Amended
Groundwater Treatment Facility

Rotron, Inc.
Woodstock Facility
Woodstock, New York

September 1997

THE Chazen COMPANIES

Prepared For:

Rotron, Inc.
9 Hasbrouck Lane
Woodstock, New York
12498

Project # 49531.00

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Groundwater Treatment Facility

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THE *Chazen* COMPANIES

Prepared by:

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The Chazen Companies
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1.0 INTRODUCTION

This report summarizes amended construction details and operating requirements for the groundwater treatment facility (treatment facility) on Rotron Inc.'s (Rotron)'s Woodstock facility in Woodstock, New York.

The treatment facility was initially engineered and installed by Groundwater Technology, Inc. (GTI) to treat effluent from 7 shallow groundwater retrieval wells. The treatment system consisted of a pre-treatment sedimentation and mixing tank, from which influent wastewater was batch treated through an air stripper. Effluent from the stripper combined with effluent from Rotron's sanitary system and was released to SPDES point 001. Design and installation of the GTI groundwater remedial system was conducted under NYSDEC review as part of an Investigative Program carried out by Rotron between 1982 and 1986 to delineate and remediate VOCs detected at the site.

Following installation of the GTI treatment facility in 1987, Rotron installed a 1,000-gallon receiving tank from which stripper effluent could optionally be cycled through Granular Activated Carbon (GAC). In 1996, Rotron added an eighth groundwater extraction well, RW-8. In December of 1996, Chazen submitted engineering plans describing several minor system changes. These were subsequently approved by the NYSDEC.

On August 12, 1997, Rotron's stripper tower was replaced with a larger column to provide reserve treatment capability in the event ongoing OU-2 remedial activities require additional wastewater treatment. This report summarizes the capabilities of the new stripper tower and provides updated as-built engineering drawings for the system. The former stripper tower is being used by Rotron at another site.

2.0 TREATMENT FACILITY COMPONENTS

Construction details for the original components of the treatment facility were previously provided (Chazen, 1996) to the NYSDEC for review and approval. The amended treatment system imposes essentially no change to the former system with the exception of new dimensions for the stripper tower and blower, and installation of an optional recirculation line which can be used to divert stripper effluent back through the stripper for additional polishing, if warranted or desired. The attached engineering drawings show these changes.

3.0 TREATMENT EVALUATION

The packed tower of the new stripper tower has a diameter of 24 inches and a length of 20 feet and is packed with 2" Jaeger plastic tripack media. The blower

provides air flows of approximately 1000 cfm. Hydraulic flows of up to 30 gpm have been field tested and the system is expected to be capable of handling hydraulic flows above 60 gpm, if needed in the future. The electrical system controlling the replacement stripper is unchanged from the previous system and includes a controller to activate the blower, a transfer pump hi/low switch, and an influent tank high-level shut-off.

The dosing rate from the receiving tank into the new stripper is set at 20 gpm, which matches the maximum influent flow rate from the 8 wells. Normally, total flow from the 8 wells has been observed to be substantially less than 20 gpm. Stripper effluent goes to the existing bubble aeration chamber. When the influent stream from the 8 wells reaches 20 gpm throughflow in the bubble aeration chamber is continuous and average residence time in the 1,000 gallon tank is approximately 50 minutes. When the influent stream drops below 20 gpm, residence time in the bubble aeration chamber is increased since water only leaves the chamber when displaced by discharge from the stripper.

Performance calculations completed using Airstrip/Release 1.2[1], stripper performance software indicates that the air stripper should easily meet an effluent target of $\pm$.15 ppb, which is a level which has routinely been treatable to $\leq$ 5 ppb after final polishing in the aeration chamber. The model runs were completed for TCE since this compound comprises the dominant VOC in water entering the treatment facility and more than 85% of the VOC loading (Appendix 1). An average influent concentration of 1500 ppb was used for the analyses since this exceeds the VOC concentration detected during most sampling events. Two model runs were completed to evaluate system capability under winter and summer air-temperature conditions. In general, the effective temperature of the air passing through the stripper will rapidly equilibrate to, or exceed, the ambient temperature of the groundwater, based on heat-exchange between the water and air and warming occurring in the blower. Nonetheless, as a conservative consideration the cold-season analysis was completed using an air temperature value of 45 degrees F which is more than 5 degrees cooler than the expected influent water temperature.

Both analyses indicate that the stripper should fully treat influent concentrations of TCE to levels below the target discharge concentration of $\pm$ 15 ppb. Additional polishing is still provided continuously by the bubble aeration chamber. Either GAC or additional recirculation of stripper effluent through the air stripper can also be implemented, if warranted. No automated controls for either the GAC or additional stripper circulation are currently installed.

Air emissions related to this treatment facility are essentially unchanged from the previous submission because the waste stream is unchanged and the total VOC

[1] Airstrip, 2309 Garner Ave., Ames IA 50010

emission is therefore not impacted. Preliminary sample data indicate that the stripper is performing in accordance with the calculations (Appendix B). Confirmatory laboratory data are expected.

4.0 OPERATIONS & MAINTENANCE

The following operations and maintenance tasks should be conducted at the treatment facility. O&M tasks previously approved by the NYSDEC are simply reiterated. No new O&M tasks are warranted as a result of the stripper replacement, as highlighted in italics.

Monitoring and Maintenance Schedule

System Component	Maintenance Check	Frequency
A. Overflow master override	Trip and reset	Monthly
B. Transfer pump	Bearing seals audible check	Twice monthly
	Probe and control system	Monthly
	Flow rate through stripper	Twice monthly
C. Air stripper	Flowrate (air)	Twice monthly
	Nozzle fouling/ clogging packing fouled	When efficiency diminishes
	Lubricate squirrel cage bearings	Monthly
D. Polishing Tank	Inspect tank for floating debris	Monthly
	Inspect bubbler for even distribution of bubbles	Monthly

Failure of any of these inspection components should be corrected promptly. Recovery of groundwater drawdown in the bedrock aquifer system occurs over a period of not less than 24 hours; therefore, the treatment facility may safely be turned off for up to 24 hours before non-pumping groundwater conditions are re-established.

REFERENCES

The Chazen Companies, December 1996. Groundwater Treatment Facility, Rotron Inc., Woodstock Facility, Woodstock, New York.

APPENDIX 1

Air Stripper Performance Models

Airstrip Release 1.2

The model accepts input data describing the tower, media, air stream, water stream, and contaminant stream. Since wastewater flows through the system at a controlled rate of 20 gpm and the blower rate is constant, the only variables of concern are air temperature and contaminant concentration. TCE was used as the contaminant of analysis at a conservative influent concentration of 1,500 ppb, which exceeds the majority of historic sample concentration values. Two resulting analyses are considered herein:

1. Simulation of winter conditions. Air is heated by water to a minimum of 45 degrees F based on heat capcity of groundwater

2. Simulation of all other seasons: Air is 55 degrees F or warmer. Analysis is run at 70 degrees F.

Model Run 1

Variable Descriptor	Input
Air Temperature	45 degrees F
Dose rate	20 gpm
Liquid loading on 2' diameter stripper	20 gpm/pi x $(1\text{foot})^2$ = 6.4 gpm/ft^2
air/water ratio with 1000 cfm blower	1000 cfm/(20 gpm/7.48gpcf) = 374:1

Model Run 2

Variable Descriptor	Input
Air Temperature	70 degrees F
Dose rate	20 gpm
Liquid loading on 2' diameter stripper	20 gpm/pi x $(1\text{foot})^2$ = 6.4 gpm/ft^2
air/water ratio with 1000 cfm blower	1000 cfm/(20 gpm/7.48gpcf) = 374:1

******* A N A L Y S I S OF S T R I P P I N G T O W E R *******

PROJECT : Rotron Woodstock: Winter DATE : 9/12/1997

ENGINEER : Todd J. Syska PAGE : 1/2

PHYSICAL CONSTANTS

Design temperature	:	45.0 degrees F.
Density of water	:	62.4 lb/ft^3
Density of air	:	0.0786 lb/ft^3
Viscosity of water	:	9.56E-04 lb/ft.s
Viscosity of air	:	1.15E-05 lb/ft.s
Surface tension of water	:	75 dyne/cm
Atmospheric pressure	:	1.00 atm

CONTAMINANT PROPERTIES

Name	:	Trichloroethylene
Molecular weight	:	131.3 g/mol
Boiling point	:	189 degrees F.
Molal volume at boiling point	:	0.1071 L/mol
Henry's Constant	:	0.38000
Temperature Constant	:	1909 deg K
Molecular diffusivity in air	:	8.36E-05 ft^2/s
Molecular diffusivity in water	:	6.07E-09 ft^2/s

PACKING PROPERTIES

Name	:	Jaeger Tripacks
Packing Material	:	Plastic
Nominal Size	:	2.00 inch
Specific Area	:	47.9 ft^2/ft^3
Critical surface tension	:	33 dyne/cm
Packing depth	:	20.0 ft
Air friction factor	:	15

******* A N A L Y S I S OF S T R I P P I N G T O W E R *******

PROJECT : Rotron Woodstock: Winter DATE : 9/12/1997

ENGINEER : Todd J. Syska PAGE : 2/2

LOADING RATES

Water mass loading rate	:	8.91E-01 lb/ft^2.s	*
Air mass loading rate	:	4.21E-01 lb/ft^2.s	*
Water volumetric loading rate	:	6.40E+00 gpm/ft^2	*
Air volumetric loading rate	:	2.40E+03 gpm/ft^2	*
Air pressure gradient	:	0.130 " H2O/ft	#
Volumetric air/water ratio	:	375.0	
Stripping factor	:	75.2	

MASS TRANSFER PARAMETERS

Percentage of packing area wetted	:	35.5 %	
Wetted packing area	:	17.0 ft^2/ft^3	*
Transfer rate constant in water	:	2.66E-04 ft/s	
Transfer rate constant in air	:	5.06E-02 ft/s	
Overall transfer rate constant	:	2.59E-04 ft/s	
Overall mass transfer coefficient	:	4.40E-03 1/s	
NTU	:	6.1322	
HTU	:	3.2615 ft	

CONTAMINANT REMOVAL

Influent concentration	:	1.50 mg/L	
Effluent concentration	:	3.49E+00 ug/L	
Fraction removed	:	99.8 %	
Mass of contaminant removed	:	1.15E-01 lb/ft^2.day	*
Concentration in airstream	:	1.13E-01 mg/ft^3	

* Expressed per unit of stripping tower cross-sectional area
\# Expressed per unit of tower length

******* A N A L Y S I S OF S T R I P P I N G T O W E R *******

PROJECT : Rotron Woodstock: Summer DATE : 9/12/1997

ENGINEER : Todd J. Syska PAGE : 1/2

PHYSICAL CONSTANTS

Design temperature	:	70.0 degrees F.
Density of water	:	62.3 lb/ft^3
Density of air	:	0.0749 lb/ft^3
Viscosity of water	:	6.57E-04 lb/ft.s
Viscosity of air	:	1.19E-05 lb/ft.s
Surface tension of water	:	73 dyne/cm
Atmospheric pressure	:	1.00 atm

CONTAMINANT PROPERTIES

Name	:	Trichloroethylene
Molecular weight	:	131.3 g/mol
Boiling point	:	189 degrees F.
Molal volume at boiling point	:	0.1071 L/mol
Henry's Constant	:	0.38000
Temperature Constant	:	1909 deg K
Molecular diffusivity in air	:	9.17E-05 ft^2/s
Molecular diffusivity in water	:	9.25E-09 ft^2/s

PACKING PROPERTIES

Name	:	Jaeger Tripacks
Packing Material	:	Plastic
Nominal Size	:	2.00 inch
Specific Area	:	47.9 ft^2/ft^3
Critical surface tension	:	33 dyne/cm
Packing depth	:	20.0 ft
Air friction factor	:	15

******* A N A L Y S I S OF S T R I P P I N G T O W E R *******

ROJECT : Rotron Woodstock: Summer DATE : 9/12/1997

ENGINEER : Todd J. Syska PAGE : 2/2

LOADING RATES

ater mass loading rate	:	8.91E-01 lb/ft^2.s	*
Air mass loading rate	:	4.02E-01 lb/ft^2.s	*
ater volumetric loading rate	:	6.41E+00 gpm/ft^2	*
ir volumetric loading rate	:	2.40E+03 gpm/ft^2	*
Air pressure gradient	:	0.121 " H2O/ft	#
olumetric air/water ratio	:	375.0	
tripping factor	:	150.2	

MASS TRANSFER PARAMETERS

ercentage of packing area wetted	:	37.3 %	
etted packing area	:	17.9 ft^2/ft^3	*
Transfer rate constant in water	:	4.33E-04 ft/s	
ransfer rate constant in air	:	5.22E-02 ft/s	
verall transfer rate constant	:	4.24E-04 ft/s	
verall mass transfer coefficient	:	7.58E-03 1/s	
NTU	:	10.5659	
TU	:	1.8929 ft	

CONTAMINANT REMOVAL

Influent concentration	:	1.50 mg/L	
ffluent concentration	:	4.12E-02 ug/L	
raction removed	:	100.0 %	
Mass of contaminant removed	:	1.15E-01 lb/ft^2.day	*
oncentration in airstream	:	1.13E-01 mg/ft^3	

* Expressed per unit of stripping tower cross-sectional area

\# Expressed per unit of tower length

APPENDIX 2

Preliminary Performance Data

MEMORANDUM

To: Russell Urban Mead

From: Kim Baines

Date: September 12, 1997

Re: Rotron Woodstock Stripping Tower Monitoring
Job # 49531.00

Attached are the chromatograms for the two samples collected yesterday. I ran low point (5 ppb) and mid point (100 ppb) standards and both were within allowable tolerances (chromatograms attached).

Samples and standards were both run by heated headspace analysis. The calibration curve was based on the same heated headspace analysis at the same temperature that the tower samples were run at.

C:\DATA\PROJECTS\49531-1.010\TOWERSAM.SAM

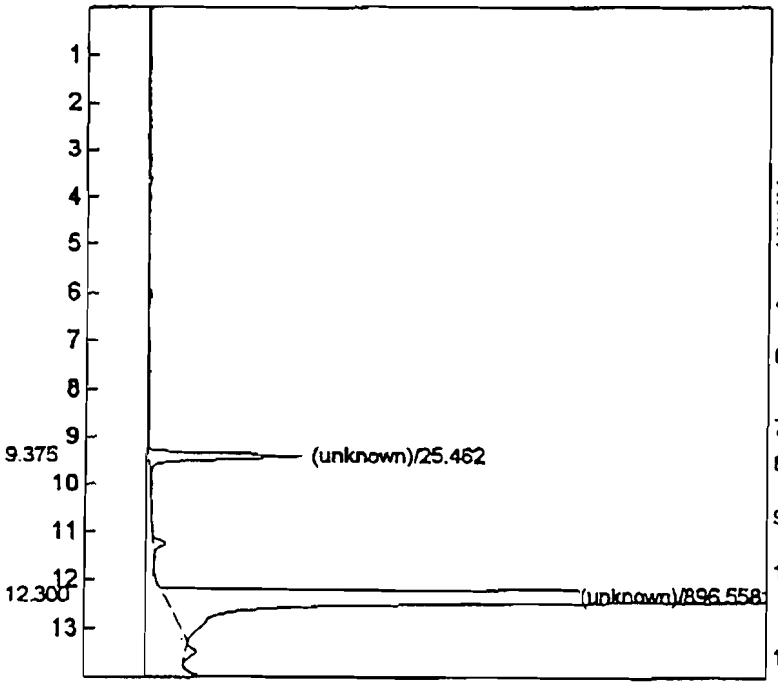
Lab name: Chazen Environmental
Client: Rotron Woodstock
Client ID: 49531.00
Collected: 09-11-97
Analysis date: 09/12/1997 12:28:55
Method: GW Headspace
Description: Ch. 1 - PID - Detector
Column: Restek 60 Meter MXT-1
Carrier: He @ 11 psi HP
Temp. prog: rotron.tem
Data file: 1wdswt5.CHR (c:\peakw95\9-12-97)
Sample: WD-RW-008-INF-XF
Operator: K. Baines/T. Girard

Temperature program:

	Hold	Ramp	Ramp
40.00	5.000	10.000	130.00

-1.250mV 12.500mV

Retentio



Component	Retention	Area	External	Units
		0.000	0.00	

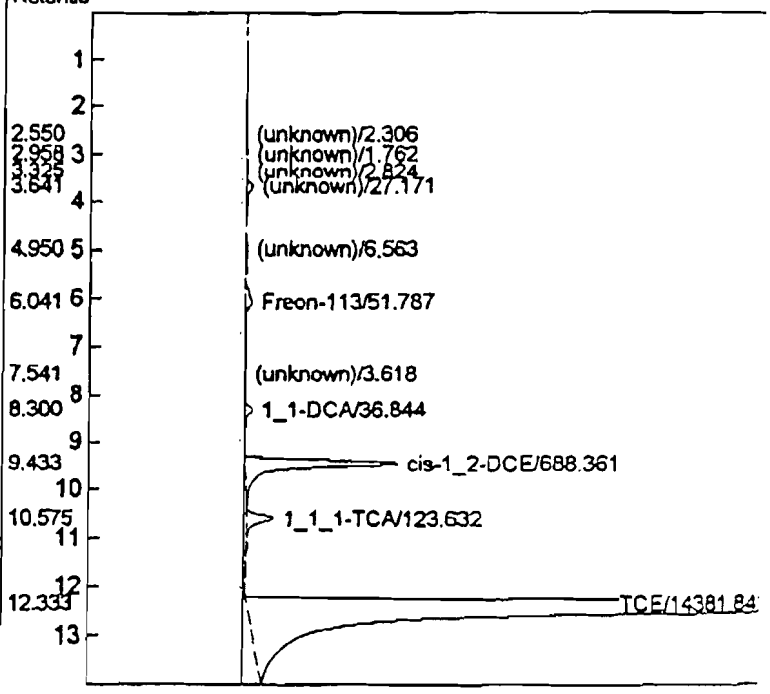
Lab name: Chazen Environmental
Client: Rotron Woodstock
Client ID: 49531.00
Collected: 09-11-97
Analysis date: 09/12/1997 12:28:55
Method: GW Headspace
Description: Ch. 2 - DELCD - Detector
Column: Restek 60 Meter MXT-1
Carrier: He @ 11 psi HP
Temp. prog: Normal.tem
ontrol filename: C:\PEAKW95\gw-solvent.con
Data file: 2wdswt5.chr (c:\peakw95\9-12-97)
Sample: WD-RW-008-INF-XF
Operator: K. Baines/T. Girard
Comments: Water INFLUENT SAMPLE FROM RW-08

Temperature program:

	Hold	Ramp	Ramp
0.00	60.000	0.000	0.00

-62.080mV 212.896m

Retentio

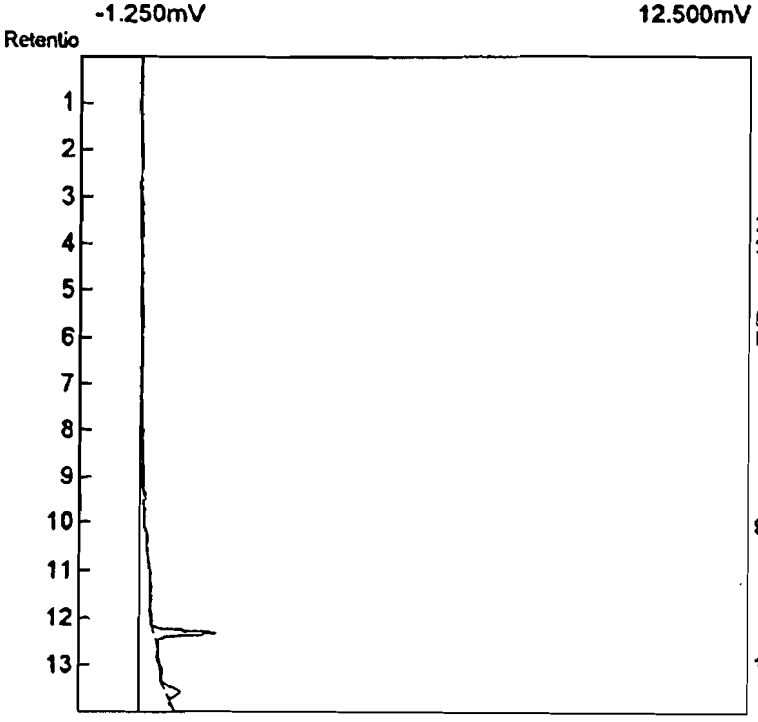


Component	Retention	Area	External	Units
Freon-113	6.041	51.787	2.72	ppb
1_1-DCA	8.300	36.844	2.55	ppb
cis-1_2-DCE	9.433	688.361	64.19	ppb
1_1_1-TCA	10.575	123.632	6.04	ppb
TCE	12.333	14381.842	1522.72	ppb
		15282.466	1598.22	

Lab name: Chazen Environmental
Client: Rotron Woodstock
Client ID: 49531.00
Collected: 09-11-97
Analysis date: 09/12/1997 12:07:14
Method: GW Headspace
Description: Ch. 1 - PID - Detector
Column: Restek 60 Meter MXT-1
Carrier: He @ 11 psi HP
Temp. prog: rotron.tem
Data file: 1wdswt4.chr (c:\peakw95\9-12-97)
Sample: WD-RW-008-EFF-XF
Operator: K. Baines/T. Girard
Comments: Water EFFLUENT SAMPLE FROM TOWER

Temperature program:

	Hold	Ramp	Ramp
40.00	5.000	10.000	130.00

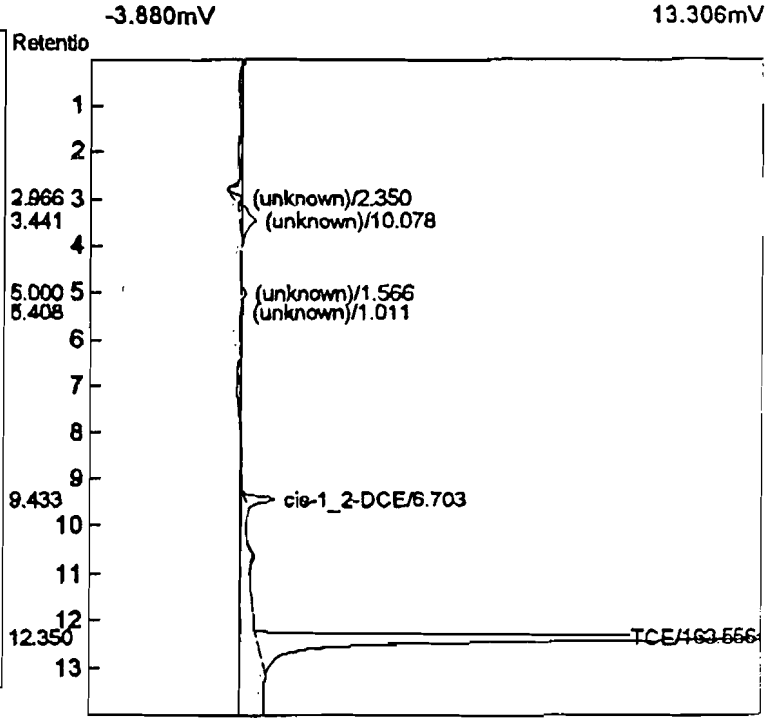


Component	Retention	Area	External	Units
		0.000	0.00	

Lab name: Chazen Environmental
Client: Rotron Woodstock
Client ID: 49531.00
Collected: 09-11-97
Analysis date: 09/12/1997 12:07:14
Method: GW Headspace
Description: Ch. 2 - DELCD - Detector
Column: Restek 60 Meter MXT-1
Carrier: He @ 11 psi HP
Temp. prog: Normal.tem
ontrol filename: C:\PEAKW95\gw-solvent.con
Data file: 2wdswt4.chr (c:\peakw95\9-12-97)
Sample: WD-RW-008-EFF-XF
Operator: K. Baines/T. Girard
Comments: Water EFFLUENT SAMPLE FROM TOWER

Temperature program:

	Hold	Ramp	Ramp
0.00	60.000	0.000	0.00

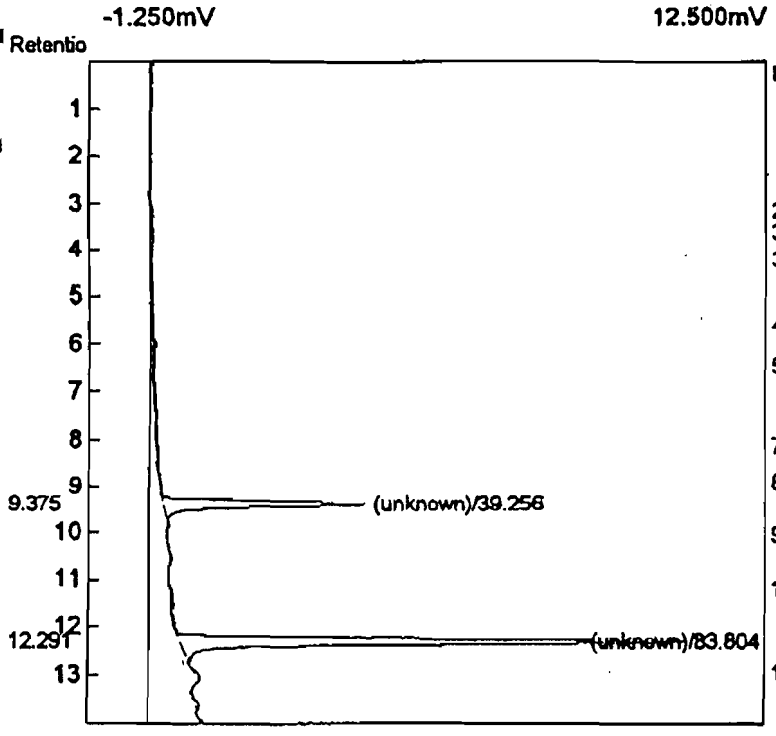


Component	Retention	Area	External	Units
cis-1_2-DCE	9.433	6.703	0.61	ppb
TCE	12.350	163.556	9.32	ppb
		170.259	9.93	

Lab name: Chazen Environmental
Client: Rotron Woodstock
Client ID: 49531.00
Collected: 09-11-97
Analysis date: 09/12/1997 10:58:27
Method: GW Headspace
Description: Ch. 1 - PID - Detector
Column: Restek 60 Meter MXT-1
Carrier: He @ 11 psi HP
Temp. prog: rotron.tem
Data file: 1wdswt2.chr (c:\peakw95\9-12-97)
Sample: 100 ppb Standard
Operator: K. Baines/T. Girard

Temperature program:

	Hold	Ramp	Ramp
40.00	5.000	10.000	130.00

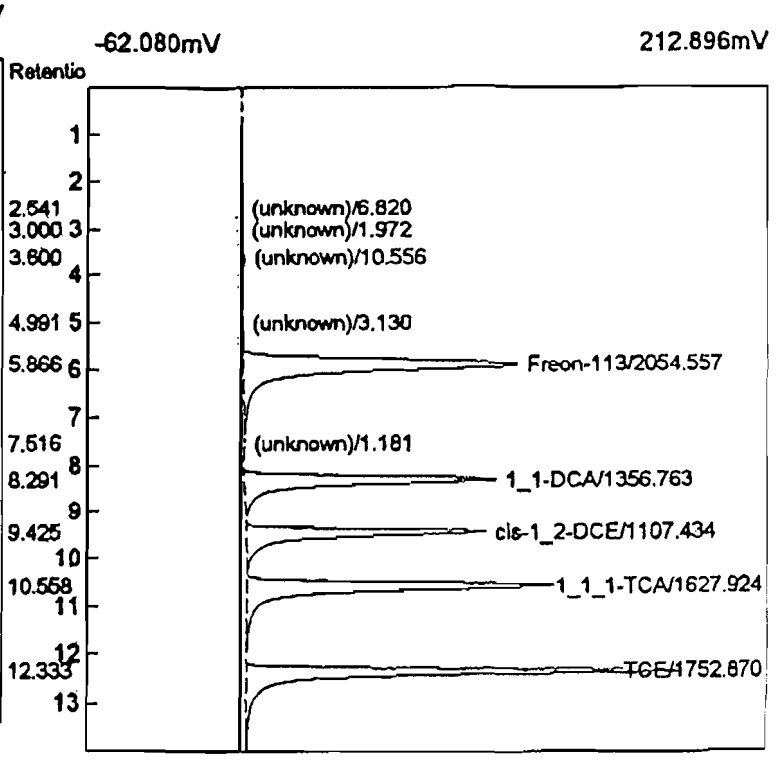


Component	Retention	Area	External	Units
		0.000	0.00	

Lab name: Chazen Environmental
Client: Rotron Woodstock
Client ID: 49531.00
Collected: 09-11-97
Analysis date: 09/12/1997 10:58:27
Method: GW Headspace
Description: Ch. 2 - DELCD - Detector
Column: Restek 60 Meter MXT-1
Carrier: He @ 11 psi HP
Temp. prog: Normal.tem
ontrol filename: C:\PEAKW95\gw-solvent.con
Data file: 2wdswt2.chr (c:\peakw95\9-12-97)
Sample: 100 ppb Standard
Operator: K. Baines/T. Girard

Temperature program:

	Hold	Ramp	Ramp
0.00	60.000	0.000	0.00

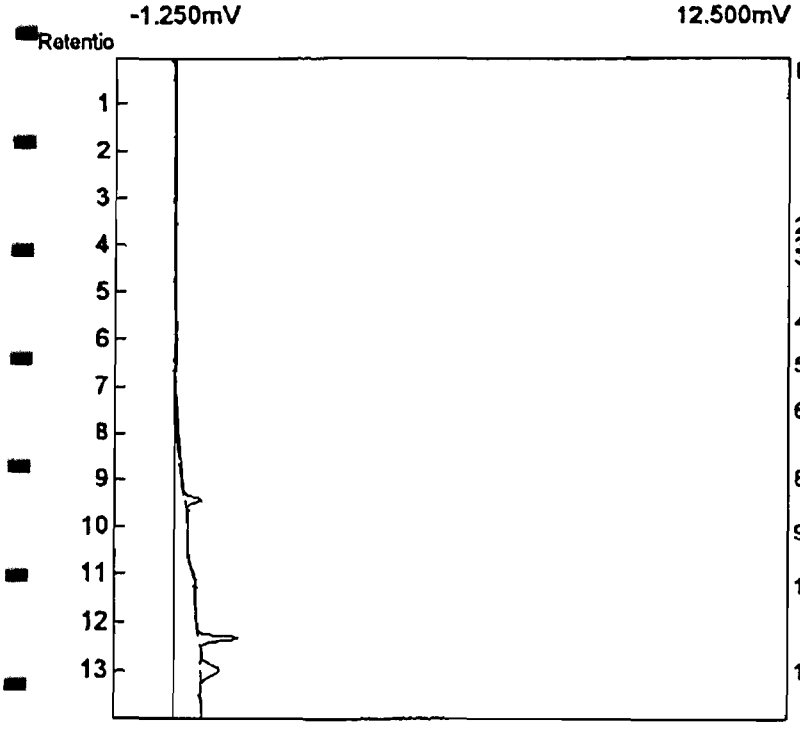


Component	Retention	Area	External	Units
Freon-113	5.866	2054.557	116.60	ppb
1_1-DCA	8.291	1356.763	107.28	ppb
cis-1_2-DCE	9.425	1107.434	108.50	ppb
1_1_1-TCA	10.558	1627.924	99.75	ppb
TCE	12.333	1752.870	105.22	ppb
		7899.548	537.35	

Lab name: Chazen Environmental
Client: Rotron Woodstock
Client ID: 49531.00
Collected: 09-11-97
Analysis date: 09/12/1997 11:47:25
Method: GW Headspace
Description: Ch. 1 - PID - Detector
Column: Restek 60 Meter MXT-1
Carrier: He @ 11 psi HP
Temp. prog: rotron.tem
Data file: 1wdswt3.chr (c:\peakw95\9-12-97)
Sample: 5 ppb Standard
Operator: K. Baines/T. Girard

Temperature program:

	Hold	Ramp	Ramp
40.00	5.000	10.000	130.00

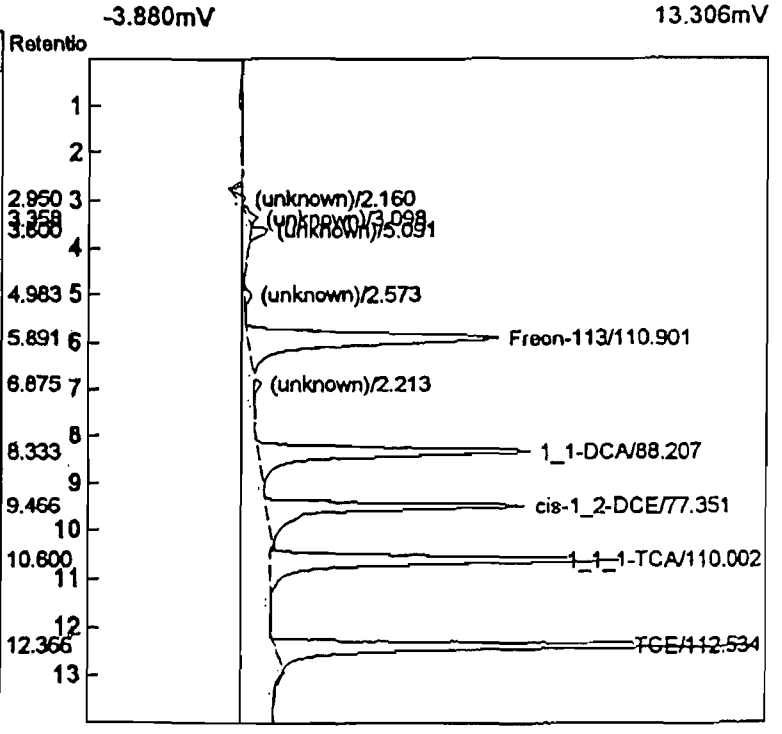


Component	Retention	Area	External	Units
		0.000	0.00	

Lab name: Chazen Environmental
Client: Rotron Woodstock
Client ID: 49531.00
Collected: 09-11-97
Analysis date: 09/12/1997 11:47:25
Method: GW Headspace
Description: Ch. 2 - DELCD - Detector
Column: Restek 60 Meter MXT-1
Carrier: He @ 11 psi HP
Temp. prog: Normal.tem
ontrol filename: C:\PEAKW95\gw-solvent.con
Data file: 2wdswt3.chr (c:\peakw95\9-12-97)
Sample: 5 ppb Standard
Operator: K. Baines/T. Girard

Temperature program:

	Hold	Ramp	Ramp
0.00	60.000	0.000	0.00



Component	Retention	Area	External	Units
Freon-113	5.891	110.901	6.51	ppb
1_1-DCA	8.333	88.207	6.54	ppb
cis-1_2-DCE	9.466	77.351	7.06	ppb
1_1_1-TCA	10.600	110.002	6.03	ppb
TCE	12.366	112.534	6.41	ppb
		498.995	32.54	

CHAIN OF CUSTODY RECORD

CHAZEN ENVIRONMENTAL SERVICES, INC.

Dutchess County Office:
P.O. Box 3479, 229-B Page Park, Manchester Road
Poughkeepsie, New York 12603
Phone: (914)454-3980 Fax: (914)454-4026

Orange County Office:
201 Ward Street, Suite G
Montgomery, New York 12549
Phone: (914)457-1521 Fax: (914)457-1523

Capital District Office:
1407 Route, Building 2
Clifton Park, New York 12065
Phone: (518)371-0929 Fax: (518)371-0623

Attention: Russell / Urban Mead
Project Name: Cotron Woodstock
Location: RW-8 Stripping Tower
Project Number: 49531.00
Project Manager: J. McIver / Ram

Laboratory: Chazen
Turn Around Time: ASAP
Level: —

SAMPLE ID	DATE	TIME	Composite	Grab Sample	Matrix *	Total Number of Containers	40 ml Vial: Preserved	40 ml Vial: Un-Preserved	Liter Un-Preserved: Glass - Clear	Liter Un-Preserved: Glass - Amber	Liter Un-Preserved: Plastic	Liter Preserved: Sulfuric	Liter Preserved: Nitric	Liter Preserved: Sodium Hydroxide	Liter Preserved: Other	Liter Preserved: Organic Washed	500 ml: Field Fixed Dissolved Oxygen	250 ml: Glass	250 ml: Plastic	125 ml: Sterile Plastic	Glass: Soil Sample	Other	ANALYSIS REQUESTED
WD-RW-008-INF-XX	9/11/97	2:05		X	GW	1	✓																Volatile / COCs
WD-RW-008-EFF-XX	9/11/97	2:10		X	GW	1	✓																" "

* Please Identify Matrix:
GW - Groundwater SW - Surface Water DW - Drinking Water SS - Soil Sample SD - Sediment Sample SL - Sludge PS - Process Sample Other (Please Specify)

Relinquished By:
Name: J. McIver (*Please Print*) Date: 9/11/97 Time: 17:00 Company: CES, Inc.

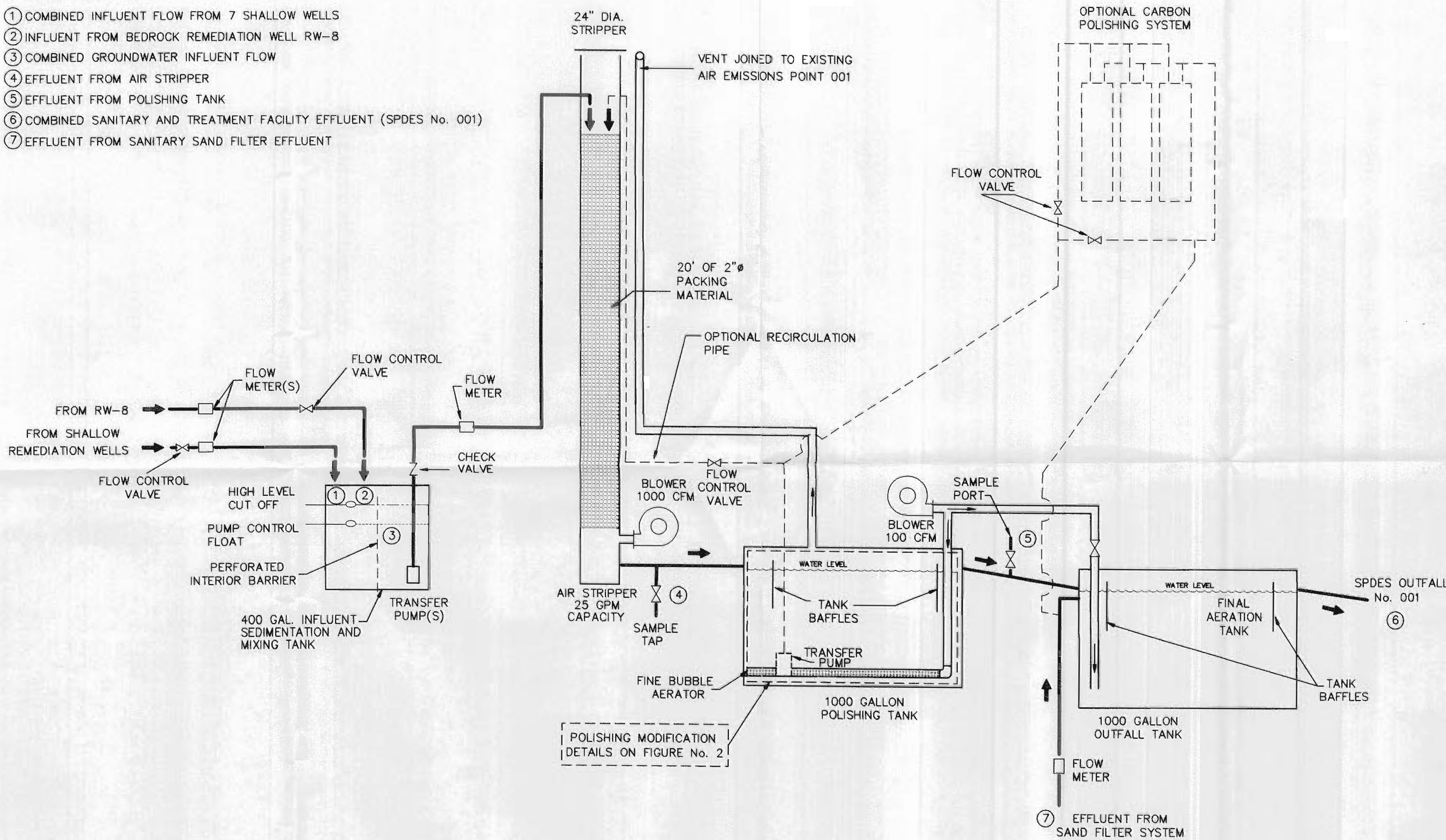
Received By:
Name: Kim L. Baines (*Please Print*) Date: 9/12/97 Time: 09:00 Company: TCC

Received By:
Name: ____________ (*Please Print*) Date: ________ Time: ________ Company: ____________

PLEASE NOTE: Pink Sheet - Chazen Copy Yellow Sheet - Laboratory File Copy White Top Sheet - Report Copy (Please return along with completed Lab Results)

SAMPLE LOCATIONS

(1) COMBINED INFLUENT FLOW FROM 7 SHALLOW WELLS
(2) INFLUENT FROM BEDROCK REMEDIATION WELL RW-8
(3) COMBINED GROUNDWATER INFLUENT FLOW
(4) EFFLUENT FROM AIR STRIPPER
(5) EFFLUENT FROM POLISHING TANK
(6) COMBINED SANITARY AND TREATMENT FACILITY EFFLUENT (SPDES No. 001)
(7) EFFLUENT FROM SANITARY SAND FILTER EFFLUENT



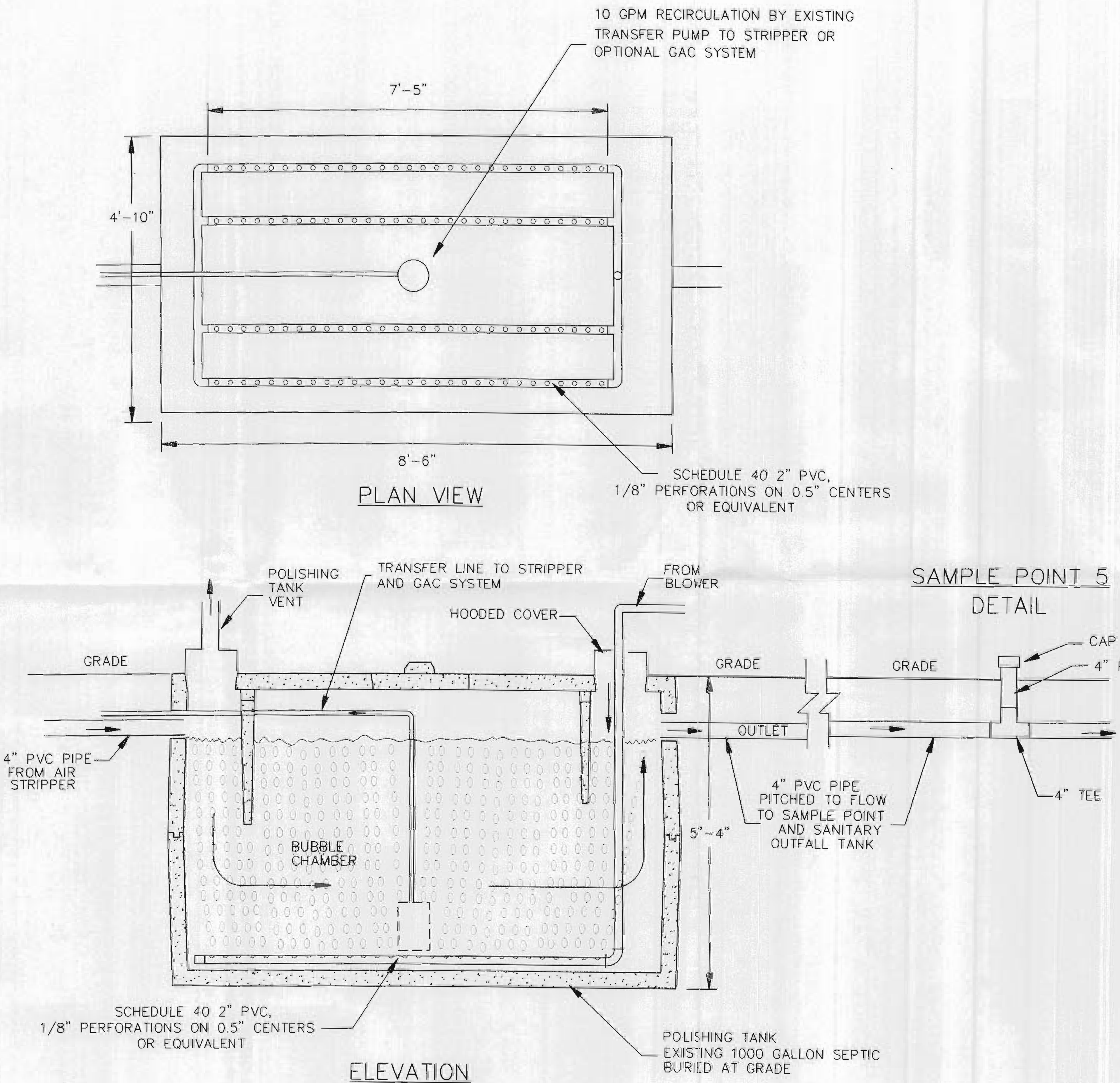
NOTES:
1- APPROVED ENGINEERING DESIGN FOR THE INFLUENT MIXING TANK(S), 12" AIR STRIPPER, AND DISCHARGE TO THE SANITARY OUTFALL TANK PREVIOUSLY COMPLETED BY GROUNDWATER TECHNOLOGIES, Inc. 1987.
2- INSTALLATION OF 1000 GALLON POLISHING TANK AND OPTIONAL GAC SECONDARY TREATMENT DESIGNED AND INSTALLED BY ROTRON, Inc., DATE UNKNOWN
3- DESIGN AND INSTALLATION OVERSIGHT OF WELL # RW-8, BUBBLE AERATION IN POLISHING CHAMBER, AND SAMPLE PORT 5 COMPLETED BY CHAZEN ENGINEERING AND LAND SURVEYING CO., P.C., 1996.
4- DESIGN AND INSTALLATION OVERSIGHT OF 24" REPLACEMENT AIR STRIPPER AND STRIPPER EFFLUENT RECIRCULATION PIPING - CHAZEN ENGINEERING AND LAND SURVEYING CO., P.C., 1997.

rev	date	description
1	8/26/97	REV. VENT & OPTIONAL PIPING

CHAZEN ENVIRONMENTAL SERVICES, INC.

project: EG&G ROTRON
SCHEMATIC DIAGRAM FOR GROUNDWATER TREATMENT FACILITY
title: WOODSTOCK SITE
WOODSTOCK, NEW YORK

drawn M.L.M. | checked T.S.
date 8/2/96 | scale NONE
project no. 49531.00
sheet no. FIGURE 1


10 GPM RECIRCULATION BY EXISTING
TRANSFER PUMP TO STRIPPER OR
OPTIONAL GAC SYSTEM
7'-5"
4'-10"
8'-6"
SCHEDULE 40 2" PVC,
1/8" PERFORATIONS ON 0.5" CENTERS
OR EQUIVALENT
PLAN VIEW
POLISHING
TANK
VENT
TRANSFER LINE TO STRIPPER
AND GAC SYSTEM
FROM
BLOWER
HOODED COVER
GRADE
GRADE
GRADE
4" PVC PIPE
FROM AIR
STRIPPER
OUTLET
BUBBLE
CHAMBER
5'-4"
4" PVC PIPE
PITCHED TO FLOW
TO SAMPLE POINT
AND SANITARY
OUTFALL TANK
SAMPLE POINT 5
DETAIL
CAP
4" PVC
TO OUTFALL TANK
4" TEE
SCHEDULE 40 2" PVC,
1/8" PERFORATIONS ON 0.5" CENTERS
OR EQUIVALENT
POLISHING TANK
EXISTING 1000 GALLON SEPTIC
BURIED AT GRADE
ELEVATION

POLISHING TANK AERATION DETAILS

CHAZEN ENVIRONMENTAL SERVICES, INC.

project: EG&G ROTRON

title: CONSTRUCTION DETAILS FOR NEW TREATMENT COMPONENTS

WOODSTOCK SITE
WOODSTOCK, NEW YORK

drawn M.L.M.	checked R.U.M.
date 10/17/96	scale NONE
project no. 49531.00	
sheet no. FIGURE 2	