B | 5.00 B | 2.40 U | 2.40 U | 8.00 B | 200.00 |
| Iron | **352.00** | **9,960.00** | 49.40 B | 13.80 B | 6.10 U | **621.00** | 37.70 B | **647.00** | 69.30 B | **1,110.00** | 300.00 |
| Lead | 3.10 JW | 11.20 | 2.10 B | 1.10 B | R | 5.30 JW | 2.70 BJW | 3.30 W | 1.70 B | 5.30 JW | 15.00 |
| Magnesium | 3,450.00 BE | 911.00 BE | 917.00 BE | 26.80 UE | 26.80 U | 4,010.00 BE | 3,890.00 BE | 2,700.00 BE | 2,660.00 BE | 4,360.00 BE | 35,000.00 |
| Manganese | **550.00** | 65.40 | 34.80 | 1.70 U | 1.80 B | 60.10 | 53.00 | 238.00 | 213.90 | 73.70 | 300.00 |
| Mercury | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | U | 0.20 U | 2.00 |
| Nickel | 10.80 B | 10.80 U | 11.40 B | 10.80 U | 10.80 U | 94.40 | 80.50 | 33.30 B | 24.90 B | 104.00 | - |
| Potassium | 4,830.00 B | 4,460.00 B | 4,660.00 B | 348.00 U | 348.00 U | 7,110.00 | 7,260.00 | 3,220.00 B | 3,610.00 B | 1,600.00 B | - |
| Selenium | 1.10 U | 1.10 U | 1.10 UJW | 1.10 U | 1.10 U | 1.10 U | 1.10 U | 1.10 U | 1.10 U | 1.10 U | 10.00 |
| Silver | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 50.00 |
| Sodium | 13,200.00 | 6,280.00 | 6,360.00 | 56.10 B | 40.50 B | **20,500.00** | **20,300.00** | 12,700.00 | 12,800.00 | 16,500.00 | 20,000.00 |
| Thallium | 1.00 U | 1.00 U | 1.00 U | 1.00 U | 1.00 BJWN | 1.00 U | 1.00 U | 1.20 BJW | 1.00 UJW | 1.00 UJW | - |
| Vanadium | 2.30 U | 2.30 U | 2.30 U | 2.30 U | 2.30 U | 2.30 U | 2.30 U | 2.30 U | 2.30 U | 2.30 U | - |
| Zinc | 7.50 B | 89.30 | 51.40 J | 5.90 B | 3.10 U | 114.00 J | 88.30 J | 15.90 B | 11.70 B | 48.50 J | 300.00 |

Concentrations above the NYS Drinking Water Quality Standards referenced in table 2-12 are highlighted
- = No standard available
U= Analyte was not detected at the instrument detection limit given
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
N= Spiked sample recovery was not within control limits
*= Duplicate analysis was not within control limits
J= Estimated value
W= Post-digestion spike for Furnace AA analysis out of control limits, while sample absorbance is less than 50% of spike absorbance
R= Rejected during data validation
M=Duplicate injection precision criteria was not met

# TABLE 5
## CIRCUITRON CORPORATION SITE
## ROUND II DATA
## FOCUSED FEASIBLILITY STUDY
## MONITORING WELLS
## INORGANICS ANALYTICAL RESULTS (ug/l)

| Sample Number | MW-7D | MW-7S | MW-7S | MW-7D | MW-7D | PW-2-02 | PW-2-02 | Field Blank | Field Blank | Field Blank | NYS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Analysis | Dissolved | Total | Dissolved | Total | Dissolved | Total | Dissolved | Total | Dissolved | Dissolved | Drinking Water Quality Standards |
| Depth Interval (ft) | 90-100 | 27-37 | 27-37 | 90-100 | 90-100 | 216.3-226.3 | 216.3-226.3 | - | - | - | |
| Date Collected | 2/24/94 | 2/24/94 | 2/24/94 | 2/23/94 | 2/23/94 | 2/22/94 | 2/22/94 | 2/24/94 | 2/23/94 | 2/23/94 | |
| Aluminum | 20.80 U | 222.00 J | 20.80 U | 393.00 J | 20.80 U | 20.80 U | 20.80 U | 20.80 U | 20.80 U | 20.80 U | - |
| Antimony | 28.30 U | 28.30 U | 28.30 U | 28.30 U | 28.30 U | 28.30 U | 28.30 U | 28.30 U | 28.30 U | 28.30 U | - |
| Arsenic | 1.30 U | 1.30 U | 1.30 U | 1.30 UJW | 1.30 U | R | 1.30 UJN | 1.30 UJN | 1.30 U | 1.30 U | 25.00 |
| Barium | 95.30 B | 84.80 B | 19.00 B | 93.10 B | 85.50 B | 40.70 B | 40.40 B | 0.80 U | 0.80 U | 0.80 U | 1,000.00 |
| Beryllium | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | - |
| Cadmium | 3.70 B | 4.00 B | 3.20 B | 3.70 B | 2.70 U | 2.70 U | 2.70 U | 2.70 UJ | 2.70 U | 2.70 U | 10.00 |
| Calcium | 15,500.00 | 13,100.00 | 12,600.00 | 12,900.00 | 12,800.00 | 5,260.00 J | 5,830.00 J | 37.50 B | 63.10 B | 72.10 B | - |
| Chromium | 10.90 | **788.00** | 5.40 B | 5.00 B | 2.60 U | 2.60 U | 2.60 U | 2.60 U | 2.60 U | 2.60 U | 50.00 |
| Cobalt | 2.90 U | 2.90 U | 2.90 U | 2.90 U | 2.90 U | 3.80 B | 2.90 U | 2.90 U | 2.90 U | 2.90 U | - |
| Copper | 2.40 U | 16.10 B | 2.40 U | 2.40 U | 2.40 U | 88.90 | 71.90 | 2.40 U | 2.40 U | 2.40 U | 200.00 |
| Iron | 57.10 B | **3,490.00** | 10.50 B | **371.00** | 26.40 B | 174.00 | 10.10 B | 10.80 B | 89.80 B | 20.50 B | 300.00 |
| Lead | 0.94 B | 2.20 B | 1.10 B | 3.80 JW | 2.90 B | 8.10 N | R | 0.60 UN | 1.70 BJW | 1.60 B | 15.00 |
| Magnesium | 3,490.00 BE | 2,760.00 BE | 2,690.00 BE | 3,470.00 BE | 3,110.00 BE | 2,420.00 B | 2,590.00 B | 26.80 U | 26.80 UE | 26.80 UE | 35,000.00 |
| Manganese | 38.50 | **4,400.00** | 2.70 B | 14.90 B | 9.80 B | 22.90 | 22.90 | 1.70 U | 1.70 U | 1.70 U | 300.00 |
| Mercury | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.00 |
| Nickel | 38.00 B | 52.00 | 10.80 U | 11.60 B | 10.80 U | 41.40 | 10.80 U | 10.80 U | 10.80 U | 10.80 U | - |
| Potassium | 1,670.00 B | 4,420.00 BJ | 5,070.00 J | 2,410.00 B | 2,490.00 B | 1,450.00 B | 1,610.00 B | 348.00 U | 348.00 U | 348.00 U | - |
| Selenium | 1.10 UJW | 1.10 UJW | 1.10 UJW | 1.10 U | 1.10 U | 1.10 U | 1.10 UJW | 1.10 UJN | 1.10 U | 1.10 U | 10.00 |
| Silver | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 2.80 U | 50.00 |
| Sodium | 15,500.00 | 9,600.00 | 9,420.00 | 11,600.00 | 11,500.00 | 7,670.00 | 8,440.00 | 66.00 B | 99.30 B | 143.00 B | 20,000.00 |
| Thallium | 1.00 UJW | 1.20 BJW | 1.00 UJW | 1.00 U | 1.50 BJW | - | 1.00 UN | 1.20 B | 1.00 U | 1.00 U | - |
| Vanadium | 2.30 U | 2.30 U | 2.30 U | 2.30 U | 2.30 U | 2.30 U | 2.30 U | 2.30 U | 2.30 U | 2.30 U | - |
| Zinc | 28.50 | 16.70 B | 6.70 B | 37.90 J | 11.00 B | **360.00** | 42.90 | 5.30 B | 4.20 B | 11.00 B | 300.00 |

Concentrations above the NYS Drinking Water Quality Standards referenced in table 2-12 are highlighted
- = No standard available
U= Analyte was not detected at the instrument detection limit given
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
N= Spiked sample recovery was not within control limits
*= Duplicate analysis was not within control limits
J= Estimated value
W= Post-digestion spike for Furnace AA analysis out of control limits, while sample absorbance is less than 50% of spike absorbance
R= Rejected during data validation

M=Duplicate injection precision criteria was not met

# TABLE 5
## CIRCUITRON CORPORATION SITE
## ROUND II DATA
## FOCUSED FEASIBLILITY STUDY
## MONITORING WELLS
## INORGANICS ANALYTICAL RESULTS (ug/l)

| Sample Number<br>Analysis<br>Depth Interval (ft)<br>Date Collected | PD-1<br>Dissolved<br>17-32<br>2/24/94 | PD-1<br>Total<br>17-32<br>2/24/94 | Field Blank<br>Dissolved<br>-<br>2/24/94 | Field Blank<br>Dissolved<br>-<br>2/24/94 | MW-13<br>Total<br>31-41<br>2/25/94 | MW-13<br>Dissolved<br>31-41<br>2/25/94 | MW-14<br>Total<br>33-43<br>2/25/94 | MW-14<br>Dissolved<br>33-43<br>2/25/94 | Field Blank<br>Dissolved<br>-<br>2/25/94 | | NYS<br>Drinking Water<br>Quality Standards |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 262.00 J | 3,240.00 | 20.80 U | 20.80 U | 4,800.00 | 20.80 U | 1,840.00 | 113.00 B | 20.80 U | | - |
| Antimony | 28.30 UJ | 28.30 U | 33.10 B | 28.30 U | 28.30 U | 28.30 U | 28.30 U | 39.40 B | 28.30 U | | - |
| Arsenic | 4.00 BW | 4.70 BJWN | 1.30 UJN | 1.30 UJN | 1.30 UJN | 1.30 UJN | 1.30 UJN | 1.30 UJN | 1.30 UJN | | 25.00 |
| Barium | 230.00 | 234.00 | 0.80 U | 0.80 U | 81.80 B | 45.40 B | 33.50 B | 23.00 B | 0.80 U | | 1,000.00 |
| Beryllium | 0.20 U | 0.29 B | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | | - |
| Cadmium | 3.90 B | 2.70 UJ | 2.70 UJ | 2.70 UJ | 2.70 U | 2.70 UJ | 2.70 UJ | 2.70 UJ | 2.70 UJ | | 10.00 |
| Calcium | 84,100.00 | 84,000.00 | 56.20 B | 74.90 B | 29,300.00 | 24,700.00 | 23,400.00 | 22,600.00 | 65.60 B | | - |
| Chromium | 2.60 U | 10.50 | 2.60 U | 2.60 U | 17.60 | 3.70 B | 14.30 | 2.80 B | 2.90 B | | 50.00 |
| Cobalt | 2.90 U | 4.90 B | 2.90 U | 2.90 U | 12.10 B | 8.50 B | 5.80 B | 2.90 U | 4.00 B | | - |
| Copper | 2.90 B | 11.20 B | 2.40 U | 2.40 U | 40.00 J | 6.10 B | 9.80 B | 2.40 U | 2.40 U | | 200.00 |
| Iron | **27,200.00** | **32,100.00** | 14.00 B | 11.60 B | **20,600.00** | **4,760.00** | **3,880.00** | 289.00 | 9.10 B | | 300.00 |
| Lead | 7.00 JW | 8.90 JWN | 0.60 UN | 0.60 UN | 11.90 JWN | 1.40 BJN | 3.80 JN | 0.90 BJN | 0.60 UJWN | | 15.00 |
| Magnesium | 6,850.00 EJ | 7,190.00 | 44.20 B | 26.80 U | 4,110.00 B | 2,600.00 B | 3,040.00 B | 2,710.00 B | 38.00 B | | 35,000.00 |
| Manganese | **894.00** | **915.00** | 2.00 B | 1.70 U | **681.00** | **520.00** | **319.00** | 243.00 | 1.70 U | | 300.00 |
| Mercury | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | | 2.00 |
| Nickel | 10.80 U | 10.80 U | 10.80 U | 10.80 U | 35.40 B | 13.30 B | 10.80 U | 10.80 U | 10.80 U | | - |
| Potassium | 10,600.00 | 11,400.00 J | 348.00 U | 348.00 U | 4,800.00 B | 3,990.00 B | 2,820.00 B | 2,420.00 B | 348.00 U | | - |
| Selenium | 1.10 U | 1.10 UJWN | 1.10 UJN | 1.10 UJN | 1.40 BJWN | 1.10 UJWN | 1.10 UJWN | 1.10 UJN | 1.10 UJN | | 10.00 |
| Silver | 2.80 U | 4.10 B | 2.80 U | 2.80 U | 4.50 B | 2.80 U | 4.10 B | 2.80 U | 2.80 U | | 50.00 |
| Sodium | **50,500.00** | **48,900.00** | 101.00 B | 96.30 B | 12,300.00 | 11,000.00 | 15,800.00 | 15,200.00 | 105.00 B | | 20,000.00 |
| Thallium | 1.40 BJW | 1.10 BJW | 1.00 U | 1.60 B | 1.10 BJW | 1.00 U | 1.00 U | 1.00 BJW | 1.00 U | | - |
| Vanadium | 2.70 U | 11.60 B | 2.30 U | 2.30 U | 10.10 B | 3.50 B | 4.30 B | 2.30 U | 2.70 B | | - |
| Zinc | 11.80 B | 29.70 | 3.10 U | 3.10 U | 68.10 | 23.60 | 14.00 B | 6.10 B | 3.10 U | | 300.00 |

Concentrations above the NYS Drinking Water Quality Standards referenced in table 2-12 are highlighted
- = No standard available
U= Analyte was not detected at the instrument detection limit given
B= Reported value is between the instrument detection limit and the contract required detection limit
E= Value is estimated due to interferences
N= Spiked sample recovery was not within control limits
*= Duplicate analysis was not within control limits
J= Estimated value
W= Post-digestion spike for Furnace AA analysis out of control limits, while sample absorbance is less than 50% of spike absorbance
R= Rejected during data validation
M=Duplicate injection precision criteria was not met.

Table 6
Chemicals of Potential Concern in Groundwater
(On–Property and Off–Property Wells)
Circuitron Corporation Site

| Chemical | Frequency of Detection [a] | Range of Sample Quantitation Limits (µg/L) | Range of Detected Concentrations (µg/L) |
|---|---|---|---|
| Orgar... | | | |
| Acetone | 3/3 | 10 [b] | 3 – 18 |
| 2–Butanone | 1/1 | 10 [b] | 6 |
| Chlorobenzene | 2/24 | 1 | 0.6 – 3 |
| Chloroform | 3/24 | 1 | 1 – 3 |
| 1,1–Dichloroethane | 16/24 | 1 | 0.5 – 42 |
| 1,1–Dichloroethene | 14/24 | 1 | 1 – 66 |
| cis–1,2–Dichloroethene | 8/24 | 1 | 1 – 10 |
| Tetrachloroethene | 14/24 | 1 | 0.7 – 21 |
| Toluene | 1/11 | 1 | 0.7 |
| 1,1,1–Trichloroethane | 23/24 | 1 | 1 – 5,800 |
| 1,1,2–Trichloroethane | 1/24 | 1 | 3 |
| Trichloroethene | 12/24 | 1 | 1 – 43 |
| Inorganics | | | |
| Aluminum | 9/9 | 200 [b] | 133 – 3,700 |
| Arsenic | 4/11 | 2.3 | 2.6 – 81 |
| Barium | 11/11 | 200 [b] | 27 – 1,390 |
| Beryllium | 2/11 | 0.3 – 0.5 | 0.36 – 0.51 |
| Chromium | 7/11 | 5.8 | 6.3 – 597 |
| Copper | 10/10 | 25 [b] | 4.2 – 14,600 |
| Lead | 11/11 | 3 [b] | 3.5 – 55 |
| Manganese | 10/10 | 15 [b] | 108 – 1,790 |
| Nickel | 7/10 | 6.1 | 7 – 72 |
| Silver | 1/11 | 3.3 –3.8 | 17 – 28 |
| Vanadium | 10/11 | 2.1 | 4.5 – 46 |
| Zinc | 10/10 | 20 [b] | 4.9 – 281 |

[a] Number of sampling locations at which the chemical was detected compared with the total number of sampling locations.
[b] The contract required quantitation limit (CRQL) is indicated.

Table 7
Exposure Point Concentrations for Chemicals of Potential Concern in Groundwater (On–Property and Off–Property Wells)
Circuitron Corporation Site

| Chemical | Upper 95 Percent Confidence Limit Concentration (µg/L) | Maximum Detected Concentration (µg/L) | Exposure Point Concentration [a] (µg/L) |
|---|---|---|---|
| Organics | | | |
| Acetone | 19,400 | 18 | 18 |
| 2–Butanone | NA | 6 | 6 |
| Chlorobenzene | 0.58 | 3 | 0.58 |
| Chloroform | 0.67 | 3 | 0.67 |
| 1,1–Dichloroethane | 11 | 42 | 11 |
| 1,1–Dichloroethene | 5.8 | 66 | 5.8 |
| cis–1,2–Dichloroethene | 1.6 | 10 | 1.6 |
| Tetrachloroethene | 2.4 | 21 | 2.4 |
| Toluene | 0.56 | 0.7 | 0.56 |
| 1,1,1–Trichloroethane | 181 | 5,800 | 181 |
| 1,1,2–Trichloroethane | 0.67 | 3 | 0.67 |
| Trichloroethene | 9.7 | 43 | 9.7 |
| Inorganics | | | |
| Aluminum | 10,500 | 3,700 | 3,700 |
| Arsenic | 47 | 81 | 47 |
| Barium | 374 | 1,390 | 374 |
| Beryllium | 0.33 | 0.51 | 0.33 |
| Chromium | 1,565 | 597 | 597 |
| Copper | 54,300 | 14,600 | 14,600 |
| Lead | 31 | 55 | 31 |
| Manganese | 1,417 | 1,790 | 1,417 |
| Nickel | 47 | 72 | 47 |
| Silver | 5.9 | 28 | 5.9 |
| Vanadium | 17 | 46 | 17 |
| Zinc | 157 | 281 | 157 |

NA = Not applicable. An upper 95 percent confidence limit concentration cannot be calculated based on one sample.

[a] Represents the upper 95 percent confidence limit concentration if it is lower than the maximum detected concentration. If the upper 95 percent confidence limit concentration exceeds the maximum detected concentration, the exposure point concentration equals the maximum detected concentration.

Table 8
Potential Exposure Pathways/Routes
Circuitron Corporation Site

| Exposure Pathway | Scenario | Receptor | Exposure Routes |
|---|---|---|---|
| **Groundwater**[a] On-property and off-property Wells | Current | None - Not used for household purposes | |
| | Future | Resident (1-6 yr old child and adult) | 1. Ingestion<br>2. Noningestion uses (showering, washing etc.) |

[a]Groundwater data from the upper 40 feet of the saturated aquifer was used.

**Table 9**
**Slope Factors**
**Circuitron Corporation Site**

| Chemicals | Oral Slope Factor $(mg/kg/day)^{-1}$ | Source | Inhalation Slope Factor $(mg/kg/day)^{-1}$ | Source |
|---|---|---|---|---|
| Organics | | | | |
| Chloroform | 6.1E−03 | IRIS, 1994 | 8.1E−02 | EPA, 1993 |
| 1,1−Dichloroethane | NTV | -- | NTV | -- |
| 1,1−Dichloroethene | 6E−01 | IRIS, 1994 | 1.2E+00 | EPA, 1993 |
| Tetrachloroethene | 5.2E−02 | ECAO,1992 | 2E−03 | ECAO,1992 |
| 1,1,2−Trichloroethane | 5.7E−02 | IRIS, 1994 | 5.7E−02 | EPA, 1993 |
| Trichloroethene | 1.1E−02 | ECAO,1992 | 6E−03 | ECAO,1992 |
| Inorganics | | | | |
| Arsenic | 1.8E+00 | IRIS, 1994 | NC | -- |
| Beryllium | 4.3E+00 | IRIS, 1994 | NC | -- |
| Lead | NTV | -- | NC | -- |

NC = Chemical is not of concern through this exposure route.
NTV = No toxicity value was available.

**Table 10**
**Reference Doses (RfDs)**
**Circuitron Corporation Site**

| Chemical | Oral Reference Dose (mg/kg/day) | Source | Inhalation Reference Dose (mg/kg/day) | Source |
|---|---|---|---|---|
| Organics | | | | |
| Acetone | 1E−01 | IRIS, 1994 | NTV | -- |
| 2−Butanone | 6E−01 | IRIS, 1994 | 1E+00 | IRIS, 1994 |
| Chlorobenzene | 2E−02 | IRIS, 1994 | 5E−03 | A, 1993 |
| Chloroform | 1E−02 | IRIS, 1994 | NTV | -- |
| 1,1−Dichloroethane | 1E−01 | EPA,1993 | 1E−01 | EPA, 1993 |
| 1,1−Dichloroethene | 9E−03 | IRIS, 1994 | NTV | -- |
| cis−1,2−Dichloroethene | 1E−03 | EPA, 1993 | NTV | -- |
| Tetrachloroethene | 1E−02 | IRIS, 1994 | NTV | -- |
| Toluene | 2E−01 | IRIS, 1994 | 4E−01 | IRIS, 1994 |
| 1,1,1−Trichloroethane | NTV | -- | 2.9E−01 | ECAO, 1994 |
| 1,1,2−Trichloroethane | 4E−03 | IRIS, 1994 | NTV | -- |
| Trichloroethene | 6E−03 | ECAO, 1992 | NTV | -- |
| Inorganics | | | | |
| Aluminum | NTV | -- | NC | -- |
| Arsenic | 3E−04 | IRIS, 1994 | NC | -- |
| Barium | 7E−02 | IRIS, 1994 | NC | -- |
| Beryllium | 5E−03 | IRIS, 1994 | NC | -- |
| Chromium III | 1E+00 | IRIS, 1994 | NC | -- |
| Chromium VI | 5E−03 | IRIS, 1994 | NC | -- |
| Copper | 3.7E−02 | EPA, 1993 | NC | -- |
| Lead | NTV | -- | NC | -- |
| Manganese | 5E−03 | IRIS, 1994 | NC | -- |
| Nickel | 2E−02 | IRIS, 1994 | NC | -- |
| Silver | 5E−03 | IRIS, 1994 | NC | -- |
| Vanadium | 7E−03 | EPA, 1993 | NC | -- |
| Zinc | 3E−01 | IRIS, 1994 | NC | -- |

NC = Chemical is not of concern through this exposure route.
NTV = No toxicity value was available.

**Table 11**
**Summary of Carcinogenic Risks by Exposure Pathway, Receptor, and Chemical – RME Scenario**
**Circuitron Corporation Site**

| Exposure Pathway | Receptor | Total Carcinogenic Risk | Chemicals with a Carcinogenic Risk > or = 1E–06 | | |
|---|---|---|---|---|---|
| | | | Chemical | Carcinogenic Risk | % Contribution To Total Carcinogenic Risk |
| Groundwater | Resident (child & adult combined) | Total Carcinogenic Risk = 1.1E–03<br>* carcinogenic risk from ingestion uses = 9.6E–04<br>* carcinogenic risk from noningestion uses = 1.6E–04 | Arsenic | 9E–04 | 81% |
| | | | 1,1–Dichloroethene | 1.9E–04 | 17% |
| | | | Beryllium | 1.6E–05 | 1% |
| | | | Trichloroethene | 2.4E–06 | 0.2% |
| | | | Tetrachloroethene | 1.5E–06 | 0.1% |
| | | | 1,1,2–Trichloroethane | 1.3E–06 | 0.1% |
| | | | Chloroform | 1.2E–06 | 0.1% |

Table 12
Future Resident (child and adult combined) – RME
Potential Carcinogenic Risk Through All Exposure Routes
(Groundwater – On–Property and Off–Property Wells)
Based on Upper 95 Percent Confidence Limit Concentration

| Chemical | Ingestion of Groundwater | Noningestion Uses of Groundwater | Total |
|---|---|---|---|
| ORGANICS | | | |
| Chloroform | 4.48E–08 | 1.19E–06 | 1.23E–06 |
| 1,1–Dichloroethane | NTV | NTV | NA |
| 1,1–Dichloroethene | 3.81E–05 | 1.53E–04 | 1.91E–04 |
| Tetrachloroethene | 1.37E–06 | 1.05E–07 | 1.47E–06 |
| 1,1,2–Trichloroethane | 4.19E–07 | 8.37E–07 | 1.26E–06 |
| Trichloroethene | 1.17E–06 | 1.28E–06 | 2.44E–06 |
| INORGANICS | | | |
| Arsenic | 9.01E–04 | NC | 9.01E–04 |
| Beryllium | 1.56E–05 | NC | 1.56E–05 |
| Lead | NTV | NC | NA |
| TOTAL | 9.58E–04 | 1.56E–04 | 1.11E–03 |

NA = Not applicable.
NC = Chemical is not of concern through this exposure route.
NTV = No toxicity value was available.

Table 13
Future Resident (child and adult combined) – RME
Distribution of Lifetime Carcinogenic Risk as Percent of Total Risk
(Groundwater – On–Property and Off–Property Wells)
Based on Upper 95 Percent Confidence Limit Concentration

| Chemical | Ingestion of Groundwater | Noningestion Uses of Groundwater | Total |
|---|---|---|---|
| ORGANICS | | | |
| Chloroform | 0.00 | 0.11 | 0.11 |
| 1,1–Dichloroethane | NTV | NTV | NA |
| 1,1–Dichloroethene | 3.42 | 13.69 | 17.12 |
| Tetrachloroethene | 0.12 | 0.01 | 0.13 |
| 1,1,2–Trichloroethane | 0.04 | 0.08 | 0.11 |
| Trichloroethene | 0.10 | 0.11 | 0.22 |
| INORGANICS | | | |
| Arsenic | 80.91 | NC | 80.91 |
| Beryllium | 1.40 | NC | 1.40 |
| Lead | NTV | NC | NA |
| TOTAL | 86.00 | 14.00 | 100.00 |

0.00 = Contribution is less than 0.01 percent.
NA = Not applicable.
NC = Chemical is not of concern through this exposure route.
NTV = No toxicity value was available.

**Table 14**
**Summary of Hazard Indices by Exposure Pathway, Receptor, and Chemical – RME Scenario**
**Circuitron Corporation Site**

| | | | Chemicals with Hazard Index > or = 1 | | |
|---|---|---|---|---|---|
| **Exposure Pathway** | **Receptor** | **Total Hazard Index** | **Chemical** | **Hazard Index** | **% Contribution To Total Hazard Index** |
| Groundwater | Child Resident | Total Hazard Index = 56<br>* hazard index from ingestion uses = 56<br>* hazard index from noningestion uses = 0.1 | Copper<br>Manganese<br>Arsenic<br>Chromium VI | 25<br>18<br>10<br>1.1 | 45%<br>33%<br>18%<br>2% |
| | Adult Resident | Total Hazard Index = 24<br>* hazard index from ingestion uses = 24<br>* hazard index from noningestion uses = 0.05 | Copper<br>Manganese<br>Arsenic | 11<br>7.8<br>4.3 | 45%<br>33%<br>18% |

Table 15
Future Child Resident (1–6 yr old) – RME
Hazard Quotients and Indices Through All Exposure Routes
(Groundwater – On–Property and Off–Property Wells)
Based on Upper 95 Percent Confidence Limit Concentration

| Chemical | Ingestion of Groundwater | Noningestion Uses of Groundwater | Total |
|---|---|---|---|
| ORGANICS | | | |
| Acetone | 1.15E–02 | NTV | 1.15E–02 |
| 2–Butanone | 6.39E–04 | 7.67E–04 | 1.41E–03 |
| Chlorobenzene | 1.85E–03 | 1.48E–02 | 1.67E–02 |
| Chloroform | 4.28E–03 | NTV | 4.28E–03 |
| 1,1–Dichloroethane | 7.03E–03 | 1.41E–02 | 2.11E–02 |
| 1,1–Dichloroethene | 4.12E–02 | NTV | 4.12E–02 |
| cis–1,2–Dichloroethene | 1.02E–01 | NTV | 1.02E–01 |
| Tetrachloroethene | 1.53E–02 | NTV | 1.53E–02 |
| Toluene | 1.79E–04 | 1.79E–04 | 3.58E–04 |
| 1,1,1–Trichloroethane | NTV | 7.98E–02 | 7.98E–02 |
| 1,1,2–Trichloroethane | 1.07E–02 | NTV | 1.07E–02 |
| Trichloroethene | 1.03E–01 | NTV | 1.03E–01 |
| INORGANICS | | | |
| Aluminum | NTV | NC | NA |
| Arsenic | 1.00E+01 | NC | 1.00E+01 |
| Barium | 3.42E–01 | NC | 3.42E–01 |
| Beryllium | 4.22E–03 | NC | 4.22E–03 |
| Chromium (III) | 3.28E–02 | NC | 3.28E–02 |
| Chromium (VI) | 1.07E+00 | NC | 1.07E+00 |
| Copper | 2.52E+01 | NC | 2.52E+01 |
| Lead | NTV | NC | NA |
| Manganese | 1.81E+01 | NC | 1.81E+01 |
| Nickel | 1.50E–01 | NC | 1.50E–01 |
| Silver | 7.54E–02 | NC | 7.54E–02 |
| Vanadium | 1.55E–01 | NC | 1.55E–01 |
| Zinc | 3.35E–02 | NC | 3.35E–02 |
| TOTAL | 5.55E+01 | 1.10E–01 | 5.56E+01 |

NA = Not applicable.
NC = Chemical is not of concern through this exposure route.
NTV = No toxicity value was available.

Table 16
Future Child Resident (1–6 yr old) – RME
Distribution of Hazard Quotient and Indices as Percent of Total Hazard Index
(Groundwater – On–Property and Off–Property Wells)
Based on Upper 95 Percent Confidence Limit Concentration

| Chemical | Ingestion of Groundwater | Noningestion Uses of Groundwater | Total |
|---|---|---|---|
| ORGANICS | | | |
| Acetone | 0.02 | NTV | 0.02 |
| 2–Butanone | 0.00 | 0.00 | 0.00 |
| Chlorobenzene | 0.00 | 0.03 | 0.03 |
| Chloroform | 0.01 | NTV | 0.01 |
| 1,1–Dichloroethane | 0.01 | 0.03 | 0.04 |
| 1,1–Dichloroethene | 0.07 | NTV | 0.07 |
| cis–1,2–Dichloroethene | 0.18 | NTV | 0.18 |
| Tetrachloroethene | 0.03 | NTV | 0.03 |
| Toluene | 0.00 | 0.00 | 0.00 |
| 1,1,1–Trichloroethane | NTV | 0.14 | 0.14 |
| 1,1,2–Trichloroethane | 0.02 | NTV | 0.02 |
| Trichloroethene | 0.19 | NTV | 0.19 |
| INORGANICS | | | |
| Aluminum | NTV | NC | NA |
| Arsenic | 18.00 | NC | 18.00 |
| Barium | 0.61 | NC | 0.61 |
| Beryllium | 0.01 | NC | 0.01 |
| Chromium (III) | 0.06 | NC | 0.06 |
| Chromium (VI) | 1.93 | NC | 1.93 |
| Copper | 45.34 | NC | 45.34 |
| Lead | NTV | NC | NA |
| Manganese | 32.57 | NC | 32.57 |
| Nickel | 0.27 | NC | 0.27 |
| Silver | 0.14 | NC | 0.14 |
| Vanadium | 0.28 | NC | 0.28 |
| Zinc | 0.06 | NC | 0.06 |
| TOTAL | 99.80 | 0.20 | 100.00 |

0.00 = Contribution is less than 0.01 percent.
NA = Not applicable.
NC = Chemical is not of concern through this exposure route.
NTV = No toxicity value was available.

Table 17
Future Adult Resident – RME
Hazard Quotients and Indices Through All Exposure Routes
(Groundwater – On–Property and Off–Property Wells)
Based on Upper 95 Percent Confidence Limit Concentration

| Chemical | Ingestion of Groundwater | Noningestion Uses of Groundwater | Total |
|---|---|---|---|
| ORGANICS | | | |
| Acetone | 4.93E–03 | NTV | 4.93E–03 |
| 2–Butanone | 2.74E–04 | 3.29E–04 | 6.03E–04 |
| Chlorobenzene | 7.95E–04 | 6.36E–03 | 7.15E–03 |
| Chloroform | 1.84E–03 | NTV | 1.84E–03 |
| 1,1–Dichloroethane | 3.01E–03 | 6.03E–03 | 9.04E–03 |
| 1,1–Dichloroethene | 1.77E–02 | NTV | 1.77E–02 |
| cis–1,2–Dichloroethene | 4.38E–02 | NTV | 4.38E–02 |
| Tetrachloroethene | 6.58E–03 | NTV | 6.58E–03 |
| Toluene | 7.67E–05 | 7.67E–05 | 1.53E–04 |
| 1,1,1–Trichloroethane | NTV | 3.42E–02 | 3.42E–02 |
| 1,1,2–Trichloroethane | 4.59E–03 | NTV | 4.59E–03 |
| Trichloroethene | 4.43E–02 | NTV | 4.43E–02 |
| INORGANICS | | | |
| Aluminum | NTV | NC | NA |
| Arsenic | 4.29E+00 | NC | 4.29E+00 |
| Barium | 1.46E–01 | NC | 1.46E–01 |
| Beryllium | 1.81E–03 | NC | 1.81E–03 |
| Chromium (III) | 1.41E–02 | NC | 1.41E–02 |
| Chromium (VI) | 4.60E–01 | NC | 4.60E–01 |
| Copper | 1.08E+01 | NC | 1.08E+01 |
| Lead | NTV | NC | NA |
| Manganese | 7.76E+00 | NC | 7.76E+00 |
| Nickel | 6.44E–02 | NC | 6.44E–02 |
| Silver | 3.23E–02 | NC | 3.23E–02 |
| Vanadium | 6.65E–02 | NC | 6.65E–02 |
| Zinc | 1.43E–02 | NC | 1.43E–02 |
| TOTAL | 2.38E+01 | 4.70E–02 | 2.38E+01 |

NA = Not applicable.
NC = Chemical is not of concern through this exposure route.
NTV = No toxicity value was available.

Table 18
Future Adult Resident – RME
Distribution of Hazard Quotient and Indices as Percent of Total Hazard Index
(Groundwater – On–Property and Off–Property Wells)
Based on Upper 95 Percent Confidence Limit Concentration

| Chemical | Ingestion of Groundwater | Noningestion Uses of Groundwater | Total |
|---|---|---|---|
| ORGANICS | | | |
| A. tone | 0.02 | NTV | 0.02 |
| 2–Butanone | 0.00 | 0.00 | 0.00 |
| Chlorobenzene | 0.00 | 0.03 | 0.03 |
| Chloroform | 0.01 | NTV | 0.01 |
| 1,1–Dichloroethane | 0.01 | 0.03 | 0.04 |
| 1,1–Dichloroethene | 0.07 | NTV | 0.07 |
| cis–1,2–Dichloroethene | 0.18 | NTV | 0.18 |
| Tetrachloroethene | 0.03 | NTV | 0.03 |
| Toluene | 0.00 | 0.00 | 0.00 |
| 1,1,1–Trichloroethane | NTV | 0.14 | 0.14 |
| 1,1,2–Trichloroethane | 0.02 | NTV | 0.02 |
| Trichloroethene | 0.19 | NTV | 0.19 |
| INORGANICS | | | |
| Aluminum | NTV | NC | NA |
| Arsenic | 18.00 | NC | 18.00 |
| Barium | 0.61 | NC | 0.61 |
| Beryllium | 0.01 | NC | 0.01 |
| Chromium (III) | 0.06 | NC | 0.06 |
| Chromium (VI) | 1.93 | NC | 1.93 |
| Copper | 45.34 | NC | 45.34 |
| Lead | NTV | NC | NA |
| Manganese | 32.57 | NC | 32.57 |
| Nickel | 0.27 | NC | 0.27 |
| Silver | 0.14 | NC | 0.14 |
| Vanadium | 0.28 | NC | 0.28 |
| Zinc | 0.06 | NC | 0.06 |
| TOTAL | 99.80 | 0.20 | 100.00 |

0.00 = Contribution is less than 0.01 percent.
NA = Not applicable.
NC = Chemical is not of concern through this exposure route.
NTV = No toxicity value was available.

## TABLE 19

## GROUNDWATER CLEANUP STANDARDS

| Parameters | Groundwater Conc. (mg/l) |
|---|---|
| Arsenic | .025 |
| Barium | 1 |
| Beryllium | .003 |
| Chlorobenzene | .005 |
| Chloroform | .007 |
| Chromium (total) | .1 |
| Chromium VI | .1 |
| Copper | .2 |
| 1,1-Dichloroethane | .005 |
| 1,1-Dichloroethene | .005 |
| 1,2-Dichloroethene (total) | .005 |
| Lead | .015 |
| Nickel | .1 |
| Silver | .05 |
| Tetrachloroethene | .005 |
| 1,1,1-Trichloroethane | .005 |
| 1,1,2-Trichloroethane | .005 |
| Trichloroethene | .005 |
| Toluene | .005 |
| Zinc | .3 |

Notes: The standards provided in this table reflect the more stringent of the State and Federal drinking water standards or maximum contaminant levels (MCLs).

# APPENDIX III

## ADMINISTRATIVE RECORD INDEX

**CIRCUITRON CORPORATION SITE**
**OPERABLE UNIT TWO**
**ADMINISTRATIVE RECORD FILE**
**INDEX OF DOCUMENTS**

## 4.0 FEASIBILITY STUDY

### 4.2 Feasibility Study Work Plans

P. 400001-400241 Report: Draft Final Sampling and Analysis Plan for the Circuitron Corporation Site, Focused Feasibility Study, Second Operable Unit, East Farmingdale, New York, prepared by Roy F. Weston, Inc., Life Systems, Inc., Helen Neuhaus Associates, Inc., and R.E. Sarriera and Associates, Inc., September 1992.

P. 400242-400357 Report: Draft Final Work Plan, Volume I for the Circuitron Site, East Farmingdale, New York, Focused Feasibility Study, Second Operable Unit, prepared by Roy F. Weston, Inc., Life Systems, Inc., Helen Neuhaus Associates, Inc., and R.E. Sarriera and Associates, Inc., July 1992.

### 4.3 Feasibility Study Reports

P. 400358-401165 Report: Final Draft Focused Feasibility Study, Second Operable Unit for the Circuitron Site, East Farmingdale, New York, Volume I and Volume II, prepared by Roy F. Weston, Inc., July 1994.

P. 401166-401260 Report: Summary Report on Drive Point Groundwater Sampling at Circuitron Corporation Site, East Farmingdale, New York, December 1993.

## 8.0 HEALTH ASSESSMENTS

### 8.1 ATSDR Health Assessments

P. 800001-800042 Report: Public Health Assessment, Circuitron Corporation, Suffolk County, Farmingdale, New York, prepared by New York State Department of Health, under a cooperative agreement with U.S. Department of Health & Human Services, Public Health Service Agency for Toxic Substances and Disease Registry, February 1993.

## 10.0 PUBLIC PARTICIPATION

### 10.9 Proposed Plan

P. 10.00001-10.00010 Plan: Superfund Proposed Plan, Circuitron Corporation Site, Town of East Farmingdale, Suffolk County, New York, prepared by U.S. EPA, Region II, July 1994.

# APPENDIX IV

## STATE LETTER OF CONCURRENCE

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York, 12233

Langdon Marsh
Commissioner

SEP 27 1994

Ms. Kathleen C. Callahan
Director
Emergency & Remedial Response Division
U.S. Environmental Protection Agency
Region II
26 Federal Plaza
New York, NY 10278

Re: Record of Decision
Circuitron Corp. Site ID No. 152082

Dear Ms. Callahan:

The New York State Department of Environmental Conservation (NYSDEC) has reviewed the draft Record of Decision for the Circuitron Corporation site - Operable Unit II, dated September 1994. The NYSDEC concurs with the selected remedy which includes containment and treatment of site-related groundwater contamination.

If you have any questions, please contact Mr. James Bologna at (518) 457-3976.

Sincerely,

Ann Hill DeBarbieri
Deputy Commissioner
Office of Environmental Remediation

cc: D. Garbarini, USEPA-Region II
L. Thantu, USEPA-Region II

# APPENDIX V

## RESPONSIVENESS SUMMARY

APPENDIX V

**RESPONSIVENESS SUMMARY**
**CIRCUITRON CORPORATION SUPERFUND SITE**

## INTRODUCTION

A responsiveness summary, required by Superfund policy, provides a summary of citizens' comments and concerns raised at the August 8, 1994 public meeting and EPA's responses to those comments and concerns. No written comments were received during the public comment period. All comments summarized in this document have been considered in NYSDEC's and EPA's final decision for selection of a remedial alternative for the Circuitron Corporation site (Site).

## SUMMARY OF COMMUNITY RELATIONS ACTIVITIES

Community interest in the Site has been low throughout this second operable unit focused feasibility study (FFS), as it was during the first operable unit Remedial Investigation and Feasibility Study (RI/FS).

EPA, the lead agency for the Site, oversaw community relations activities during the FFS process.

The FFS report and the Proposed Plan for the Site were released to the public for comment on July 26, 1994. These documents were made available to the public in the administrative record file at the EPA Docket Room in Region II, New York and two information repositories maintained at the Farmingdale Public Library and the Town of Babylon Department of Environmental Control. The Farmingdale Public Library is located at Main and Conklin Streets, Farmingdale, New York. The Department of Environmental Control is located at 281 Phelps Lane, North Babylon, New York. The notice of the public meeting and availability of the above-referenced documents appeared in the Farmingdale Observer and Newsday newspaper on August 5, 1994. A press release announcing the same was issued on July 26, 1994. The public comment period for review of these documents extended from July 26, 1994 to August 24, 1994.

On August 8, 1994, EPA conducted a public meeting at the East Farmingdale Fire House located at 930 Conklin Street, East Farmingdale, New York to discuss remedial alternatives, to present EPA's preferred remedial alternative, and to provide an opportunity for the interested parties to present oral comments and questions to EPA.

Attached to the Responsiveness Summary are the following Appendices:

Appendix A - Proposed Plan

Appendix B - Public Notices

Appendix C - August 8, 1994 Public Meeting Attendance Sheet

SUMMARY OF COMMENTS AND RESPONSES

Comments and concerns expressed at the public meeting held on August 8, 1994, and EPA's responses are summarized below.

Questions Regarding the Nature and Extent of Contamination

1. **COMMENT:** A resident expressed concern over the omission of copper from a list presenting the chemical constituents identified in the wastewater [groundwater] associated with the Site.

   **EPA RESPONSE:** During the FFS, groundwater samples were collected and analyzed for total and dissolved inorganic contaminants. Copper was identified in the total inorganic analysis as a contaminant of concern, above the 100 micrograms per liter (ug/l) New York State Drinking Water Standard. Total copper concentrations ranged between 4.2 and 14,600 ug/l. The selected remedy for the Site requires that the extracted groundwater will be treated to ensure that all Federal and State drinking water and groundwater quality standards are achieved prior to reinjection of the treated water into the aquifer.

2. **COMMENT:** A resident inquired as to the distribution of chemical contaminants throughout the zone which overlies the water table (vadose zone).

   **EPA RESPONSE:** Analytical results of surface and subsurface soil samples collected during the investigative phases of the first operable unit RI/FS have identified organic and inorganic contaminants associated with past activities performed at the Site, throughout the vadose zone. Many of the contaminants found in the surface and subsurface soils were the same as those found in the groundwater, the prevalent volatile organic compound (VOC) being 1,1,1-trichloroethane at a maximum level of 100 parts per million (ppm). Copper was found at a maximum level of 1,950 ppm at a location inside the building which might have been the location of a unpermitted leaching pool. Phthalates were present at fairly high levels

in all three media (i.e., groundwater, soils, and sediments) and were found upgradient and downgradient as well as on-Site.

3. **COMMENT:** A resident expressed concern regarding the migration of the groundwater plume emanating from the Site, and specifically, the distance it may have migrated over the years since its detection.

   **EPA RESPONSE:** Studies conducted at the Site as part of the FFS identified a horizontal groundwater velocity of 1.84 feet/day for the Upper Glacial aquifer. The FFS indicated that the groundwater contaminant plume in the Upper Glacial aquifer attributable to the Site has migrated to approximately 700 feet beyond the southern property line of the Site. The plume has a width of about 600 feet and extends vertically into the shallow portion (upper 40 saturated feet) of the Upper Glacial aquifer.

4. **COMMENT:** A resident expressed concern regarding the contaminated groundwater associated with the Site showing up in the East Farmingdale water supply wells.

   **EPA RESPONSE:** Three wells of the East Farmingdale Water District are located approximately 1,500 feet south of the Site. The shallow well is not in operation. The other two wells, which are deep wells, are completed within the Magothy aquifer at depths of approximately 190 to 270 feet and 525 to 585 feet below grade, and are tested on a quarterly basis. A review of the data from these two wells indicated that the wells are not contaminated and meet all Federal and State drinking water and groundwater quality standards. Due to the distance of these wells from the Site and the depths of the Magothy aquifer from which the groundwater is drawn, it is unlikely that any of these wells would have been adversely impacted by the Site-related contaminants.

5. **COMMENT:** A resident expressed concern regarding the possibility of the health hazard from vapors emanating from the groundwater plume and rising into buildings.

   **EPA RESPONSE:** EPA conducted a risk assessment as part of the FFS, based on the analytical results of field sampling. As part of this risk assessment; it was identified that there are currently no receptors to the groundwater contamination identified in the Upper Glacial aquifer.

Questions Regarding the Evaluation of Remedial Alternatives

6. **COMMENT:** A resident expressed interest in the depth to the water table at the Site.

   **EPA RESPONSE:** The depth of the water table at the Site was determined to be approximately 30 feet below grade.

7. **COMMENT:** A resident questioned at which depths the 19 monitoring wells were scree ed and the drive point groundwater sampling was performed.

   **EPA RESPONSE:** The wells are divided into two categories: shallow and deep. The shallow wells, "S" designation, are water table wells with screened intervals set between approximately 25 to 35 feet below grade. The deep wells, "D" designation, have screened intervals set between approximately 90 to 100 feet below grade.

   In addition, a total of 48 groundwater samples was collected from 17 drive point locations arranged along five transects in the vicinity of the Site property. These samples were collected from four specific depth intervals below grade: 34 to 36, 48 to 52, 62 to 68, and 80 to 82.

8. **COMMENT:** A resident expressed concern over which of the groundwater treatment alternatives will be utilized at the Site.

   **EPA RESPONSE:** After receiving and evaluating public comments received on the Proposed Plan at the August 8, 1994 public meeting, EPA has selected Alternative GW-2 to address the contaminated groundwater at the Site. The major treatment processes of this alternative include chemical precipitation to remove inorganic (metals) contaminants and air stripping, coupled with granular activated carbon, to remove VOCs.

9. **COMMENT:** A resident expressed concern regarding the selection of a groundwater remedy with limited public involvement; i.e., would the more costly groundwater remediation be chosen.

   **EPA RESPONSE:** EPA's public participation process for a proposed remedy is established to allow the Agency to receive and consider public comments before finalizing the selection of a remedy. In the Proposed Plan for the groundwater remedy for the Site, EPA identified its preference for Alternative GW-2, which the Agency subsequently has selected.

10. **COMMENT:** A resident expressed concern on the placement of the farthest downgradient extraction well in Alternative GW-2.

**EPA RESPONSE:** The location of the extraction well at the farthest downgradient distance from the Site was selected to control and capture the leading edge of the groundwater contaminant plume. The contaminated groundwater would be extracted and pumped to an on-Site groundwater treatment system. An analytical steady-state groundwater flow model was used in the FFS to simulate and evaluate the location and pumping rates required to provide the most effective hydraulic control and extraction of contaminated groundwater. The most effective groundwater-remediation simulation output indicated that the downgradient extraction well should be placed approximately 700 feet south of the Site property. This modeling output information was utilized to devise a conceptual design of the treatment system and associated costs; however, the actual location of wells, pumping rates, etc. would not be firmly established until the remedial design phase of the project.

11. **COMMENT:** A resident expressed concern regarding the cumulative impact of contamination from several Superfund sites, specifically the commingling of groundwater plumes from different sites.

**EPA RESPONSE:** Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), EPA is authorized to investigate individual sites listed on the National Priorities List (NPL) to determine if remedial actions should be undertaken at these sites. As part of its RI or FFS, EPA conducts a risk assessment for each NPL site to determine if an unacceptable risk to human health and the environment exists which would require remedial action. In conducting risk assessments addressing contaminated groundwater, if more than one NPL site has contributed to the groundwater contamination, by characterizing the groundwater contamination and using this data in the risk assessment, EPA does consider, in effect, the cumulative impact of contamination from multiple sources. In the event that several CERCLA sites in an area have plumes of groundwater contamination which have commingled, EPA, if appropriate, can consider a single comprehensive groundwater remedy.

12. **COMMENT:** A resident questioned the likelihood that groundwater remedial Alternative GW-3 would be chosen.

**EPA RESPONSE:** Although EPA identified Alternative GW-2 as its preferred alternative in the Proposed Plan, the Agency did not rule out Alternative GW-3 until the public comment period was completed and all comments were reviewed. EPA proposed, and subsequently selected, Alternative GW-2 over Alternative GW-3

because Alternative GW-3 would require extensive field pilot-scale studies to assess the feasibility of air sparging/soil vapor extraction technology prior to the remedial design activities. In addition, Alternative GW-2 will provide overall effectiveness proportionate to its cost. It is $1.8 million less costly than Alternative GW-3, while offering comparable or better performance. Alternative GW-2 will also employ a proven, conventional technology as opposed to an innovative technology component, air sparging and soil vapor extraction, of Alternative GW-3.

Questions Regarding the Project Time Frame

13. **COMMENT:** A resident expressed concern regarding the project's progress since the Site was listed onto the NPL.

**EPA RESPONSE:** Depending on the size and complexity of a site, the Superfund process generally requires several years before long-term remedial construction activities begin. The Circuitron Corporation site was proposed for inclusion on the NPL in June 1988 and EPA initiated the first RI/FS at the Site in September 1988. In March 1991, EPA signed a Record of Decision (ROD) which specified contaminant source-control measures, such as excavation of contaminated sediments, vacuum extraction of contaminated soils, and building decontamination. The remedial design of the source control measures is expected to be completed in late 1994 and construction work is expected to begin in the Spring of 1995. It is estimated that the design of the groundwater remedy will be completed in early 1996 and that construction will begin in late 1996.

Questions Regarding Enforcement and Contractor Selection Issues

14. **COMMENT:** A resident expressed interest in the Superfund process and the determination of Potentially Responsible Parties (PRPs) when multiple tenants occupied the property.

**EPA RESPONSE:** The section of the Superfund legislation pertaining to liability and identification of PRPs is broad concerning who is liable for damages. Responsible parties include, but are not limited to, operators at the site whose activities resulted in the release of hazardous substances, the current site owner as well as former owners during the period when the contamination occurred, transporters of wastes to the site, and generators of waste at the site.

15. **COMMENT:** A resident expressed concern regarding procedures for contractor selection and if a preference is given to local business people.

**EPA RESPONSE:** When utilizing Federal funds, EPA must comply with Federal procurement regulations. EPA gives no preference for local business people, but rather allows all interested parties to bid on the work. Jobs are awarded based upon the successful bidder's technical qualifications and the competitive price by which the bidder is willing to perform the work. On projects conducted by PRPs, however, the PRPs are not required to follow Federal procurement regulations, but must demonstrate that their proposed contractor is qualified to perform the work.

# APPENDIX A

## PROPOSED PLAN

# Superfund Proposed Plan

# Circuitron Corporation Site

East Farmingdale
Town of Babylon
Suffolk County, New York

EPA
Region 2

July 1994

*PURPOSE OF PROPOSED PLAN*

This Proposed Plan identifies the remedial alternatives considered for the second operable unit of the Circuitron Corporation Superfund site (the Site) and identifies the preferred remedial alternative with the rationale for this preference. The second operable unit addresses the groundwater contamination at the Site. The Proposed Plan was developed by the U.S. Environmental Protection Agency (EPA) with support from the New York State Department of Environmental Conservation (NYSDEC). EPA is issuing the Proposed Plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, and Section 300.430(f) of the National Contingency Plan (NCP). The alternatives summarized in this Proposed Plan are described in a focused feasibility study (FFS) report for this operable unit which should be consulted for a more detailed description of all of the alternatives.

This Proposed Plan is being provided as a supplement to the FFS report to inform the public of EPA's and NYSDEC's preferred remedy and to solicit public comments pertaining to all the remedial alternatives evaluated, as well as the preferred alternative.

The remedy described in this Proposed Plan is the preferred remedy for the Site. Changes to the preferred remedy or a change from the preferred remedy to another remedy may be made, if public comments or additional data indicate that such a change will result in a more appropriate solution. The final decision regarding the selected remedy will be made after EPA and NYSDEC have taken into consideration all comments from the public. We are soliciting public comment on all the alternatives considered in the detailed analysis section of the FFS because EPA and NYSDEC may select a remedy other than the preferred remedy.

Copies of the FFS report, Proposed Plan, and supporting documentation are available in the following repositories:

Farmingdale Public Library
Main and Conklin Streets
Farmingdale, N.Y. 11735

Department of Environmental Control
Town of Babylon Annex
281 Phelps Lane, Room 23
North Babylon, N.Y. 11703

United States Environmental Protection Agency
Emergency and Remedial Response Division
26 Federal Plaza - Room 2930
New York, N.Y. 10278

New York State Department of Environmental Conservation
50 Wolf Road
Albany, N.Y. 12233-7010

*COMMUNITY ROLE IN SELECTION PROCESS*

EPA and NYSDEC rely on public input to ensure that the concerns of the community are considered in selecting an effective remedy for each Superfund site. To this end the FFS report, Proposed Plan, and supporting documentation have been made available to the public for a public comment period which begins on July 26, 1994 and concludes on August 24, 1994.

A public meeting will be held during the comment period on August 8, 1994 in the East Farmingdale Fire House located at 930 Conklin Street, East Farmingdale, N.Y. at 7:00 p.m. to allow EPA to present the conclusions of the FFS, to further elaborate on the reasons for recommending the preferred remedial alternative, and to receive public comments.

Written and oral comments will be documented in the Responsiveness Summary Section of the Record of Decision (ROD), the document which formalizes the selection of the remedy.

All written comments should be sent to :

Lorenzo Thantu
Project Manager
U.S. Environmental Protection Agency
26 Federal Plaza, Room 2930
New York, New York, 10278

Dates to remember:
MARK YOUR CALENDAR

July 26 to August 24, 1994
Public comment period on FFS report and Proposed Plan

August 8, 1994
Public meeting at the
East Farmingdale Fire House Hall
930 Conklin Street
East Farmingdale, New York 11735 at 7:00 pm

## *SCOPE AND ROLE OF ACTION*

Site remediation activities are sometimes segregated into different phases, or operable units, so that remediation of different environmental media can proceed separately, resulting in an expeditious remediation of the entire site. EPA has designated two operable units for the Circuitron Corporation site. This Proposed Plan addresses the groundwater contamination at the Site, which EPA has designated as the second operable unit of the Site remediation. The remedy for the first operable unit, which included source control measures and vacuum extraction of contaminated soils, was specified in a ROD which EPA issued on March 29, 1991.

## *SITE BACKGROUND*

The Circuitron Corporation site is located at 82 Milbar Boulevard, East Farmingdale, Suffolk County, New York. The Site is situated near the border of Nassau and Suffolk Counties in central Long Island. The Site encompasses approximately 1 acre in an industrial/commercial area just east of Route 110 and the State University of New York Agricultural and Technical College campus at Farmingdale (SUNY - Farmingdale). The Site is generally flat and has a slight slope up to the southeast of less than 1 percent. The Site elevation is approximately 85 to 90 feet above mean sea level (MSL).

The Site is located on the outwash plain of Long Island. The uppermost aquifer, the Upper Glacial, is estimated to be 80 feet thick beneath the Site. Depth to the water table is approximately 30 feet below grade. The saturated portion of the Upper Glacial aquifer, with a thickness of 50 feet, begins at the water table and extends down to 80 feet below grade. The Upper Glacial aquifer is underlain by the Magothy Aquifer which is approximately 700 feet thick in the vicinity of the Site.

Circuitron Corporation was incorporated in New York State in 1961 and operated a manufacturing facility at the Site between 1967 and 1986. Circuitron Corporation ceased operations and vacated the Site property between May and June 1986. During this period, all of the equipment of value was removed and the Site was abandoned. Circuitron Corporation filed for bankruptcy in 1986. The current owner of the Site is 82 Milbar Blvd., Inc., a New York corporation incorporated in 1968. 82 Milbar Blvd., Inc. filed for bankruptcy in 1987. Both of these bankruptcy proceedings ended when they were dismissed in 1988.

The Circuitron Corporation site includes an abandoned 23,500 square foot building that was used for the manufacture of electronic circuit boards. (Refer to Figure 1.) Approximately 95% of the Site property is paved or covered by the building. A small area behind the building is not paved. The paved area in front of the

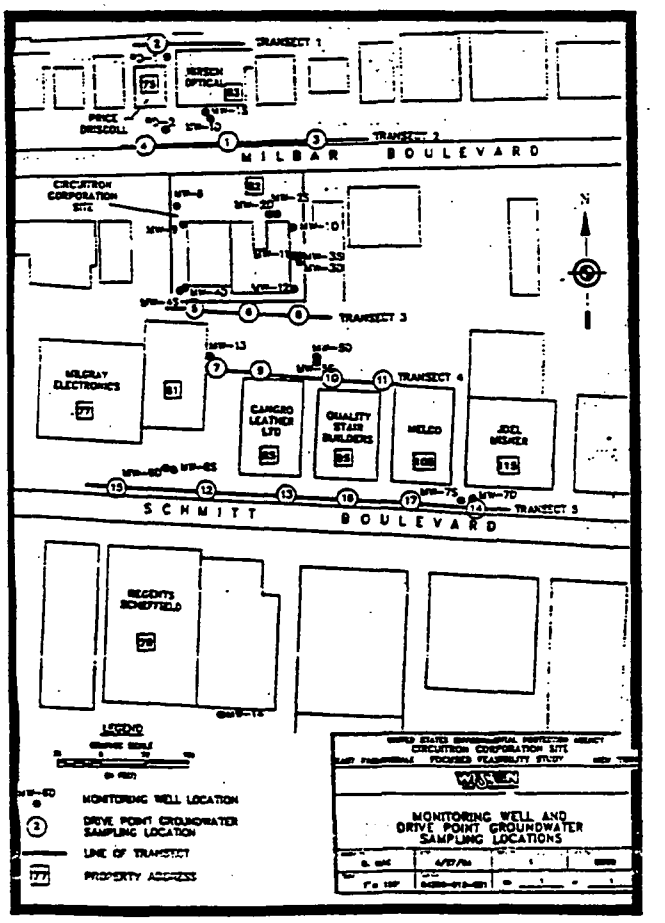


FIGURE 1 - GENERAL SITE PLAN OF THE CIRCUITRON SITE

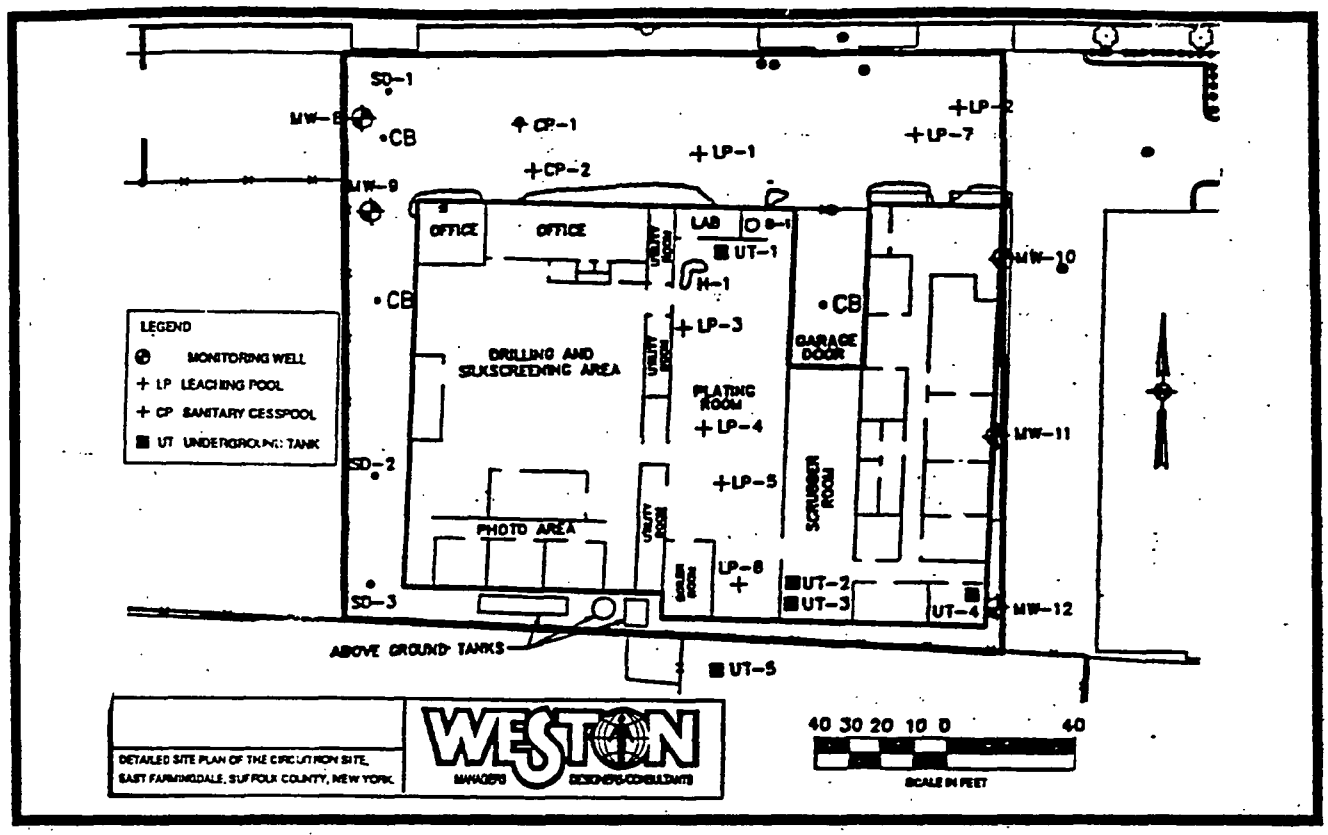


FIGURE 2 - DETAILED SITE PLAN OF THE CIRCUITRON SITE

building had been used as a parking lot for the employees of Circuitron Corporation. Presently, the entire Site property is fenced and secured.

Two leaching pools (LP-5 and LP-6) exist below the concrete floor in the plating room inside the building. (Refer to Figure 2.) A circular depression in the concrete floor towards the front of this room suggests the presence of other leaching pools, identified on Figure 2, as LP-3 and LP-4. Several leaching pools lie beneath the parking lot in the front of the building. One of these pools, which is designated as LP-1, is a wastewater discharge pool permitted via the New York State Pollutant Discharge Elimination System (SPDES) program. Two other leaching pools, identified as LP-2 and LP-7, are located in the northeast corner of the Site.

Two sanitary cesspools, CP-1 and CP-2, were identified beneath the parking lot in front of the northwest corner of the building. The sanitary cesspools were permitted to accept sanitary wastes only. However, Suffolk County Department of Health Services (SCDHS) analyses indicated that the cesspools were used for disposal of hazardous materials. A line of interconnected storm drains SD-1 through SD-3 exists on the western portion of the Site. The storm drains range from 10 feet to approximately 13 feet in depth. Presently, all on-site storm drains discharge on-site into the soils via percolation.

In 1987, EPA initiated an emergency removal of some of the more than 100 chemical containers and storage tanks on site. In 1988, EPA conducted another emergency cleanup action and removed approximately 20 waste drums from inside the building, 3 aboveground tanks from the rear of the building, the contents of 7 underground storage tanks, 2 below-surface treatment basins, and several leaching basins. The cleanup action involved consolidating the various wastes, removing the tanks located at the rear of the property, and removing contaminated debris inside the building. In total, 100 cubic yards of contaminated soil and debris, 50 drums of hazardous liquid, and an additional 2,000 to 3,000 gallons of tanked hazardous liquids were removed and properly disposed of off site.

A comprehensive first operable unit remedial investigation and feasibility study (RI/FS) of the Site was initiated by EPA in September 1988 and was completed in January 1991. The objectives of this study were to define the nature and extent of contaminants in the Site's surface and subsurface soils, in the groundwater, in sediments in the underground structures, and in the abandoned building. Based on the results of the RI/FS, EPA determined that sufficient information was available to select a source control remedy, but additional data were required before a groundwater remedy could be selected. As a result, EPA issued a source control ROD on March 29, 1991 and

initiated an FFS to obtain the additional data necessary to select a groundwater remedy for the Site. The 1991 ROD called for: (1) the excavation and off-site treatment and disposal of the contaminated sediments from the leaching pools, cesspools, and storm drains; (2) in situ (in-place) vacuum extraction of the contaminated soils (This treatment process involves placing a cover over the soil and applying a vacuum, which pulls and collects volatile organic compounds (VOCs) out of the spaces between soil particles.); (3) decontamination of metals-contaminated dust in the building (Please see highlighted note on the last page of the Proposed Plan.); and (4) repaving of the entire Site. The remedial design for the source control remedy is expected to be completed this Fall, followed by the advertisement for and award of a construction contract. The actual construction work is expected to begin in the Spring of 1995.

***FOCUSED FEASIBILITY STUDY INVESTIGATION SUMMARY***

In July 1992, EPA initiated an FFS to supplement the groundwater data obtained during the 1988-1991 RI and further define the nature and extent of groundwater contamination at the Circuitron Corporation site, and to identify remedial alternatives. The RI concluded that the groundwater was contaminated in the shallow aquifer underlying the Site. The RI data also indicated the potential for presence of upgradient sources for the groundwater contamination that was detected in the deeper Upper Glacial aquifer and the shallow Magothy aquifer; the groundwater contaminant levels that were detected in these aquifers upgradient and downgradient of the Site were of the same order of magnitude. As a result of the RI findings, EPA decided to undertake an FFS to further delineate the horizontal and vertical extent of the groundwater contamination in the shallow and deep aquifers beneath the Site.

Activities conducted as part of the FFS included: (1) groundwater elevation measurements and a first round of groundwater sampling of 20 existing monitoring wells which were installed during the 1988-1991 RI; (2) a drive-point groundwater field screening sampling program; (3) installation of two confirmatory monitoring wells; and (4) a second round of groundwater sampling of the existing RI monitoring wells and the two confirmatory monitoring wells. The drive point sampling program was primarily a reconnaissance method to delineate the highest concentrations of downgradient Site-related groundwater contamination, potentially targeted for remediation. Figure 1 shows the monitoring well and drive point sample locations.

The FFS results, in conjunction with the results from the earlier RI, confirmed that several on-property contamination source areas exist at the Site, with organic and inorganic contamination evident in the groundwater in both the Upper Glacial and Magothy aquifers. The drive-point data indicate that a groundwater contaminant plume attributed to the Site exists in the Upper Glacial aquifer extending to an approximate depth of 70 feet below grade. The volatile organic contaminant levels found in upgradient and downgradient samples collected from drive-point installations located in the deep Upper Glacial and monitoring wells located in the shallow Magothy aquifers were of approximately same order of magnitude, and, therefore, indicate that the groundwater contamination that has been detected beneath the Upper Glacial aquifer, beginning at a depth of approximately 70 feet below grade, may be attributed to upgradient sources. The potential for the presence of upgradient sources is also supported by the vertical distribution of 1,1,1-trichloroethane (1,1,1-TCA), which is considered a fingerprint contaminant for the Site and is indicative of the vertical extent of groundwater contamination that is attributed to the Site. This distribution indicates a zone where 1,1,1-TCA was not detected between the heavily contaminated shallow Upper Glacial and the deep Upper Glacial. This zone indicates that the Site-related contaminant plume in the shallow Upper Glacial aquifer is separate and distinct from the 1,1,1-TCA-contaminated groundwater in the deep Upper Glacial and shallow Magothy aquifers.

In the Upper Glacial aquifer, the groundwater contaminant plume attributable to the Site contained elevated concentrations of both organics and inorganics which have migrated to approximately 700 feet beyond the southern property line of the Site. The main organic contaminants were 1,1,1-TCA and 1,1-dichloroethene (1,1-DCE) and the main inorganic contaminants were copper and chromium. The Site-related groundwater contaminant plume has a width of about 600 feet and extends vertically into the shallow portion (upper 40 saturated feet) of the Upper Glacial aquifer.

Elevated concentrations of primarily organic contaminants were also present in the deeper portion of the Upper Glacial aquifer and the shallow portion of the Magothy aquifer, both upgradient and downgradient of the Site property.

The two rounds of groundwater VOC sampling results indicated elevated concentrations of several organic contaminants. The VOCs with the highest concentrations included: 1,1-DCE (58 parts per billion (ppb) at MW-6D), 1,1-dichloroethane (1,1-DCA) (52 ppb at MW-13), 1,1,1-TCA (5800 ppb at MW-4S), trichloroethene (TCE) (82 ppb at MW-1D), and tetrachloroethene (PCE) (63 ppb at MW-4D). These concentrations exceed the New York State Drinking Water Standard of 5 ppb, which has been promulgated individually for each of these five VOCs.

For inorganic compounds, the first round of groundwater inorganic sampling results indicated elevated concentrations of arsenic, barium, chromium,

copper, iron, lead and manganese. In the second round, only chromium, copper, iron, lead and manganese were reported in elevated concentrations. Of these compounds, it is believed that only arsenic, copper, lead and chromium are associated with past Site-related industrial process operations. These four inorganic compounds were also reported in elevated concentrations in Site soils and sediments during the RI. These four inorganic compounds were detected at elevated concentrations (numbers in parentheses denote maximum concentrations) in the groundwater samples collected during the two rounds of groundwater sampling: arsenic (74 ppb at MW-2S), chromium (788 ppb at MW-7S), copper (14,600 ppb at MW-2S), and lead (55 ppb at MW-9). These concentrations exceed their respective New York State Drinking Water Standards of 25 ppb for arsenic, 50 ppb for chromium, 200 ppb for copper, and 25 ppb for lead. The 55 ppb lead concentration also exceeds EPA's recommended drinking water action level of 15 ppb for lead.

*SUMMARY OF SITE RISKS*

Based upon the results of the FFS, a baseline risk assessment was conducted to estimate the risks associated with current and future site conditions. The baseline risk assessment estimates the human health and ecological risk which could result from the contamination at the site, if no remedial action were taken.

Human Health Risk Assessment

A four-step process is utilized for assessing site-related human health risks for a reasonable maximum exposure scenario: *Hazard Identification*--identifies the contaminants of concern at the site based on several factors such as toxicity, frequency of occurrence, and concentration. *Exposure Assessment*--estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting contaminated well-water) by which humans are potentially exposed. *Toxicity Assessment*--determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response). *Risk Characterization*--summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks.

The baseline risk assessment began with selecting contaminants of concern which would be representative of site risks. A total of 24 organic and inorganic compounds were identified as the contaminants of concern. The organic contaminants of concern were acetone, 2-butanone, chlorobenzene, chloroform, 1,1-DCA, 1,1-DCE, cis-1,2-DCE, PCE, toluene, 1,1,1-TCA, 1,1,2-TCA, and TCE. The inorganic contaminants of concern were aluminum, arsenic, barium, beryllium, chromium, copper, lead, manganese, nickel, silver, vanadium, and zinc. Of these 24 contaminants, chloroform, 1,1-DCA, 1,1-DCE, PCE, 1,1,2-TCA, TCE, arsenic, beryllium, chromium, lead, and nickel are classified by EPA as carcinogens; the rest are all considered to be noncarcinogens. However, because chromium and nickel are considered carcinogens through the inhalation exposure route only and metals are not of concern through the inhalation route for the groundwater pathway, chromium and nickel were not evaluated as carcinogens in the risk assessment.

The baseline risk assessment evaluated the health effects which could result from exposure to contamination as a result of contact with contaminants in the upper 40 feet of the saturated aquifer beneath Site. Groundwater underlying the Site in the Upper Glacial aquifer is not currently used for household purposes. The residents in the area are on public water supply from supply wells in the deeper Magothy aquifer. On this basis, no receptors were evaluated under current-use conditions in the risk assessment. The baseline risk assessment evaluated the health effects which could potentially result from ingestion of groundwater and noningestion uses of groundwater (e.g., showering, bathing, and cooking) by future residents (child and adult), as this is the most conservative exposure scenario. An assumption was made that the Site and the neighboring areas will be developed for residential use in the future, and the groundwater from the upper 40 feet of the saturated aquifer would be used for household purposes.

Current EPA guidelines for acceptable health risks at Superfund sites are an individual lifetime excess carcinogenic risk in the range of $10^{-4}$ to $10^{-6}$ (e.g., a one-in-ten-thousand to a one-in-a-million excess cancer risk) and a maximum health Hazard Index (HI), which reflects noncarcinogenic effects for a human receptor, equal to 1.0. An HI greater than 1.0 indicates a potential for noncarcinogenic health effects.

The results of the baseline risk assessment indicate that the contaminants in the upper 40 feet of the saturated aquifer at the site pose an unacceptable risk to human health. The total excess lifetime cancer risk for the future resident (child and adult combined) was calculated to be $1.1 \times 10^{-3}$ (i.e., approximately 1 in 1,000). The majority of the total carcinogenic risk was contributed by the ingestion of groundwater. Arsenic and 1,1-DCE were primarily responsible for carcinogenic risk. The carcinogenic risk for arsenic was $9 \times 10^{-4}$ through ingestion of groundwater. The carcinogenic risk for 1,1-DCE was $1.9 \times 10^{-4}$, primarily through noningestion uses of groundwater. These results indicate significant potential carcinogenic risk to the future resident through the groundwater pathway for the reasonable maximum exposure scenario.

Noncarcinogenic risks were evaluated separately for the future child and adult residents. For the future child

resident, the total HI for health risks posed by exposure to groundwater was 56. More than 99% of the total HI was contributed by the ingestion of groundwater. Copper, manganese, and arsenic contributed most significantly to the total HI. The HIs for copper, manganese, and arsenic were 25, 18, and 10 respectively, through ingestion of groundwater. For the future adult, the total HI for health risks posed by exposure to groundwater was 24. More than 99% of this HI was contributed by ingestion of groundwater. Copper, manganese, and arsenic contributed most significantly to the total HI. The HIs for copper, manganese, and arsenic were 11, 7.8, and 4.3 respectively. These results indicate a potential for adverse noncarcinogenic health effects to the future child and adult residents from exposure to groundwater for the reasonable maximum exposure scenario.

In summary, the human health risk assessment indicated that the contaminants in the upper 40 feet of the saturated groundwater aquifer at the Site pose an elevated risk to human health under the future residential use scenario. In addition, as noted above, numerous organic and inorganic contaminants are also present in the shallow Upper Glacial aquifer at levels which exceed the New York State Drinking Water Standards. Although the shallow Upper Glacial aquifer is generally no longer used for public water supply in the area, remediation is warranted to protect the underlying Magothy aquifer from contamination present in the Upper Glacial aquifer.

Ecological Risk Assessment

The potential exposure routes of Site contamination to terrestrial wildlife were considered. Since 95% of the Circuitron Corporation site is paved or covered by a building and the Site is situated in a densely populated industrial/commercial area, there is little, if any, potential for exposure to contaminated soils or groundwater on-site, or for wildlife to be present within the general vicinity of the Site. As a result, EPA concluded that conducting a detailed ecological risk assessment was not warranted.

## *REMEDIAL ACTION OBJECTIVES*

Remedial action objectives are specific goals to protect human health and the environment. These objectives are based on available information and standards such as applicable or relevant and appropriate requirements (ARARs) and risk-based levels established in the risk assessment.

Organic and inorganic contamination has been detected in concentrations above ARARs in groundwater at the Site. Therefore, the following remedial action objectives have been established for groundwater:

- prevent potential future ingestion of Site-related contaminated groundwater;
- restore the quality of the groundwater contaminated from the Site-related activities to levels consistent with the State and Federal drinking water and groundwater quality standards; and
- mitigate the off-site migration of the Site-related contaminated groundwater.

## *SUMMARY OF REMEDIAL ALTERNATIVES*

CERCLA requires that each selected site remedy be protective of human health and the environment, be cost-effective, comply with other statutory laws and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. In addition, the statute includes a preference for the use of treatment as a principal element for the reduction of toxicity, mobility, or volume of the hazardous substances.

As described below, the FFS report evaluated in detail three remedial alternatives for addressing the groundwater contamination at the Site. As used in the following text, "time to implement" means the period of time needed for construction of the alternative. It does not include the time required for remedial design activities or procurement of contractor services, which are estimated to take up to 2 years. The time to achieve cleanup goals reflects the number of years which the treatment system must operate in order to achieve State and Federal drinking water and groundwater quality standards in the shallow Upper Glacial aquifer. This timeframe assumes that the source control remedial action for the first operable unit will be completed prior to the implementation of the groundwater remedy.

These alternatives are:

**Alternative GW-1: No Action**

| | |
|---|---|
| Capital Cost: | $5,000 |
| Operation and Maintenance (O&M) Cost: | $0 |
| Present Worth cost*: | $5,000 |
| Time to Implement: | Immediately |
| Time to Achieve Cleanup Goals: | N/A |

* - Present Worth Costs for all alternatives were determined by compounding the annual O&M costs by 8% over the number of years of operation.

The "No Action" Alternative GW-1 is required by the NCP to provide a baseline to which all other alternatives may be compared. Under the "No Action" Alternative GW-1, no remedial actions would be implemented. However, institutional controls, deed and Site restrictions, would need to be imposed on the Site in

order to prevent the use of the groundwater from the Upper Glacial aquifer.

Under Alternative GW-1, the groundwater contaminants would continue to migrate into deeper portions of the Upper Glacial aquifer as well as into the Magothy aquifer. Because Alternative GW-1 would not involve groundwater remediation and would leave contaminants in the groundwater, the Site would have to be reviewed every five years per CERCLA requirements. These five-year reviews would include the reassessment of human health and environmental risk due to the groundwater contaminants.

**Alternative GW-2: Groundwater Pumping, Treatment Using Aeration, Coagulation, Flocculation and Sedimentation/Air Stripping/Granular Activated Carbon/ Reinjection using an Infiltration Gallery**

| | |
|---|---|
| Capital Cost: | $1,963,000 |
| O&M/yr Cost: | $675,000 |
| Present worth: | $6,492,000 |
| Time to Implement: | 1 Year |
| Time to Achieve Cleanup Goals: | 10 years |

Alternative GW-2 includes the installation of an on-site groundwater treatment system. The groundwater treatment system would involve flow equalization, aeration, pH adjustment, clarification, filtration, and air stripping coupled to liquid and vapor phase carbon for the removal of VOCs. The vapor phase carbon units would be designed to be regenerable. The filter cake or the sludge generated by the metals treatment stage (coagulation, flocculation and sedimentation) of the groundwater treatment system would be disposed of off-site as a hazardous waste. The groundwater treatment system would be designed to handle flows up to 150 gallons per minute (gpm) (incorporating an excess of 15 gpm) in order to accommodate variability in future pumping requirements.

Three eight-inch recovery wells would be installed to the south of the Site. Two of the three recovery wells would be located closest to the Site and would recover the most contaminated groundwater and provide the hydraulic control of the downgradient end of the plume to the Site. The third recovery well would be located at the farthermost downgradient extent of the plume. The wells would be screened across the top 40 feet of the shallow Upper Glacial aquifer (approximately 70 feet below grade). Approximately 2,000 feet of buried piping would be installed to connect the recovery wells to the on-site groundwater treatment system. The extracted groundwater would be treated to State and Federal drinking water and groundwater quality standards and reinjected by means of an infiltration gallery located along the northern boundary of the Site on Milbar Boulevard.

Residual waste from the treatment process such as sludges would be disposed of off site in accordance with applicable ARARs; carbon would be handled similarly or regenerated.

**Alternative GW-3 - Air Sparging/Soil Vapor Extraction/Limited Groundwater Pumping for Hydraulic Containment/Groundwater Treatment using Aeration, Coagulation, Flocculation and Sedimentation/Air Stripping/Granular Activated Carbon/Reinjection using an Infiltration Gallery**

| | |
|---|---|
| Capital Cost: | $2,677,000 |
| O&M/yr Cost: | $1,075,000 |
| Present Worth: | $8,274,000 |
| Time to Implement: | 1 Year |
| Time to Achieve Cleanup Goals: | 7 Years |

Alternative GW-3 includes the installation of two major treatment components, an air sparging and soil vapor extraction system and a groundwater pump and treat system.

The air sparging and soil vapor extraction system would address the remediation of on-Site and off-Site VOC contamination in the groundwater in the shallow Upper Glacial aquifer. Approximately 20 two-inch air sparging wells would be installed; the locations for these wells would be determined based on pilot-plant testing to be conducted prior to Remedial Design activities. The air sparging wells would be screened at a depth of approximately 70 feet below grade. Approximately 15 two-inch vacuum extraction wells would be installed at locations also to be determined based on pilot-plant testing. The vacuum extraction wells would be screened from approximately 10-25 feet below grade.

The design of the on-site groundwater treatment system would be similar to that of Alternative GW-2, except that the system would be capable of handling flows up to 75 gpm, instead of 150 gpm. An eight-inch recovery well would be installed at the leading (downgradient) edge of the plume. The well would be screened across the upper 40 feet of the shallow Upper Glacial aquifer (approximately 70 feet below grade) and would provide for hydraulic containment of the farthest downgradient extent of the plume attributable to the Site.

Approximately 5,000 feet of buried trenching/piping would be required to connect the air injection wells to the air delivery system, the vacuum extraction wells to the vacuum extraction system, the groundwater recovery well to the groundwater treatment system, and the injection gallery.

Residual waste from the treatment process such as sludges would be disposed of off site in accordance with applicable ARARs; carbon would be handled similarly or regenerated.

*EVALUATION OF ALTERNATIVES*

During the detailed evaluation of remedial alternatives, each alternative is assessed against nine evaluation criteria, namely, overall protection of human health and the environment; compliance with ARARs; long-term effectiveness and permanence; reduction of toxicity, mobility, or volume; short-term effectiveness; implementability; cost; and community and state acceptance.

The evaluation criteria are noted below and explained below.

- Overall protection of human health and the environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each exposure pathway (based on a reasonable maximum exposure scenario) are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

- Compliance with applicable or relevant and appropriate requirements (ARARs) addresses whether or not a remedy would meet all of the applicable or relevant and appropriate requirements of other Federal and State environmental statutes and requirements or provide grounds for invoking a waiver.

- Long-term effectiveness and permanence refers to the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met. It also addresses the magnitude and effectiveness of the measures that may be required to manage the risk posed by treatment residuals and/or untreated wastes.

- Reduction of toxicity, mobility, or volume through treatment is the anticipated performance of the treatment technologies, with respect to these parameters, a remedy may employ.

- Short-term effectiveness addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period until cleanup goals are achieved.

- Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.

- Cost includes estimated capital and operation and maintenance costs, and net present worth costs.

- State acceptance indicates whether, based on its review of the FFS and Proposed Plan, the State concurs with, opposes, or has no comment on the selected remedy at the present time.

- Community acceptance will be assessed in the Record of Decision (ROD) and refers to the public's general response to the alternatives described in the Proposed Plan and the FFS report.

A comparative analysis of these alternatives based upon the evaluation criteria noted above follows.

- Overall Protection of Human Health and the Environment

Alternatives GW-2 and GW-3 would provide effective overall protection of human health and the environment as they would prevent the further degradation of the groundwater quality in the Upper Glacial and Magothy aquifers. These alternatives would reduce inorganic and organic groundwater contaminant levels and restore groundwater quality to State and Federal drinking water and groundwater quality standards. Alternative GW-1, which offers no groundwater treatment, would not be protective of human health and the environment.

- Compliance with ARARs

Alternative GW-1 would not comply with ARARs because the volatile organic and metal contamination would remain in the groundwater in the shallow Upper Glacial aquifer. Alternatives GW-2 and GW-3 would comply with all ARARs.

- Long-Term Effectiveness and Permanence

Both Alternatives GW-2 and GW-3 would be effective over the long term and permanent in protecting human health and the environment. Alternative GW-1, which provides no treatment, would be neither effective nor permanent in protecting human health and the environment.

- Reduction in Toxicity, Mobility, or Volume through Treatment

Both Alternatives GW-2 and GW-3 would reduce the mobility and toxicity of groundwater to the same degree by treatment of the VOCs and inorganic contaminants present in the groundwater in the shallow Upper Glacial aquifer. In addition, as the groundwater contaminants are removed, the volume of groundwater with

contaminant concentrations remaining above the New York State Drinking Water Standards would decrease. Alternative GW-1, which offers no treatment of the contaminated groundwater, would not reduce toxicity, mobility, or volume of the groundwater contamination.

o Short-Term Effectiveness

Alternatives GW-2 and GW-3 in the short term will halt the spread of contaminants in the shallow Upper Glacial aquifer. These alternatives will also retard the migration of the contaminants into the deeper Upper Glacial and Magothy aquifers. Alternative GW-2 would provide more effective hydraulic containment of the groundwater contaminant plume than Alternative GW-3 because the groundwater extraction/treatment system for Alternative GW-2 would be designed to handle flows twice those of Alternative GW-3. Alternative GW-1 provides no treatment of groundwater and is not considered to be effective in the short term because the contaminants will remain in the contaminated groundwater in the shallow Upper Glacial aquifer.

In terms of adverse impacts that may be posed on human health and the environment during the construction and implementation period, there is a potential for short-term health risks for Alternatives GW-2 and GW-3 which would be typically associated with construction activity and worker safety. A health and safety plan, however, would be prepared to address and minimize risks to the Site workers. The short-term health risks would be greater for Alternative GW-3 than for Alternative GW-2, as Alternative GW-3 employs an additional treatment component (air sparging and soil vapor extraction) and as a result, would require more trenching/piping activities. Alternative GW-2 would require approximately 2,000 feet of buried trenching/piping connecting the recovery wells to the on-site groundwater treatment system. Alternative GW-3 would require approximately 5,000 feet of buried trenching/piping to connect the air injection wells to the air delivery system, the vacuum extraction wells to the vacuum extraction system, the groundwater recovery well to the groundwater treatment system and the injection gallery. Since it is envisioned that contaminated source areas and soils would be remediated before groundwater treatment is initiated, risks associated with exposure to these contaminated media are expected to be minimal. As an added safety measure, engineering controls such as air monitoring and other measures would be employed (e.g., restricting the Site to authorized personnel only) to ensure the safety of on-site workers and off-site receptors. Implementation of Alternative GW-1 would not pose any construction-related short-term health risks, as it is a "No Action" alternative.

o Implementability

Alternative GW-1 would be the most readily implementable as it is a "No Action" alternative, followed by Alternative GW-2 and then Alternative GW-3. Alternative GW-2 would involve conventional technologies with proven reliability. Alternative GW-3, however, would involve the use of an innovative technology (i.e., air sparging/soil vapor extraction), which may make it less reliable than Alternative GW-2, because Alternative GW-3 has been used less frequently at Superfund sites similar to the Circuitron Corporation site.

o Cost

Alternative GW-1 would have the lowest associated cost, as it is a "No Action" alternative, followed by Alternative GW-2 and then Alternative GW-3. The only cost for the implementation of Alternative GW-1 would be the capital cost of $5,000, which is for deed and Site restrictions to prevent the use of the groundwater from the Upper Glacial aquifer. There would be no O&M costs for Alternative GW-1, so the total present worth cost would be $5,000. Alternative GW-2 would have a capital cost of about $1,963,000 and O&M cost of $675,000 per year. The total present worth cost for Alternative GW-2 would be $6,492,000. Alternative GW-3 would have a capital cost of $2,677,000, O&M cost of $1,075,000 per year, and total present worth cost of $8,274,000. The higher costs for Alternative GW-3 are associated with air sparging and soil vapor extraction.

o State Acceptance

NYSDEC concurs with the preferred alternative.

o Community Acceptance

Community acceptance of the preferred alternative will be assessed in the ROD following a review of the public comments received on the FFS report and the Proposed Plan.

***RATIONALE FOR PREFERRED ALTERNATIVE***

Based upon an evaluation of the various alternatives, EPA and NYSDEC recommend Alternative GW-2 as the preferred alternative for the remediation of contaminated groundwater in the Upper Glacial aquifer. Alternative GW-2 would address the contamination attributed to the Circuitron Corporation site by groundwater pumping and treatment using aeration, coagulation, flocculation and sedimentation, followed by air stripping, granulated activated carbon and groundwater reinjection. Alternative GW-2 would provide a more cost-effective remediation of the groundwater than Alternative GW-3.

The preferred alternative would be protective of human health and the environment, would comply with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and would be cost-effective. This remedy would utilize permanent solutions and alternative treatment technologies to the maximum extent practicable, and would satisfy the statutory preference for remedies that employ treatment that reduces toxicity, mobility or volume as a principal element.

EPA has discussed the upgradient groundwater-contamination issue with the NYSDEC and the SCDHS and has proposed that if the State or the County identifies sites which may represent potential sources of upgradient groundwater contamination, EPA would conduct Preliminary Assessments and Site Investigations of these sites, to determine if they qualify for inclusion on the National Priorities List and subsequent remediation under the Superfund program.

NOTE: At the time that the 1991 ROD was issued for the first operable unit of the Circuitron Corporation site, EPA and the NYSDEC envisioned decontaminating the building located on the Site property, to allow for unrestricted future use of the building. During the past few years, however, the building has deteriorated and currently poses potential safety hazards. EPA and the NYSDEC are taking the opportunity in accordance with CERCLA Section 117(c), to inform the public of the agencies' decision to demolish the building and dispose of the building debris off site at an appropriate facility. In considering this new information, EPA believes that the remedy selected in the 1991 ROD remains protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to this remedial action, and is cost-effective.

# APPENDIX B

## PUBLIC NOTICES

# Affidavit of Publication

County of Nassau
State of New York, SS

Valerie de R^ he' , being duly sworn, deposes and says that she is the principal Clerk of the Publisher of

The Farmingdale Observer

a weekly newspaper published at Mineola in the county of Nassau, in the State of New York, and that a notice, a printed copy of which is hereunto annexed, has been published in said newspapers once in each week for

One weeks, viz:

August 5, 1994

Valerie deRoché

Sworn to me this 5th day

of August 19 94

Elizabeth L. Boecke

Notary Public in and for Nassau County.

ELIZABETH L. BOECKE
Notary Public, State of New York
No. 30-4505506
Qualified in Nassau County
Commission Expires Jan. 31, 1996

EPA
THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Announces
PROPOSED REMEDIAL ALTERNATIVES
for the
CIRCUITRON CORPORATION SITE
VILLAGE OF EAST FARMINGDALE, SUFFOLK COUNTY, NEW YORK

The U.S. Environmental Protection Agency (EPA) recently completed a Focused Feasibility Study (FFS) that evaluated options for cleaning up the contaminated groundwater at the Circuitron Superfund site, located in the Village of East Farmingdale, Suffolk County, New York. Based on this study, EPA has selected a preferred remedy for site cleanup. Before selection of final remedy, EPA will consider written and oral comments on all of the proposed remedial alternatives through August 24, 1994.

EPA will hold an informational public meeting on August 8, 1994, at 7:00 p.m., at the East Farmingdale Fire House Hall, 930 Conklin Street, East Farmingdale, New York, to discuss the results of the FFS, and the preferred remedial alternative.

The FFS considered three options for cleaning up contamination in the groundwater, which is attributed to the Circuitron Corporation site, to levels which are protective of public health and the environment.

The alternatives as evaluated for cleaning up groundwater contamination are:

- Alternative No. 1: No Action.
- Alternative No. 2: Groundwater Pumping, Treatment (Using Precipitation, Air Stripping and Carbon Adsorption), and Reinjection of Treated Groundwater.
- Alternative No. 3: Air Sparging and Soil Vapor Extraction/Groundwater Treatment (Using Precipitation, Air Stripping and Carbon Adsorption), and Reinjection of Treated Groundwater.

EPA's preferred remedial alternative is Alternative No. 2: Groundwater Pumping, Treating (Using Precipitation, Air Stripping and Carbon Adsorption), and Reinjection of Treated Groundwater.

Detailed information on these alternatives is available for public review at the following information repositories established for the Circuitron Corporation site:

Farmingdale Public Library
Main & Conklin Streets
Farmingdale, New York 11735
(516) 249-9090

Department of Environmental Control
281 Phelps Lane, Room 23
Town of Babylon Annex
North Babylon, NY 11703
(516) 433-7640

Written comments on the proposed alternatives should be sent to:

Lorenzo Thantu
EPA Remedial Project Manager
US Environmental Protection Agency, Region 2
26 Federal Plaza - Room 2930
New York, New York 10278

Comments must be submitted to the above address postmarked on or before August 24, 1994.

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# APPENDIX C

## AUGUST 8, 1994 PUBLIC MEETING ATTENDANCE SHEET

**CIRCUITRON CORP. SUPERFUND SITE**
**PUBLIC MEETING - 8/8/94**

**SIGN-IN SHEET**

**PLEASE BE SURE TO PRINT YOUR NAME AND FULL ADDRESS CLEARLY, SO THAT WE CAN ADD TO YOU OUR MAILING LIST. THANKS.**

| NAME | ADDRESS |
|---|---|
| Bill Kaufold | 700 E Sunrise Hwy, W Lindenhurst |
| Gil Hanse | 200 E Sunrise Hwy Lindenhurst 11757 |
| Ken Jordan | 34 Alexander Ave E Farmingdale NY 11735 |