HYDRO-SEARCH, INC.
A Tetra Tech Company

February 22, 1996
(303503233/1001)

Mr. Tom Wentland
Wisconsin Department of Natural Resources
4041 N. Richards Street, P.O. Box 12436
Milwaukee, WI 53212

Dear Mr. Wentland:

Enclosed is the Annual Progress Report for the source area remediation at the Sta-Rite Industries, Inc. facility in Delavan, Wisconsin.

SITE NAME/ACTIVITY:
Contract No. SF-90-02
Delavan Municipal Well #4
Delavan, Wisconsin
Source Remediation

DATE: February 1996

PERIOD: June 16, 1994-June 30, 1995

The format of this report follows the WDNR "Guidance for Design, Installation, and Operation of Soil Venting Systems", WDNR Emergency and Remedial Response Section, July 1993, PUBL-SW185-93, and NR724.11(3), progress reports. Analytical results for soil and groundwater were included with the first four quarterly progress reports, which are incorporated herein by reference. The Remediation System Summary appeared in the first quarterly report, which covered the months of June, July, and August, 1994. The second quarterly report included four months worth of data, September through December, 1994, in order to make future quarterly reports coincide with a calendar year. The third quarterly report covered January through the end of March, 1995, and the fourth quarterly report covered April, May and June 1995. Should you have any questions or comments, please do not hesitate to call.

Sincerely,

HYDRO-SEARCH, INC.

Jennifer J. Johanson, CPG, CGWP
Senior Hydrogeologist

JJJ/gf
Encs.
cc: Jon Raymond/Sta-Rite Industries, Inc.,
Ray Krueger/Michael Best & Friedrich
Section Chief/Env. Response and Repair Section (SW/3),WDNR, Madison (3 copies)
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Operation of the dual soil vapor extraction (SVE)/ground water extraction (GWE) remediation system, which began June 16, 1994, is having a significant impact on removing VOCs from the source areas, and reducing the concentration of volatile organic compounds (VOCs) in ground water downgradient of the soil source areas. Tables 1, 2, and 3, and Figures 1 through 6 summarize the results of the first year of operation of the dual extraction remedial system.

From the inception of remediation through June 21, 1995, the following amounts of VOCs are estimated to have been removed from the dual extraction system in three areas:

Pounds of :	**Vapor Phase**	**Liquid Phase**	**Total**
Trichloroethylene (TCE),	21	17	38
1,1,1-Trichloroethane (TCA)	68	47	115
Tetrachloroethylene (PCE)	3	0.04	3
Total VOCs	**97**	**65**	**162**

In addition, ground-water extraction from the previously existing extraction wells EX-1 through EX-7 continues to remove and prevent off-site migration of impacted ground water.

BACKGROUND

The soil vapor extraction/ground-water extraction system (SVE/GWE) at the Sta-Rite Industries, Inc. Delavan facility (Sta-Rite) consists of both SVE and dual SVE/GWE extraction points located in each of three source areas (refer to Figure 1 for source area locations):

- The former sump source area consists of four SVE points in an area of previously defined impacts on the north side of Plant 2. Ground water extraction at that location is controlled by an existing extraction well, EX-7, which is piped to an existing storm sewer outfall. EX-7 operates at approximately 80 gallons per minute (gpm). Downgradient of this is a second extraction well, EX-1, also routed to the storm sewer system, which also operates between 60 and 80 gpm.

- The southeast extraction system (SEES) is located southeast of Plant #2, and consists of four dual SVE/GWE extraction points; SV/EX-2014, SV/EX-2018, SV/EX-2020, and SV/EX-2021, along with seven SVE points; SV-2013, SV-2017, SV-2019, SV-2022, SV-2023, SV-2024, and SV-2025. The ground-water discharge from all four GWE points is routed to the newly constructed storm sewer outfall near the treatment building which serves as a sampling location.

- The chip storage extraction system (CSES) is located southeast of Plant #1. This system consists of seven dual SVE/GWE points; SV/EX-1033, SV/EX-1047, SV/EX-1049, SV/EX-1056, SV/EX-1058, SV/EX-1060, SV/EX-1064, and 27 SVE points;

SV-1034 through SV-1046, SV-1048, SV-1050 through SV-1055, SV-1057, SV-1059, SV-106- through SV-1063, and SV-1065. The ground-water discharge from all seven GWE points is routed to the newly constructed storm sewer outfall near the treatment building which serves as a sampling location. The Plant #1 and Plant #2 extraction wells have separate discharge lines in this outfall to allow for separate sample collection.

One remediation system building serves the three source areas, and soil vapors from all three are removed with the 500 cfm positive displacement blower in the remediation building. The piping legs to each individual source area can be operated either alone or with one or both of the other source areas using control valves in the remediation building.

The main intent of the system is to remove the source of impacts, which is residual soil and soil vapor contamination. To effectively remove the soil impacts, the ground water must be simultaneously extracted to prevent ground water mounding, and to increase the area through which soil vapors can move. Removal of contaminated ground-water at the source also serves to control the plume migration.

SUMMARY OF DUAL EXTRACTION OPERATIONAL DETAILS

The GWE system operated from June 16, 1994 through November 23, 1994, and from April 14, 1995 through the reporting period. The GWE system was shut off for the winter to prevent recurring freeze damage to header pipes. The soil vapor system operated continuously, and periodic checks of the water levels in the wells were made during the period of GWE shutdown to verify that ground-water mounding was not occurring and that SVE and dual wells were not filling with silt.

The system was started up June 16, 1994. Start-up was smooth, with only one minor operational problem which occurred when the Plant #1 leg of the system was first turned on. The condensate tank on the SVE unit filled up, shutting off the vacuum while the tank automatically discharged the water to the storm sewer as designed. The vacuum was then automatically turned on once the tank was empty; however the condensate tank then re-filled within 10 to 15 minutes, again triggering system shutoff to purge the tank contents. This occurred approximately five to six times in a one hour span. Each time the system worked as designed, shutting off the vacuum while the condensate tank pumped out its contents, and then automatically resuming the vacuum. After approximately one hour of operation, however, the problem did not recur. We believe that some surface water had entered the Plant 1 vacuum discharge line during construction, and was present as standing water in the line prior to SVE system initiation. The first hour of operation removed the water in the line. No further problems of this type have occurred.

Induced vacuum was also monitored at system start-up. A slack-tube manometer was used to measure the induced vacuum at selected wells at each remediation area; Plant #1 CSES, Plant #2 north (the old SVE area near the former sump) and Plant #2 east (SEES). This

was done by isolating a well from the vacuum extraction system by closing the valve at the well itself. The disconnected well thus became an "observation well". The manometer connection was then attached to a sampling port on the well to verify that induced vacuum was present.

Induced vacuum was observed at all three remediation areas. The level of induced vacuum varied between 4 and 70 inches of water column depending on location and whether one, two or three of the piping legs were connected to the SVE unit. The lowest induced vacuum was observed at the Plant #2 former sump site, the highest at Plant #2 SEES, closely followed by Plant #1 CSES.

During SVE operation in the end of September and October, increasing SVE discharge temperature and reduced volatile organic compound (VOC) removal efficiency were noted, along with decreased vacuum before the air filter, and increased vacuum after the air filter. On November 4, 1994, the air filter was checked, cleaned and replaced, and efficient SVE operation resumed. Estimated values of ground-water extraction rates and VOC concentrations were used to calculate total cumulative VOCs removed while the system was operational. The filter is periodically checked and cleaned and this problem has not recurred.

On November 9, 1994, the discharge pipe from extraction well EX-6, located north of Plant #1, was found to be cracked. Water from the crack was observed at the surface, but the water drained back to the site manhole without causing any surface problems, and the well was otherwise operational. The extraction well was shut down for repair November 14 and 15, 1994, and was put back into operation November 16, 1994.

On November 23, 1994, the PVC ground-water discharge header pipe for one of the extraction wells cracked, and ground water extraction was halted for the winter. The potential for winter shutdown had been discussed with Tom Wentland at a November 8, 1994 site visit, and verbally agreed upon. The winter shutdown did not adversely affect the SVE operation.

EX-1's pump failed sometime after the December 13, 1994 sampling event, and prior to the March 1995 sampling event. Pump failure resulted in increased concentration of VOCs in neighboring monitor well D-18. Upon repair, VOC levels in D-18 returned to normal. EX-1 was repaired and restored to service May 9, 1995. Extraction wells EX-4, EX-5, and EX-6 were shut down April 20 and 21, 1995 due to an air conditioner problem. These three wells supply cool water for the Plant 1 air conditioning system. The problem was repaired and the wells were put back in service immediately.

March ground-water monitoring included a partial list of the quarterly monitoring wells, as the Wisconsin Pollutant Discharge Elimination System (WPDES) monitoring list was inadvertently used rather than the quarterly monitoring list.

Operation of the system from March through June was without incident.

SOIL VAPOR EXTRACTION DATA

SOIL VAPOR SAMPLING

System Start-Up

At system start-up June 16, 1994, the following samples were collected:

- Ten air samples were collected for potential laboratory analysis on the first day, including one blank. Of these, seven were chosen for laboratory analysis.
- One air sample was collected for analysis on the second day of operation,
- One air sample was collected for analysis on the third day of operation.

Selected samples were submitted to National Loss Control Service Corporation (NATLSCO) for analysis of trichloroethylene (TCE), 1,1,1-trichloroethane (TCA), tetrachloroethylene (PCE), benzene, and the rest of the volatile fraction reported as hexane. The benzene analysis was included to verify the absence of benzene, which is a limiting compound for air discharge. Benzene was not detected in any samples submitted from the first three days of system operation, therefore the benzene analysis was not included in subsequent analyses.

Monthly Air Sampling

Once start-up was completed, one air sample was collected for analysis each month, per the schedule and procedures in the RD/RA Plans. Samples were submitted to NATLSCO for analysis of TCE, TCA, PCE, and the rest of the volatile fraction reported as hexane. Laboratory analytical results are summarized in Table 1.

Operational monitoring logs for the system (attached) show that between about mid-September and November 4, 1994, the SVE operating temperature increased, and the inlet vacuum and pre-filter vacuum readings decreased while the post-filter vacuum readings increased. The cause was determined to be a plugged air filter, which was cleaned, checked and replaced on November 4, 1994, and the system returned to normal functioning. Because of the filter problem, the sample collected September 28, 1994 showed no detections of VOCs.

The lack of VOC removal during the plugged air filter time period is accounted for on Table 1 by conservatively estimating that no VOC removal occurred from September 15, 1994 through November 4, 1994, and VOC removal efficiency for the period between the previous sampling date (July 14, 1994) and September 15, 1994 was conservatively estimated using VOC concentrations of one-half the July concentrations.

CONTAMINANTS REMOVED

Table 1 provides a summary of the monitoring results, the VOC removal rate, and the total estimated pounds of VOCs removed in the vapor phase. The total VOCs removed in the first twelve months of system operation was nearly 100 pounds.

Predicted VOC Removal - Pilot Test Results

The results from the initial pilot test, performed prior to system design and installation, were used to estimate the total pounds of VOCs which may be removed in the first year of operation. The removal rate calculated for the pilot well in the SEES was 0.13 lb/hr. The removal rate at the pilot well in the CSES was 0.02 lb/hr. The removal rate at the former sump area was 0.022 lb/hr. The predicted annual removal, as reported in the Remedial Design/Remedial Action Project Plans (Hydro-Search, Inc, March 18, 1993), ranged from a high of 1100 lb/year if 0.13 lb/hr found at the SEES during the pilot test could be maintained, to 175 lb/yr if the 0.02 lb/hr was maintained.

System Start-Up

Initial sampling performed at system start-up was used to evaluate whether the system could be operated using all three legs at once. Samples were collected using various configurations and the analytical results were used to calculate VOC removal rates. In order to operate all three legs simultaneously, the removal rate must be below 5.7 pounds per hour (lb/hr), and must also show significant VOC removal.

During the first 24 hours of system start-up, VOC removal rates were similar to those predicted by the pilot test. The Plant 1 CSES leg, when isolated and operated alone, removed approximately 1 lb/hr, which was much higher than predicted by the pilot test. The Plant 2 SEES leg operated alone removed approximately 0.007 lb/hr, which was lower than predicted by the pilot test. The SEES combined with the former sump leg produced 0.003 lb/hr, which was also lower than pilot test results. When all three legs were operated simultaneously, the removal rate was approximately 0.2 lb/hr, which was very close to pilot test results. The former sump leg was not sampled alone. Based on these results, all three legs were operated simultaneously during the first year of operation.

Monthly Operation

During the first month of operation, June 1994, the VOC removal rate remained approximately 0.1 lb/hr (2.4 lb/day). July 1994 through January 1995 removal rates were consistently 0.02 lb/hr (0.5 lb/day). March through May 1995 removal rates dropped to 0.005 lb/hr (0.12 lb/day). In July the rate dropped to 0.0004 lb/hr (0.01 lb/day).

Summary

Based on the monitoring results to date, the system appears to have been quite effective at removing VOCs at the source areas. However, the removal rate has been decreasing to levels below optimal efficiency. The total pounds of VOCs removed is less than the amount predicted by the initial pilot test. This difference can be accounted for by a number of factors, listed below:

- The original test was of short duration, and the initial removal rate is generally higher than the removal rate once equilibrium is reached.

- Pilot testing was performed at the areas of highest anticipated VOC concentrations. The full-scale system has vents in areas of lower VOC concentration, thereby "diluting" the removal efficiency.

- VOCs at the source areas are being removed with time, therefore the concentration of VOCs available for removal also decreases with time.

CONCLUSIONS AND RECOMMENDATIONS

As anticipated, VOC removal rates have decreased with time, however VOC removal continues. However, should significant decrease in concentration continue, or should the removal rate remain very low (<35 lb/yr), the following options will be pursued:

1) Determining the removal rates at each of the three SVE legs. This will be performed by testing the concentration of VOCs removed from each leg of the system when operated alone.

2) Should one or more legs show little to no removal, it will be shut off temporarily, and the remaining leg(s) operated alone.

3) Any leg with little to no VOC removal will be retested following a rest period of one month.

   - Should the VOC removal rate increase, the leg will be included in the remediation system in a pulsed mode. The leg will be turned on for one month, and then allowed to rest the next. Based on previous experience, "pulsing" the system in this way results in improved system efficiency.

   - Should no improvement occur in the VOC removal rate, the leg will remain off, and the concentration of VOCs remaining in the soil will be determined either using a soil vapor sampling method or by collecting a soil sample from an area of known impacts. If significant soil impacts remain, then potential malfunctions in the SVE system will be examined. If not, the leg will remain off.

GROUND WATER

Ground-water monitoring information, summarized in Table 2 and Figures 1 through 6, indicate that significant VOC concentration reductions have occurred in site monitoring wells, especially those immediately downgradient of the dual extraction systems, since the beginning of remediation.

GROUND-WATER MONITORING RESULTS

Baseline water quality samples were collected from all wells which are part of the monitoring program November 23, 1993, prior to any system testing or start-up. Quarterly ground-water monitoring was initiated in August 1994. The second quarter included four months, to put the quarterly sampling on a calendar year schedule. The December 1994 sampling included all the wells on the annual sampling list, because the last time all wells were sampled was in November, 1993. The third quarterly sampling round was performed in March, 1995. The full annual sampling including complete VOC analyses was performed in June 1995. Because the system was shut off, the December and March 1994 sampling results summarized in Table 2 do not include ground-water analytical results from the dual extraction points (SES and CSES).

Ground-water elevation data were collected in the annual sampling. The elevation of the water table, depicted on Figure 4, shows capture of ground-water by the previous extraction wells and also by the new extraction systems. The regional ground-water flow direction, confirmed by past flow measurements made when the extraction wells were off, is a east-northeast.

VOC concentrations in nearly all site monitoring wells have decreased significantly. Significant results from each plant area are summarized below (refer to Table 2 for a summary of results):

Plant 1

The concentration of VOCs in two of the most highly impacted wells, MW-1026 and MW-1027, located immediately downgradient of the CSES, have been significantly reduced. Figures 5 and 6 show the concentration decrease with time at these wells.

- Total VOCs in MW-1026 have decreased from approximately 20,000 parts per billion (ppb) prior to system construction to approximately 125 ppb after one year of SVE/GWE system operation. The TCE concentration in MW-1026, which was formerly 1,500 ppb, was 72 ppb in the June sampling round. The concentration of 1,1,1-TCA in MW-1026 decreased to below the NR140 Enforcement Standard (ES), and is less than 2 ppb above the NR140 preventative Action Limit (PAL).

- The TCA concentration in MW-1027 decreased to below NR140 standards, and the TCE concentration in MW-1027 dropped from a high of 3,000 ppb to 262 ppb in the June sampling round.

Contamination in TW-4, which historically had the highest VOC concentrations, shows an overall decrease to half of the pre-construction VOC concentration.

The VOC concentrations in off-site well, D-5 have also decreased to below NR140 PALs were detected at either location, and

In the last sampling round, no VOCs at all were detected at MW-1030.

The concentrations of VOCs removed from the extraction system (CSES) have decreased, as well, as the source of impacts is removed. These dramatic decreases in VOC concentrations indicate that the SVE/GWE system is very effective at reducing downgradient ground-water impacts.

Plant 2

Since the dual extraction system installation, the VOC concentrations in nearly all wells at Plant 2 have decreased to a lower concentration than before the system start-up. Significant changes or trends are noted below:

The VOC concentrations at D-15, which is adjacent to the former sump source area, have decreased significantly from approximately 1 ppm in 1991, to 145 ppb in June 1995.

VOC concentrations at extraction well EX-1, adjacent to the former sump source area, and EX-7, downgradient of the sump source and the SEES, have dropped to approximately 1/3 of their pre-construction concentration.

Overall concentrations of TCE and PCE at MW-2005 have decreased from initial concentrations of four to six times the ESs prior to system startup to near or below PALs in the last three sampling rounds.

Because of the failure of extraction well EX-1 in spring of 1995, an increase in VOC concentrations was noted at neighboring monitor well D-18; however, once EX-1 operation was restored, VOC levels again decreased. The temporary failure of EX-1 is likely also the cause of the slight rise in the June 1995 VOC concentrations at monitor wells TW-1, TW-1A, and MW-2004, which are further downgradient of EX-1. These points should show a decrease in VOC concentrations in the next sampling round.

GROUND-WATER EXTRACTION

Flow Rate

The flow rate from the two GWE sites is determined by measuring the time required to fill a 5-gallon bucket with water from each of the two discharge lines; the CSES which is the Plant #1 leg, and the SEES which is east of Plant #2.

Table 3 presents the ground-water extraction information from start-up through the June 1995 sampling event. During system operation (prior to November 23, 1994), all of the CSES wells were operating. Because the system was shut off between November 23, 1994 and April 14, 1995, no flow rates were collected for the SEES and CSES locations in the December or March sampling events.

The ground water extraction rate at the CSES (Plant 1, 7 dual extraction wells) ranged from 15 to 38 gallons per minute (gpm) total flow (approximately 1 to 3 gpm per well). At the SEES (Plant 2, 4 dual extraction wells), the flow rate ranged between 2 and 12 gpm (0.5 to 4 gpm per well).

Contaminants Removed

The rate of TCE, TCA, PCE, and total VOCs removed from the ground-water phase is calculated using the ground-water monitoring results for the CSES and SES and the flow rate at these extraction points. The results are summarized on Table 3.

Approximately 17 pounds of TCE, 47 pounds of TCA, and 0.044 pounds of PCE were removed from the dual extraction system during the first twelve months of operation, and 65 pounds of total VOCs. This does not include the VOCs removed from the original extraction points, EX-1 through EX-7.

The total concentration of VOCs measured at each of the extraction points which discharge to the storm sewer has decreased from prior to system construction, as noted in the analytical results. The total VOCs detected at SS-1 has also decreased from prior to system construction. The sources of impacts are being removed, as noted herein. Therefore the trend of decreasing VOC discharge to the storm sewer should continue indefinitely.

CONCLUSIONS

Impacted ground water near the source areas is being successfully removed. Significant reductions in VOC impacts at site monitoring wells have been observed since the remediation began. The cracked header/freezing problem necessitated the shut-down of the GWE system for the winter, however the SVE system continued successful operation, and water table mounding was not a problem in the SVE wells during the winter. Total VOC discharge to the storm sewer is decreasing. The system has been very effective at remediating ground-water impacts.

ATTACHMENTS

Figure 1 shows the TCE concentrations in site monitoring points collected since November 1993.

Figure 2 shows the TCA concentrations in site monitoring points collected since November 1993.

Figure 3 shows the PCE concentrations in site monitoring points collected since November 1993.

Figure 4 shows the water table configuration on June 21, 1995.

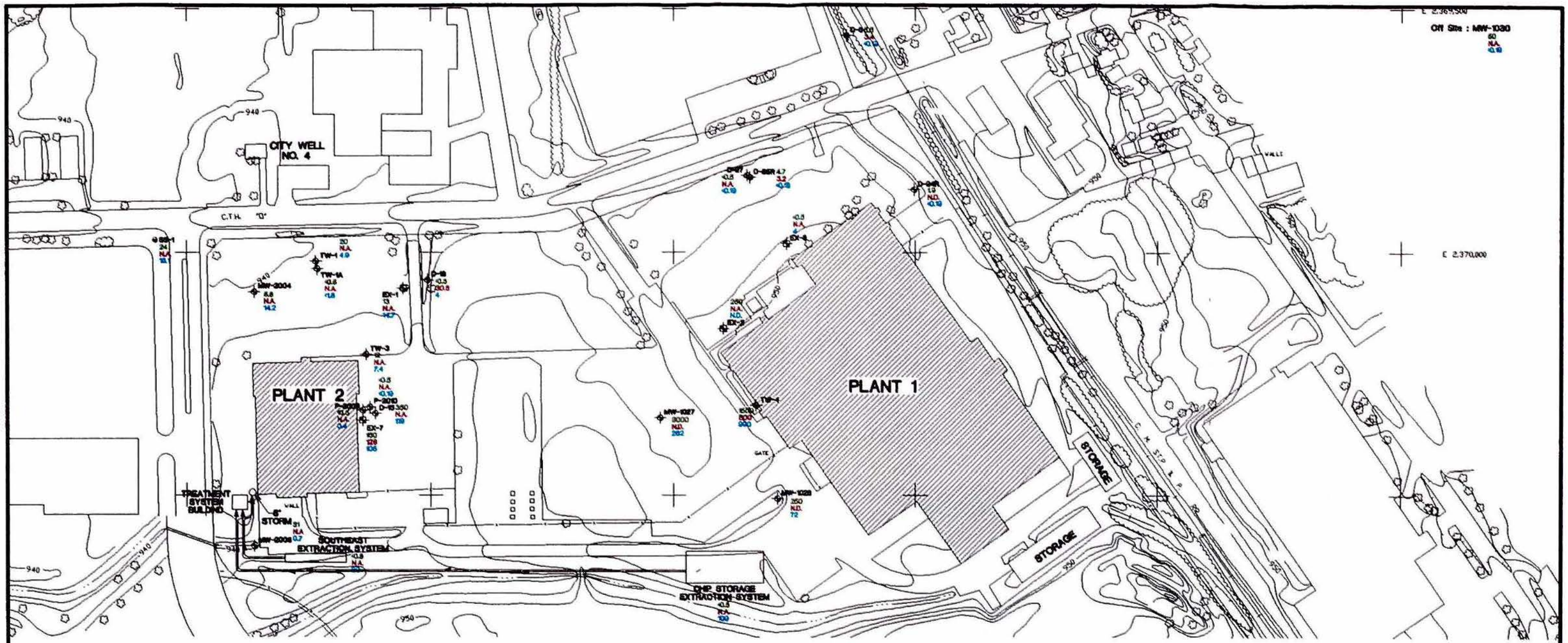
Figure 5 shows the change in specific VOC concentrations in MW-1026 over time.

Figure 6 shows the change in specific VOC concentrations in MW-1027 over time.

Table 1 summarizes soil vapor monitoring results and calculates the pounds of VOCs removed from soil vapor phase.

Table 2 summarizes ground-water monitoring analytical results.

Table 3 summarizes ground-water extraction rate and calculates the pounds of VOCs removed in the ground-water phase.



EXPLANATION

MW-2004	MONITOR WELL LOCATION AND DESIGNATION	31	TCE CONCENTRATION (ppb) DATA OBTAINED 11/11/93
E-3	EXTRACTION WELL LOCATION AND DESIGNATION	220	TCE CONCENTRATION (ppb) DATA OBTAINED 3/13/95
SS-1	STORM SEWER SAMPLE LOCATION AND DESIGNATION	62.8	TCE CONCENTRATION (ppb) DATA OBTAINED 6/21/95 & 6/26/95
P-2009	PIEZOMETER LOCATION AND DESIGNATION		

Note : TCE Regulatory Standards:
Enforcement Standard 5 ppb
Preventative Action Limit 0.5 ppb
N.D. - TCE Not Detected
N.A. - TCE Not Analysed

N

SCALE
0 500
Feet

STA-RITE INDUSTRIES, INC. DELAVAN, WISCONSIN	DATE: 10/25/95
	DESIGNED: MCL
TCE CONCENTRATIONS DISTRIBUTION	CHECKED: JJJ
	APPROVED: JJJ
	DRAWN: MCL
	PROJ.: 303503233
HYDRO-SEARCH INC A Tetra Tech Company	Figure 1

Base map from Areo-Metric Engineering, 4/16/88.

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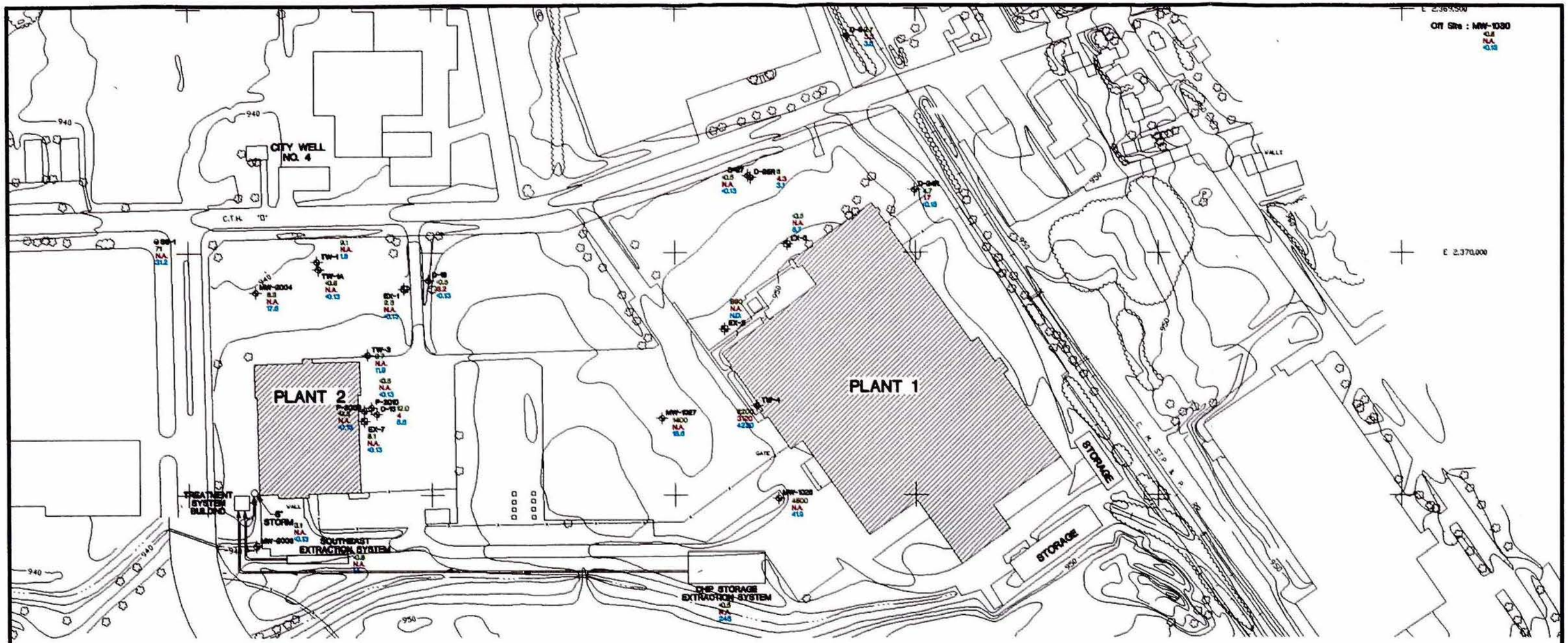

EXPLANATION

MW-2004	MONITOR WELL LOCATION AND DESIGNATION	3.1	TCA CONCENTRATION (ppb) DATA OBTAINED 11/11/93
E-3	EXTRACTION WELL LOCATION AND DESIGNATION	15	TCA CONCENTRATION (ppb) DATA OBTAINED 3/13/95
SS-1	STORM SEWER SAMPLE LOCATION AND DESIGNATION	11.6	TCA CONCENTRATION (ppb) DATA OBTAINED 6/21/95 & 6/26/95
P-2009	PIEZOMETER LOCATION AND DESIGNATION		

Note : TCA Regulatory Standards:
Enforcement Standard 200 ppb
Preventative Action Limit 40 ppb
N.D. - TCA Not Detected
N.A. - TCA Not Analysed

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Base map from Areo-Metric Engineering, 4/16/88.

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STA-RITE INDUSTRIES, INC. DELAVAN, WISCONSIN	DATE: 10/25/95
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TCA CONCENTRATIONS DISTRIBUTION	CHECKED: JJJ
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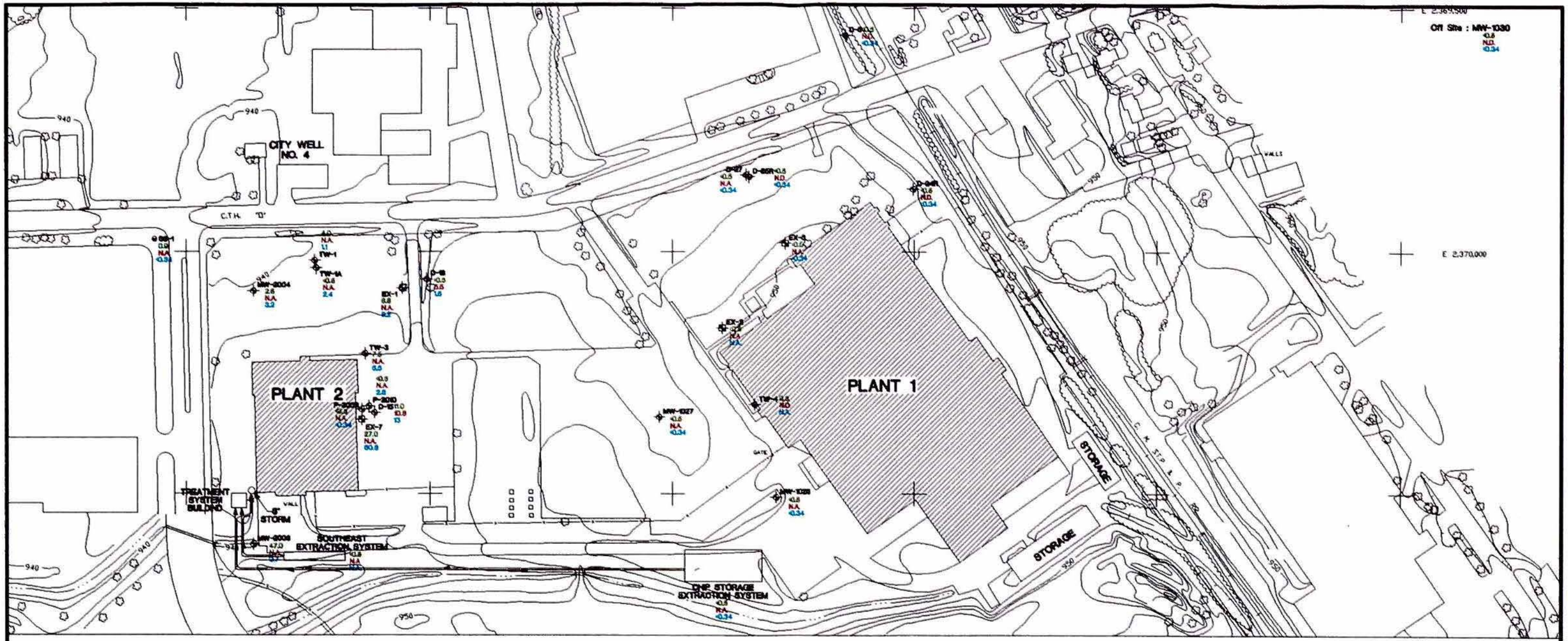
HYDRO-SEARCH INC. A Tetra Tech Company	Figure 2



EXPLANATION

MW-2004	MONITOR WELL LOCATION AND DESIGNATION	<0.5	PCE CONCENTRATION (ppb) DATA OBTAINED 11/11/93
E-3	EXTRACTION WELL LOCATION AND DESIGNATION	2.4	PCE CONCENTRATION (ppb) DATA OBTAINED 3/13/95
SS-1	STORM SEWER SAMPLE LOCATION AND DESIGNATION	4.7	PCE CONCENTRATION (ppb) DATA OBTAINED 6/21/95 & 6/26/95
P-2009	PIEZOMETER LOCATION AND DESIGNATION		

Note : PCE Regulatory Standards:
Enforcement Standard 5 ppb
Preventative Action Limit 0.5 ppb
N.D. - PCE Not Detected
N.A. - PCE Not Analysed

N

SCALE
0 500
Feet

Base map from Areo-Metric Engineering, 4/16/88.

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STA-RITE INDUSTRIES, INC.
DELAVAN, WISCONSIN

PCE CONCENTRATIONS DISTRIBUTION

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DRAWN:	MCL
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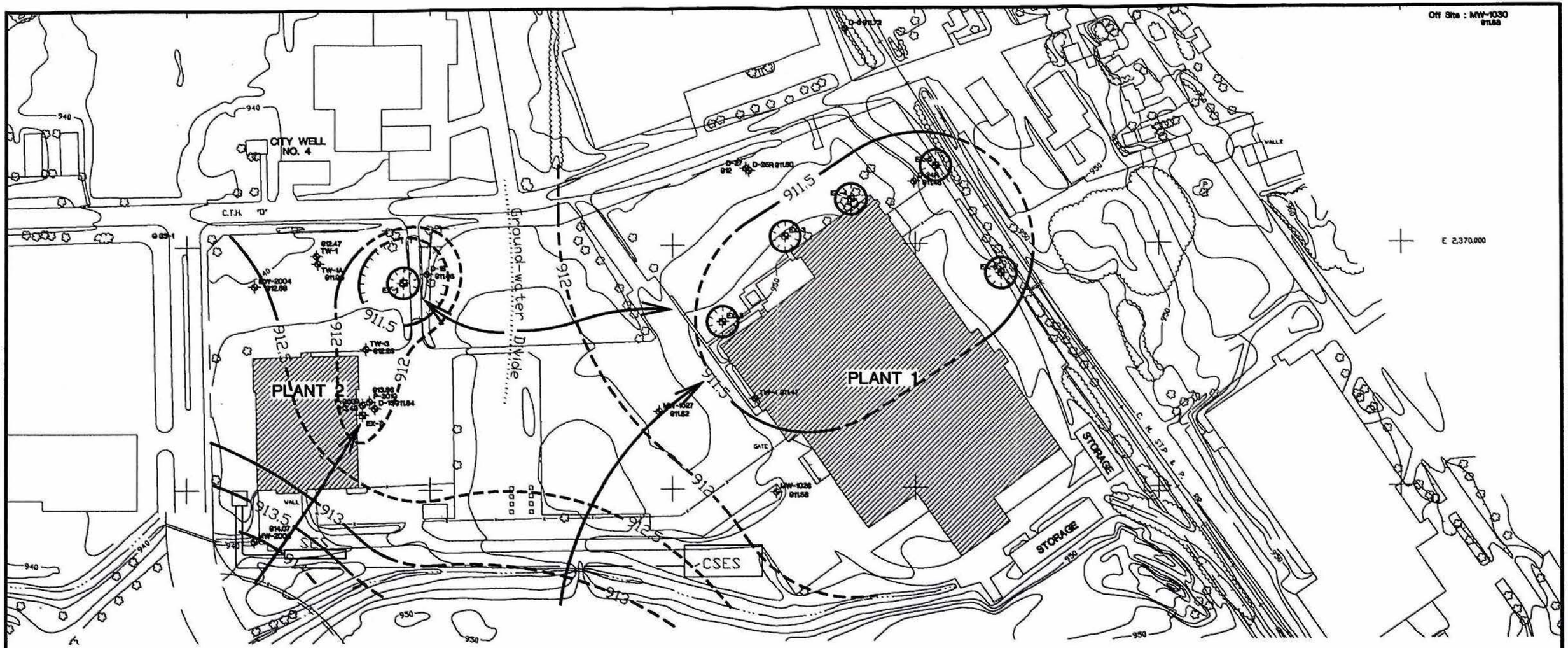
Figure 3



EXPLANATION

- MW-2004 — MONITOR WELL LOCATION AND DESIGNATION
- E-3 — EXTRACTION WELL LOCATION AND DESIGNATION
- SS-1 — STORM SEWER SAMPLE LOCATION AND DESIGNATION
- P-2009 — PIEZOMETER LOCATION AND DESIGNATION
- 915 — GROUND-WATER CONTOUR (ft. msl)
- → GROUND-WATER FLOW DIRECTION
- <0.5 — GROUND-WATER ELEVATION (ft. msl)

N

SCALE

0 500

Feet

STA-RITE INDUSTRIES, INC. DELAVAN, WISCONSIN	DATE: 10/25/95
	DESIGNED: MCL
	CHECKED: JJJ
WATER TABLE MAP (June 21, 1995)	APPROVED: MRN
	DRAWN: MCL
	PROJ.: 303503233
HYDRO-SEARCH INC A Tetra Tech Company	Figure 4

Base map from Areo-Metric Engineering, 4/16/88.

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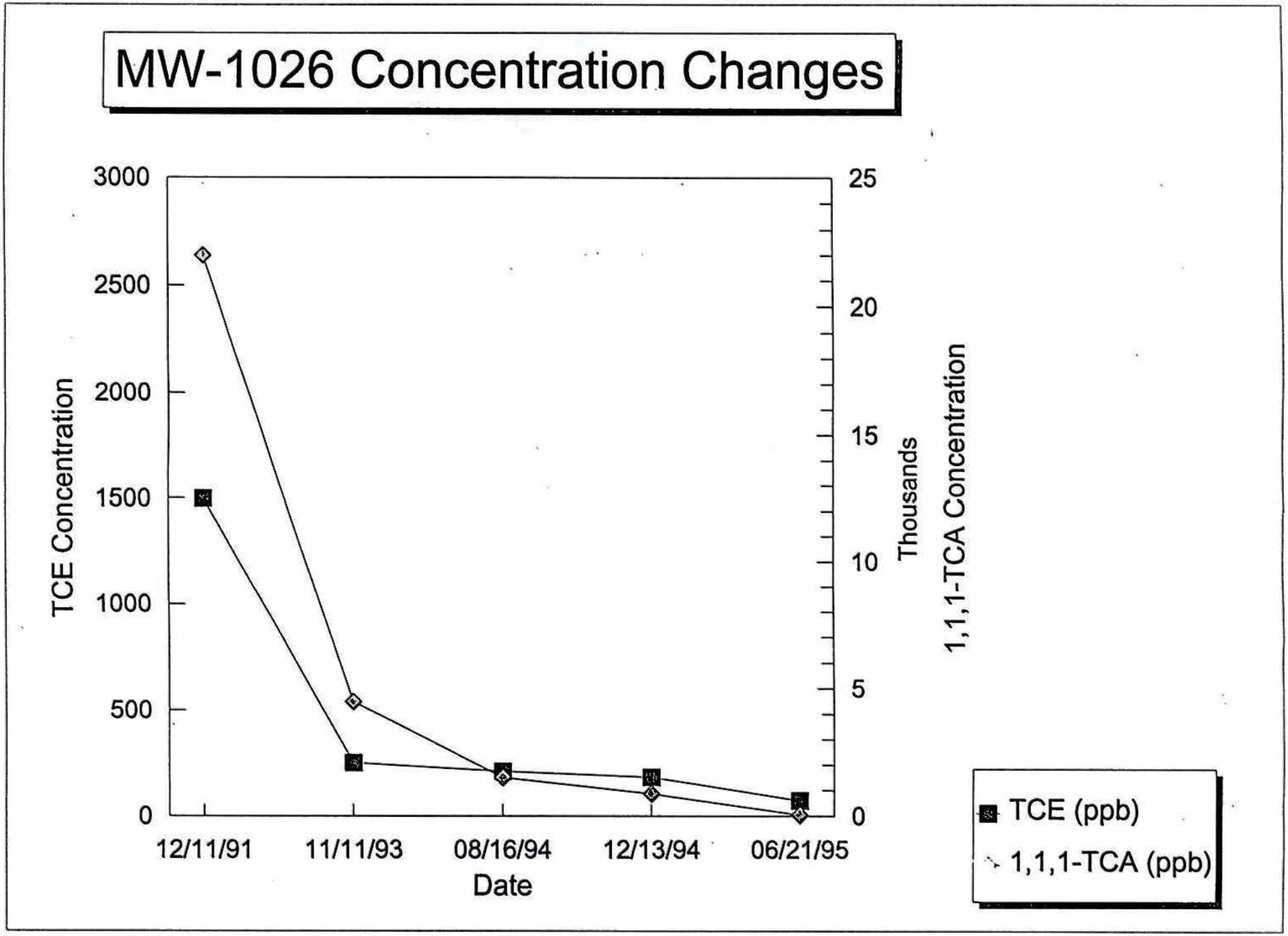
Figure 5



HSI HYDRO-SEARCH, INC. A Tetra Tech Company

Figure 6

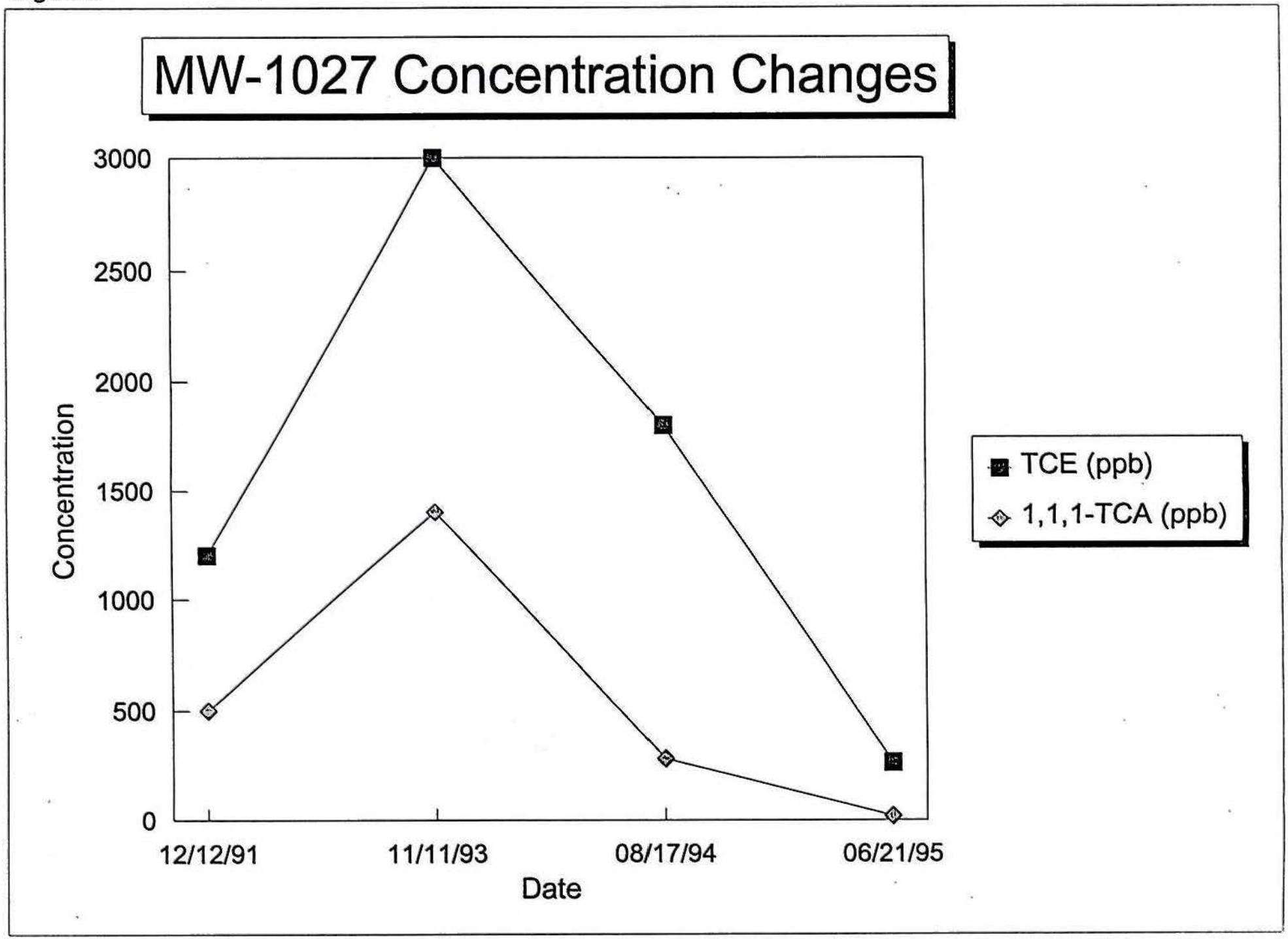


TABLE 1. SVE SYSTEM MONITORING DATA

SVE MONITORING MEASUREMENTS								LABORATORY RESULTS (mg)					CALCULATED REMOVAL RATE					CALCULATED MASS REMOVED BETWEEN SAMPLE DATES				
Date	Hours of SVE Operation *	SAMPLE DATA Sample ID **	Flow Rate (L/min)	Time (min)	P1 Exhaust Pressure (" H2O)	T1 Sampling Temp - Air (deg F)	TCE	TCA	PCE	Benzene	Rest as Hexane	Total VOCs (Calculated)	TCE (lb/hr)	TCA (lb/hr)	PCE (lb/hr)	Hexane (lb/hr)	Total VOCs (lb/hr)	TCE (lb)	TCA (lb)	PCE (lb)	Hexane (lb)	Total VOCs (lb)
06/16/94	1.5	1130-B-5	1.7	5	12	165	ND	ND	ND	ND	ND	0	0	0	0	0	0	0	0	0	0	0
06/16/94	0.25	1145-2-5	1.7	5	12	165	0.18	0.052	0.068	<0.001	0.0073	0.3073	4.5E-03	1.3E-03	1.7E-03	1.8E-04	7.7E-03	1.12E-03	3.24E-04	4.23E-04	4.54E-05	1.91E-03
06/16/94	0.25	1150-2-15	0.22	15	12	160	0.065	0.024	0.021	<0.001	<0.0046	0.11	4.2E-03	1.5E-03	1.3E-03	0	7.1E-03	1.04E-03	3.85E-04	3.37E-04	0	1.76E-03
06/16/94	2	200-023-5	1.7	5	15	130	0.089	0.018	0.027	<0.001	0.0057	0.1397	2.2E-03	4.4E-04	6.6E-04	1.4E-04	3.4E-03	4.37E-03	8.83E-04	1.32E-03	2.80E-04	6.85E-03
06/16/94	2.3	420-001-5	1.7	5	13	145	2.6	42	<0.0056	<0.001	1.7	48.3	6.1E-02	9.8E-01	0	4.0E-02	1.1E+00	1.40E-01	2.27E+00	0	9.17E-02	2.50E+00
06/16/94	0.6	440-123-10	1.7	10	14	130	1.3	17	0.029	<0.001	0.1	18.429	1.6E-02	2.0E-01	3.5E-04	1.2E-03	2.2E-01	9.36E-03	1.22E-01	2.09E-04	7.20E-04	1.33E-01
06/16/94	0.3	450-123-5	1.7	5	14	130	0.78	10	0.015	<0.001	0.05	10.845	1.8E-02	2.3E-01	3.5E-04	1.2E-03	2.5E-01	5.47E-03	7.02E-02	1.05E-04	3.51E-04	7.61E-02
06/17/94	15	740-123-5	1.7	5	14	130	0.69	7.1	0.011	<0.001	0.11	7.911	1.3E-02	1.3E-01	2.0E-04	2.0E-03	1.4E-01	1.89E-01	1.94E+00	3.01E-03	3.01E-02	2.16E+00
06/18/94	24	740-123-5	1.7	5	14	130	0.7	5.6	0.01	<0.001	0.12	6.43	1.3E-02	1.0E-01	1.8E-04	2.2E-03	1.2E-01	3.06E-01	2.45E+00	4.38E-03	5.25E-02	2.81E+00
07/14/94	630	115-123-5	1.7	5	14	130	0.23	1	<0.0068	NA	0.028	1.258	4.2E-03	1.8E-02	0	5.1E-04	2.3E-02	2.64E+00	1.15E+01	0	3.22E-01	1.45E+01
08/23/94	956.5	945-123-5	1.7	5	~14	~130	0.16	0.66	0.0062	NA	0.05	0.8762	3.0E-03	1.2E-02	1.2E-04	9.4E-04	1.7E-02	2.89E+00	1.19E+01	1.12E-01	9.02E-01	1.58E+01
09/14/94	1488	***estimated	1.7	5	11.5	165	0.11	0.5	<0.0068	NA	0.014	0.624	2.0E-03	9.2E-03	0	2.6E-04	1.1E-02	3.00E+00	1.36E+01	0	3.82E-01	1.70E+01
09/28/94	335.92	109-123-5	1.7	5	10	180	<0.0067	<0.0056	<0.0058	NA	<0.0051	0	0	0	0	0	0	0	0	0	0	0
11/15/94	288	1030-123-5	1.7	5	8	115	0.32	0.85	0.33	NA	<0.0048	1.5	5.9E-03	1.6E-02	6.1E-03	0	2.8E-02	1.70E+00	4.53E+00	1.76E+00	0	7.99E+00
12/19/94	814.3	850-123	1.7	5	8	130	0.27	0.69	0.07	NA	<0.0055	1.03	5.0E-03	1.3E-02	1.3E-03	0	1.9E-02	4.07E+00	1.04E+01	1.05E+00	0	1.55E+01
01/06/95	433.2	1000-123-5	1.7	5	13	140	0.23	0.60	No Data	NA	0.07	0.90	4.2E-03	1.1E-02	0	1.3E-03	1.6E-02	1.82E+00	4.75E+00	0	5.50E-01	7.12E+00
02/05/95	718.75	845-123-5	1.7	5	~13	~140	No Data	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/06/95	698.75	1130-123-5	1.7	5	14	82	0.14	0.03	<0.0060	NA	0.07	0.239	2.6E-03	4.9E-04	0	1.3E-03	4.4E-03	1.78E+00	3.44E-01	0	9.17E-01	3.05E+00
04/11/95	862.75	1015-123-5	1.7	5	13.6	93	0.11	0.18	<0.0060	NA	0.05	0.346	2.0E-03	3.3E-03	0	1.0E-03	6.3E-03	1.73E+00	2.83E+00	0	8.82E-01	5.45E+00
05/02/95	746.67	1255-123-5	1.7	5	13.6	98	0.07	0.10	NA	NA	0.03	0.196	1.3E-03	1.8E-03	0	5.1E-04	3.6E-03	9.40E-01	1.35E+00	0	3.82E-01	2.67E+00
06/22/95	1221.83	1050-123-5	1.7	5	~13.6	~98	0.01	0.01	NA	NA	<0.0096	0.02	2.5E-04	1.0E-04	0	0	3.5E-04	3.00E-01	1.27E-01	0	0	4.26E-01
CUMULATIVE MASS REMOVED																		21.54	68.22	2.93	4.51	97.20

Notes: Blower discharge rate is 500 cfm.
* This column indicates how long the SVE unit has been operating since the last sampling event. The time for the first sampling event is since the unit was turned on.
** Sample identification by (date)-(time)-(SVE legs on)-(sampling time in minutes.) The date is not shown in this column, but may appear on the lab report.
Sampling legs: 1=Plant #1, 2=Plant #2 eastleg, 3=Plant #2 north leg.
Example: 61694-1145-002-5 sampled on 6/16/94 at 11:45, Plant #2 east leg only, sample time 5 minutes.
*** Values for this date are estimated as half of the previous sampled values due to air filter plugging. No VOCs were detected at the next sample date due to clogging of the filter.
--Pressure and/or temperature values are estimated to be the same as the previous results.

NA = Not Analyzed, ND = Not Detected

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TABLE 2. GROUND-WATER MONITORING RESULTS

	WELL	DATE	Quarterly Parameters: Chloroethane	PCE	1,1,1-TCA	TCE	Vinyl Chloride	Annual Parameters: Dibromochloromethane	1,1-DCA	1,1-DCE	cis-1,2-DCE	1,3-Dichloropropene	Toluene	1,2,4-Trichlorobenzene	1,1,2-TCA	Total VOCs
NR140 ES			400	5	200	5	0.2	60.0	850	7	70		343	70.0	0.6	
STANDARDS PAL			80	0.5	40.0	0.5	0.02	8.0	85	0.7	7		68.6	14.0	0.06	
Plant #1																
Downgradient	* MW-1026	10/29/91	2.1	0.8	16,000	1,300			920	1,200	5.6	0.9	1.9		8.2	19541.0
		10/29/91	1.9	1.2	15,000	1,300			850	1,100	20.0	1.5	3.8		7.1	18389.4
		12/11/91	0.7	1.0	22,000	1,500			350	1,400	10.0	<0.5	<0.5		10.0	25315.8
		11/11/93	<0.5	<0.5	4500	250	<0.3	<0.5	4.8	150.0	0.5	<0.5	<0.5	<0.5	1.0	4906.3
		08/16/94	<5	<1	1500	210	<5	NA	NA	NA	NA	NA	NA	NA	NA	1710.0
		12/13/94	<25	<25	865	183	<25	NA	NA	NA	NA	NA	NA	NA	NA	1048.0
		06/21/95	<0.21	<0.34	41.9	72	<0.27	<0.24	7.8	3.0	<0.30	<0.17	<0.22	<0.28	<0.19	124.7
	* MW-1027	10/29/91	<0.5	<0.5	780	1700			1.2	68.0	22.0	<0.5	2.1		<0.5	2598.3
		12/12/91	<0.5	<0.5	500	1200			0.6	35.0	11.0	<0.5	<0.5		<0.5	1747.6
		11/11/93	<0.5	<0.5	1400	3000	<0.3	<0.5	3.1	100.0	24.0	<0.5	<0.5	<0.5	<0.5	4527.1
		08/17/94	<5	<1	280	1800	<5	NA	NA	NA	NA	NA	NA	NA	NA	2080.0
		06/21/95	<0.21	<0.34	18.6	282	<0.27	<0.24	<0.12	<0.18	<0.30	<0.17	<0.22	<0.28	<0.19	280.6
	* TW-4	11/03/91	<0.5	0.5	10000	1100			61.0	440.0	50.0	<0.5	<0.5		5.6	11683.5
		12/12/91	<0.5	0.6	11000	1200			93.0	680.0	52.0	<0.05	<0.5		4.5	13036.8
		11/11/93	<0.5	0.8	6200	1500	<0.3	<0.5	26.0	490.0	25.0	<0.5	<0.5	<0.5	3.2	8245.0
		08/17/94	<5	<1	3900	600	<5	NA	NA	NA	NA	NA	NA	NA	NA	4500.0
		12/14/94	<50	<50	4040	630	<50	NA	NA	NA	NA				NA	4670.0
		03/13/95	ND	ND	3120	600	ND	NA	NA	NA	NA	NA	NA	NA	NA	3720.0
		06/21/95	<0.21	NA	4220	990	5.4	<0.24	113.0	415.0	93.6	NA	<0.22	NA	17.8	5858.4
	* D-3	11/04/91	<0.5	<0.5	7.8	7.8			<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	15.4
		11/04/91	<0.5	<0.5	8.8	8.3			<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	17.1
		12/16/91	<0.5	<0.5	8.7	8.4			<0.5	<0.5	<0.5	<0.5	0.7		<0.5	21.6
		11/11/93	<0.5	<0.5	9.7	8.8	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	18.5
		08/17/94	<5	<1	5.5	6.7	<5	NA	NA	NA	NA	NA	NA	NA	NA	12.2
		12/13/94	<0.5	<0.5	5.4	6	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	11.4
		03/13/95	ND	ND	3.3	3.4	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
		06/26/95	<0.21	<0.34	3.6	<0.19	<0.27	<0.24	<0.12	<0.18	<0.30	<0.17	<0.22	2	3.4	9.0
	* D-25R	10/29/91	<0.5	<0.5	<0.5	11			<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	11.0
		12/13/91	<0.5	0.6	13	13			<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	29.2
		11/11/93	<0.5	<0.5	6	4.7	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	10.7
		08/17/94	<5	<1	3.1	4.6	<5	NA	NA	NA	NA	NA	NA	NA	NA	7.7
		12/13/94	<0.5	0.4	4.7	5.4	<0.5	NA	NA	NA	NA	NA	NA	NA	na	10.5
		03/13/95	ND	ND	4.3	3.2	ND	NA	NA	NA	NA	NA	NA	NA	NA	7.5
		06/26/95	<0.21	<0.34	3.1	<0.19	<0.27	<0.24	<0.12	<0.18	<0.30	<0.17	<0.22	<0.28	<0.19	3.1
	* D-24R	10/30/91	<0.5	<0.5	5.7	2.7			<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	8.4
		12/12/91	<0.5	<0.5	6.1	5.9			<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	12.0
		11/11/93	<0.5	<0.5	4.7	1.9	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6.6
		08/17/94	<5	<1	<1	<1	<5	NA	NA	NA	NA	NA	NA	NA	NA	0.0
		12/13/94	<0.5	<0.5	0.5	1.1	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	1.6
		03/13/95	ND	ND	1.7	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	1.7
		06/21/95	<0.21	<0.34	<0.13	<0.19	<0.27	<0.24	<0.12	<0.18	<0.30	<0.17	<0.22	<0.28	<0.19	0.0
	D-27	11/04/91	<0.5	<0.5	9.9	5.6			<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	15.5
		12/18/91	<0.5	<0.5	5.3	2.6			<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	7.9
		12/18/91	<0.5	<0.5	4.9	2.8			<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	7.7
		11/11/93	<0.5	<0.5	<0.5	<0.5	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.0
		12/14/95	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	0.0
		06/21/95	<0.21	<0.34	<0.13	<0.19	<0.27	<0.24	<0.12	<0.18	<0.30	<0.17	<0.22	<0.28	<0.19	0.0
	EX-2	11/07/91	<0.5	<0.5	870	210			18.0	56.0	24.0	<0.5	<0.5		1.1	1179.1
		12/18/91	<0.5	<0.5	1260	268			<0.5	92.0	30.0	<0.5	<0.5		1.4	1664.3
		11/11/93	<0.5	<0.5	890	250	<0.3	<0.5	15.0	55.0	22.0	<0.5	<0.5	<0.5	1.3	1233.3
		12/13/94	<0.5	<0.5	17.3	1.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	20.8
		06/21/95	<0.21	<0.34	375	96.4	<0.27	1.3	<0.12	13.4	9.0	<0.17	<0.22	<0.28	<0.19	495.1
	EX-3	11/07/91	<0.5	<0.5	50	14			0.8	3.4	0.8	<0.5	<0.5		<0.5	69.0
		12/18/91	<0.5	<0.5	30.3	9.5			0.5	1.9	<0.5	<0.5	<0.5		<0.5	44.8
		11/11/93	<0.5	<0.5	<0.5	<0.5	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.0
		12/13/94	<0.5	<0.5	14.4	5.8	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	20.2
		06/21/95	<0.21	<0.34	8.7	4	<0.27	<0.24	<0.12	<0.18	<0.30	8.9	<0.22	<0.28	<0.19	21.6
Chip Storage Extraction System	* CSES	11/11/93	<0.5	<0.5	<0.5	<0.5	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.0
		08/16/94	<5	<1	1200	360	<5	NA	NA	NA	NA	NA	NA	NA	NA	1560.0
		06/21/95	<0.21	<0.34	245	109	<0.27	<0.24	6.8	16.7	9.0	<0.17	2.3	<0.28	<0.19	388.8
Off-Site	MW-1030	10/30/91	<0.5	<0.5	1.5	4			<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	5.5
		12/12/91	<0.5	<0.5	2	1.5			<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	7.8
		11/11/93	<0.5	<0.5	<0.5	50	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	50.0
		12/13/94	<0.5	1.4	0.5	56.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	58.4
		06/21/95	<0.21	<0.34	<0.13	<0.19	<0.27	<0.24	<0.12	<0.18	<0.30	<0.17	<0.22	<0.28	<0.19	0.0
Storm Sewer	SS-1	11/11/93	<0.5	0.9	71	24	<0.3	<0.5	1.3	4.5	1.6	<0.5	<0.5	<0.5	<0.5	103.3
		08/16/94	<5	<1	55	25	<5	NA	NA	NA	NA	NA	NA	NA	NA	80.0
		12/14/94	<0.5	0.1	11.2	3	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	14.3
		06/21/95	<0.21	<0.34	31.2	18.1	<0.27	<0.24	<0.12	1.4	1.3	<0.17	<0.22	<0.28	<0.19	52.0

TABLE 2. GROUND-WATER MONITORING RESULTS

	WELL	DATE	Quarterly Parameters: Chloroethane	PCE	1,1,1-TCA	TCE	Vinyl Chloride	Annual Parameters: Dibromochloromethane	1,1-DCA	1,1-DCE	CIS-1,2-DCE	1,3-Dichloropropene	Toluene	1,2,4-Trichlorobenzene	1,1,2-TCA	Total VOCs
NR140 ES			400	5	200	5	0.2	60.0	850	7	70		343	70.0	0.8	
STANDARDS PAL			80	0.5	40.0	0.5	0.02	6.0	85	0.7	7		68.6	14.0	0.06	
Plant #2																
Southeast Source Area and Former Sump Source Area	* D-18	11/04/91		<0.5	<0.5	1.5		<0.5	<0.5	<0.5	<0.5		0.8	1.5		3.8
		12/12/91		0.9	0.5	2.1		<0.5	<0.5	<0.5	<0.5		<0.5	3.5		13.0
		11/11/93	<0.5	<0.5	<0.5	<0.5	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.0
		08/16/94	<5	<1	<1	1.2	<5	NA	NA	NA	NA	NA	NA	NA	NA	1.2
		12/13/94	<0.5	0.4	0.2	1.8	0.3	NA	NA	NA	NA	NA	NA	NA	NA	2.7
		03/13/95	ND	5.5	3.2	30.6	ND	NA	NA	NA	NA	NA	NA	NA	NA	39.3
		06/21/95	<0.21	1.5	<0.13	1	<0.27	<0.24	<0.12	<0.18	<0.30	<0.17	<0.22	<0.28	<0.19	5.5
	MW-2004	10/29/91		6.4	4.8	37		<0.5	<0.5	<0.5	<0.5		<0.5	48.2		96.4
		12/13/91		11.0	2.6	61		<0.5	<0.5	<0.5	<0.5		<0.5	74.6		149.2
		11/11/93	<0.5	2.5	14	5.6	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	22.1
		12/13/94	<0.5	0.7	0.2	1.8	0.3	NA	NA	NA	NA	NA	NA	NA	NA	3.0
		06/21/95	<0.21	3.2	17.6	14.2	<0.27	<0.24	<0.12	<0.18	<0.30	<0.17	<0.22	<0.28	3.4	38.4
	* MW-2005	10/28/91		30.0	2.7	20		<0.5	<0.5	<0.5	12.0		<0.5	52.7		118.1
		12/13/91		32.0	3	23		<0.5	<0.5	<0.5	17.0		<0.5	58		133.8
		11/11/93	<0.5	47.0	3.1	31	<0.3	<0.5	<0.5	<0.5	4.0	<0.5	<0.5	<0.5	<0.5	85.1
		12/13/94	<0.5	0.4	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	0.4
		08/16/94	<5	<1	<1	<1	<5	NA	NA	NA	NA	NA	NA	NA	NA	0.0
		06/21/95	<0.21	0.7	<0.13	0.7	<0.27	<0.24	<0.12	<0.18	<0.30	<0.17	<0.22	<0.28	<0.19	1.4
	* D-15	11/05/91		26.0	45	420		<0.5	1.5	3.8	12.0		<0.5	509.5		1019.0
		12/12/91		24.0	31	390		<0.5	<0.5	3.0	8.8		<0.5	456.8		913.6
		11/11/93	<0.5	11.0	12	350	<0.3	<0.5	1.3	1.3	11.0	<0.5	<0.5	<0.5	<0.5	386.6
		08/16/94	<5	15.0	15	220	<5	NA	NA	NA	NA	NA	NA	NA	NA	250.0
		03/13/95	ND	10.6	4	126	ND	NA	NA	NA	NA	NA	NA	NA	NA	140.6
		12/13/94	<0.5	7.8	3.1	105	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	115.9
		06/21/95	<0.21	13.0	6.6	119	<0.27	<0.24	0.9	<0.18	3.3	<0.17	<0.22	<0.28	<0.19	144.8
	P-2009	11/05/91		<0.5	<0.5	<0.5		<0.5	<0.5	<0.5	<0.5		<0.5	0		0.0
		12/12/91		<0.5	1.1	1.2		<0.5	<0.5	<0.5	<0.5		<0.5	2.3		4.6
		01/10/92			<0.7	<0.5								0		0.0
		11/11/93	<0.5	<0.5	<0.5	<0.5	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.0
		12/14/94	<0.5	<0.5	<0.5	<0.5		NA	NA	NA	NA	NA	NA	NA	NA	0.0
		06/21/95	<0.21	<0.34	<0.13	0.4	<0.27	<0.24	<0.12	<0.18	<0.30	<0.17	<0.22	<0.28	<0.19	0.4
	P-2010	11/05/91		<0.5	<0.5	<0.5		<0.5	<0.5	<0.5	<0.5		<0.5	0		0.0
		12/12/91		<0.5	8.3	5.4		<0.5	<0.5	0.6	<0.5		<0.5	13.7		30.4
		01/10/92			<0.7	1.2				<0.5				1.2		3.7
		11/11/93	<0.5	<0.5	<0.5	<0.5	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.0
		12/14/94	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	0.0
		06/21/95	<0.21	2.8	<0.13	<0.19	<0.27	<0.24	<0.12	<0.18	<0.30	<0.17	<0.22	<0.28	<0.19	2.8
	* TW-1	10/29/91		<0.5	1.3	18		<0.5	<0.5	<0.5	<0.5		<0.5	21		42.0
		12/13/91		4.9	1.1	48		<0.5	<0.5	<0.5	<0.5		<0.5	54		108.0
		11/11/93	<0.5	4.0	9.1	20	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	33.1
		08/16/94	<5	2.4	<1	14	<5	NA	NA	NA	NA	NA	NA	NA	NA	16.4
		12/13/94	<0.5	0.4	0.3	4.1	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	4.8
		06/21/95	<0.21	1.1	1.8	4.9	<0.27	<0.24	<0.12	<0.18	<0.30	1.6	<0.22	<0.28	<0.19	9.4
	TW-1A	10/29/91		<0.5	0.6	0.6		<0.5	<0.5	<0.5	<0.5		<0.5	1.2		2.4
		12/18/91		<0.5	0.9	6.8		<0.5	<0.5	<0.5	<0.5		<0.5	9.9		19.8
		11/11/93	<0.5	<0.5	<0.5	<0.5	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.0
		12/14/94	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	0.0
		06/21/95	<0.21	2.4	<0.13	1.8	<0.27	<0.24	1.7	<0.18	<0.30	<0.17	4.1	5.2	<0.19	15.2
	TW-3	10/30/91		6.8	1.7	19		<0.5	<0.5	<0.5	2.1		<0.5	29.6		59.2
		12/12/91		8.3	1.3	22		<0.5	<0.5	<0.5	1.6		<0.5	33.2		66.4
		11/11/93	<0.5	7.5	0.7	12	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	20.2
		12/14/94	<0.5	5.3	11.6	5.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	22.4
		06/21/95	<0.21	5.5	11.9	7.4	<0.27	<0.24	<0.12	<0.18	0.4	<0.17	<0.22	<0.28	<0.19	25.2
Original Extraction Wells	EX-1	11/07/91		8.2	3.7	20		<0.5	<0.5	<0.5	0.7		<0.5	31.9		64.5
		12/18/91		6.3	3.9	14.6		<0.5	<0.5	<0.5	0.5		<0.5	24.8		50.1
		11/11/93	<0.5	6.8	2.3	13	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	22.1
		12/13/94	<0.5	4.7	2.7	11	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	18.4
		06/21/95	<0.21	6.2	<0.13	14.7	<0.27	<0.24	<0.12	<0.18	<0.30	<0.17	<0.22	<0.28	<0.19	20.9
	EX-7	11/07/91		37.0	5	350		3.3	<0.5	<0.5	1.5		<0.5	395.3		796.0
		12/18/91		44.0	5.1	241		<0.5	<0.5	<0.5	2.3		<0.5	290.1		584.7
		11/11/93	<0.5	27.0	8.1	160	<0.3	<0.5	0.6	0.7	3.6	<0.5	<0.5	<0.5	<0.5	200.0
		12/13/94	<0.5	19.6	0.8	62.8	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	83.2
		06/21/95	<.021	60.6	<0.13	105	<0.27	<0.24	<0.12	<0.18	2.4	<0.17	<0.22	<0.28	<0.19	168.0
Southeast Extraction System	SES	11/11/93	<0.5	<0.5	<0.5	<0.5	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.0
		08/16/94	<5	1.7	25	130	<5	NA	NA	NA	NA	NA	NA	NA	NA	156.7
		06/21/95	<0.21	1.7	14	90	<0.27	<0.24	0.8	1.1	<0.30	<0.17	<0.22	<0.28	<0.19	107.6

Notes:

All values listed are in parts per billion

*Only parameters detected during the RA sampling events (11/93 to present) are listed.
For these parameters, results from the RI investigation (1991) are included for reference.

ES = Enforcement Standard, PAL = Preventative Action Limit
Bold = above ES, Underline = above PAL
ND = not detected, NA = not analyzed
*=quarterly monitoring point. All other monitoring points are sampled annually.

Table 3. Ground-Water Discharge

	WELL	DATE	Time for 5 gallons (sec)	Flow Rate (gpm)	Time Since Last Sampled (min)	Quarterly Discharge (gallons)	Cumulative Discharge (gallons)	PCE Quarterly detected (ug/l)	PCE Quarterly removed (lb)	PCE cumulative removed (lb)	1,1,1-TCA Quarterly detected (ug/l)	1,1,1-TCA Quarterly removed (lb)	1,1,1-TCA cumulative removed (lb)	TCE Quarterly detected (ug/l)	TCE Quarterly removed (lb)	TCE cumulative removed (lb)	Total VOCs Quarterly detected (ug/l)	Total VOCs Quarterly removed (lb)	Total VOCs cumulative removed (lb)
Plant #1	CSES	11/11/93	NM	NA	0.00E+00	NA	NA	<0.5	0.0E+00	0.0E+00	<0.5	0.0E+00	0.0E+00	<0.5	0.0E+00	0.0E+00	0.0	0.0E+00	0.0E+00
		06/16/94	14.0	21.4	3.12E+05	6.7E+06	6.7E+06	<0.5	0.0E+00	0.0E+00	<0.5	0.0E+00	0.0E+00	<0.5	0.0E+00	0.0E+00	0.0	0.0E+00	0.0E+00
Chip Storage		08/16/94	19.9	15.1	8.78E+04	1.3E+06	8.0E+06	<1	0.0E+00	0.0E+00	1200.0	1.3E+01	1.3E+01	360.0	4.0E+00	4.0E+00	1560.0	1.7E+01	1.7E+01
	**	11/15/94	18.3	16.4	1.31E+05	2.1E+06	1.0E+07	<1	0.0E+00	0.0E+00	1200.0	2.1E+01	3.5E+01	360.0	6.4E+00	1.0E+01	1560.0	2.8E+01	4.5E+01
	*	11/23/94	18.3	16.4	1.15E+04	1.9E+05	1.0E+07	<1	0.0E+00	0.0E+00	1200.0	1.9E+00	3.7E+01	360.0	5.7E-01	1.1E+01	1560.0	2.5E+00	4.8E+01
		12/17/94	off	0.0	3.46E+04	0.0E+00	1.0E+07	NA	0.0E+00	0.0E+00	NA	0.0E+00	3.7E+01	NA	0.0E+00	1.1E+01	0.0	0.0E+00	4.8E+01
		04/14/95	8.0	37.5	1.70E+05	0.0E+00	1.0E+07	NA	0.0E+00	0.0E+00	NA	0.0E+00	3.7E+01	NA	0.0E+00	1.1E+01	0.0	0.0E+00	4.8E+01
	**	05/02/95	13.0	23.1	2.59E+04	6.0E+05	1.1E+07	<1	0.0E+00	0.0E+00	1200.0	6.0E+00	4.3E+01	360.0	1.8E+00	1.3E+01	1560.0	7.8E+00	5.5E+01
		06/22/95	10.4	28.7	7.34E+04	2.1E+06	1.3E+07	<0.34	0.0E+00	0.0E+00	245.0	4.3E+00	4.7E+01	109.0	1.9E+00	1.5E+01	354.0	6.2E+00	6.2E+01
Plant #2	SES	11/11/93	NM	NA	0.00E+00	NA	NA	<0.5	0.0E+00	0.0E+00	<0.5	0.0E+00	0.0E+00	<0.5	0.0E+00	0.0E+00	0.0	0.0E+00	0.0E+00
		06/16/94	95.0	3.2	3.12E+05	9.9E+05	9.9E+05	<0.5	0.0E+00	0.0E+00	<0.5	0.0E+00	0.0E+00	<0.5	0.0E+00	0.0E+00	0.0	0.0E+00	0.0E+00
Southeast		08/16/94	115.9	2.6	8.78E+04	2.3E+05	1.2E+06	1.7	3.2E-03	3.2E-03	25.0	4.7E-02	4.7E-02	130.0	2.5E-01	2.5E-01	156.7	3.0E-01	3.0E-01
	**	11/15/94	26.4	11.4	1.31E+05	1.5E+06	2.7E+06	1.7	2.1E-02	2.4E-02	25.0	3.1E-01	3.6E-01	130.0	1.6E+00	1.9E+00	156.7	1.9E+00	2.2E+00
Extraction System	*	11/23/94	26.4	11.4	1.15E+04	1.3E+05	2.8E+06	1.7	1.9E-03	2.6E-02	25.0	2.7E-02	3.9E-01	130.0	1.4E-01	2.0E+00	156.7	1.7E-01	2.4E+00
		12/17/94	off	NA	3.46E+04	0.0E+00	2.8E+06	NA	0.0E+00	2.6E-02	NA	0.0E+00	3.9E-01	NA	0.0E+00	2.0E+00	0.0	0.0E+00	2.4E+00
		04/14/95	150.0	2.0	1.70E+05	0.0E+00	2.8E+06	NA	0.0E+00	2.6E-02	NA	0.0E+00	3.9E-01	NA	0.0E+00	2.0E+00	0.0	0.0E+00	2.4E+00
	**	05/02/95	26.0	11.5	2.59E+04	3.0E+05	3.1E+06	1.7	4.2E-03	3.0E-02	25.0	8.2E-02	4.5E-01	130.0	3.2E-01	2.3E+00	156.7	3.9E-01	2.8E+00
		06/22/95	35.6	8.4	7.34E+04	6.2E+05	3.8E+06	1.7	8.8E-03	3.9E-02	14.0	7.2E-02	5.2E-01	90.0	4.6E-01	2.8E+00	105.7	5.5E-01	3.3E+00
Totals										3.9E-02			4.7E+01			1.7E+01			6.5E+01