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report. hw907014 . 2000 - 08-18 . POST-REMEDIATION .pdf  
GROUNDWATER MONITORING REPORT (2<sup>nd</sup>)

Project Site numbers will be proceeded by the following:

Municipal Brownfields - b

Superfund - hw

Spills - sp

ERP - e

VCP - v

BCP - c

non-releasable - put .nf.pdf

Example: letter.sp9875693.1998-01.Filespillfile.nf.pdf

907014

JSW —  
DSS —



August 18, 2000

Mr. Gerald Rider  
Chief, Operation and Maintenance Section  
Bureau of Hazardous Site Control  
Division of Environmental Remediation  
50 Wolf Road  
Room 252  
Albany, New York 12233-7010

RECEIVED

AUG 24 2000

NYSDEC - REG. 9  
FOIL  
✓REL UNREL

**Re: Tennessee Gas Pipeline Company Compressor Station 224  
Clymer, New York  
Second Annual Post-Remediation Groundwater Monitoring Report  
June 2000**

Dear Mr. Rider:

Tennessee Gas Pipeline Company (TGPL) is pleased to submit this letter report documenting the activities of the groundwater monitoring event conducted June 2000 at TGPL Compressor Station 224 in Clymer, New York. This monitoring event documents the Second Annual Post-Remediation groundwater sampling activities at this site. The scope of this monitoring event was performed in accordance with the *Final Documentation Report for Soil, Sediment, and Drainline Remediation Activities, Attachment 3, Operations and Maintenance Plan* (O&M Plan, BB&L, 1998). A brief description of the scope of work, results, and future scheduled events is presented below.

#### Scope of Work

Groundwater samples were collected from Monitoring Wells MW-2 and MW-6 by *Eco-Systems, Inc. (Eco-Systems)* on June 8, 2000. Groundwater sampling, analysis, methods and procedures were conducted in accordance with the *Quality Assurance Project Plan for Soil, Drainline Remediation, New York Compressor Stations* (BB&L, May 1995 and TGPL, February 1996) (QAPP). Table 1 includes monitoring well purging and sampling data from the two monitoring wells. A site map including the location of the monitoring wells is presented as Figure 1. A potentiometric map could not be constructed, based on the lack of groundwater monitoring points available. Historical potentiometric data did not indicate groundwater flow direction. Severn Trent Laboratories (STL) analyzed the samples for polychlorinated biphenyls using USEPA Method 608. The reporting limit for Method 608 is 0.065 µg/L.

## Results

The analytical data package from Compressor Station 224 was reviewed according to the guidelines presented in the QAPP. The analytical data was validated and determined to be acceptable for its intended purpose. The analytical data validation report is presented in Attachment A.


The analytical data indicates PCBs were not detected in the unfiltered or filtered samples from Monitoring Well MW-2, the duplicate of Monitoring Well MW-2, or the filtered or unfiltered samples from Monitoring Well MW-6. The analytical data from the June 2000 groundwater monitoring event is presented in Table 2. Table 3 is a summary of historical analytical results at Station 224.

## Schedule

Monitoring Wells MW-2 and MW-6 will be sampled annually as required by the O&M Plan. The next annual sampling event for Monitoring Wells MW-2 and MW-6, which will be the third of five monitoring events, is scheduled for June 2001. Your office will be notified prior to field team mobilization in the event that a NYSDEC representative intends to monitor the event.

If you have any questions regarding the information presented herein, please call me at (713) 420-5566 or Rodney Sartor (*Eco-Systems*) at (281) 646-1886.

Sincerely,



Ian Yanagisawa, P.E.  
Principal Environmental Engineer

Tables, Figures, Attachments

cc: Steve Morawski, El Paso-Northern Division  
Martin Doster NYSDEC - Region 9  
Tom Sutton, TGPL Compressor Station 224  
Central File, El Paso  
Central File, *Eco-Systems*

## TABLES

**TABLE 1**  
**Summary of Field Sampling Data, June 2000**  
**Tennessee Gas Pipeline Company**  
**Station 224 - Clymer, New York**

Parameter	Well 02	Well 06
Purge Date	6/8/00	6/8/00
Purge Method	Disposable Teflon Bailer	Disposable Teflon Bailer
Initial DTW (ft-btoc)	7.51	4.72
Total Depth (ft-btoc)	22.4	25.25
Casing Volume (gal)	2.53	3.49
Approx. Volume Purged (gal)	8	11.5
pH	6.83	6.84
Temperature (°C)	14	11.4
Specific Conductance (mS/cm)	0.183	0.406
Turbidity (NTU)	293	52
Sample Collection Date	6/8/00	6/8/00
Sample Collection Time	12:45	11:42
Sample Collection Method	Disposable Teflon Bailer	Disposable Teflon Bailer
Sample ID	224-MW02-B-060800 224-MW2F-B-060800	224-MW06-B-060800 224-MW6F-B-060800
Sample Appearance	Cloudy	Clear

Notes:

gal = gallons

ft-btoc = feet below top of casing

NTU = Nephelometric Turbidity Units

mS/cm = milliSiemens per centimeter

**TABLE 2**  
**Summary of PCB Analytical Results for Groundwater Samples, June 2000**  
**Tennessee Gas Pipeline Company**  
**Station 224 - Clymer, New York**

Well	Sample ID	Sample Date	NY ROD Action Level	Reported Value	Filtering
MW-2	224-MW2F-B-060800	6/8/00	U	0.09	Filtered
MW-2	224-MW02-B-060800	6/8/00	U	0.09	Unfiltered
MW-2DUP	224-FD1-B-060800	6/8/00	U	0.09	Field Duplicate
MW-6	224-MW6F-B-060800	6/8/00	U	0.09	Filtered
MW-6	224-MW06-B-060800	6/8/00	U	0.09	Unfiltered

Notes:

"U" indicates the parameter was sampled for, but not detected above the reported numerical value.

NY ROD Action Levels are equal to NYS groundwater quality standards per 6NYCRR part 703.

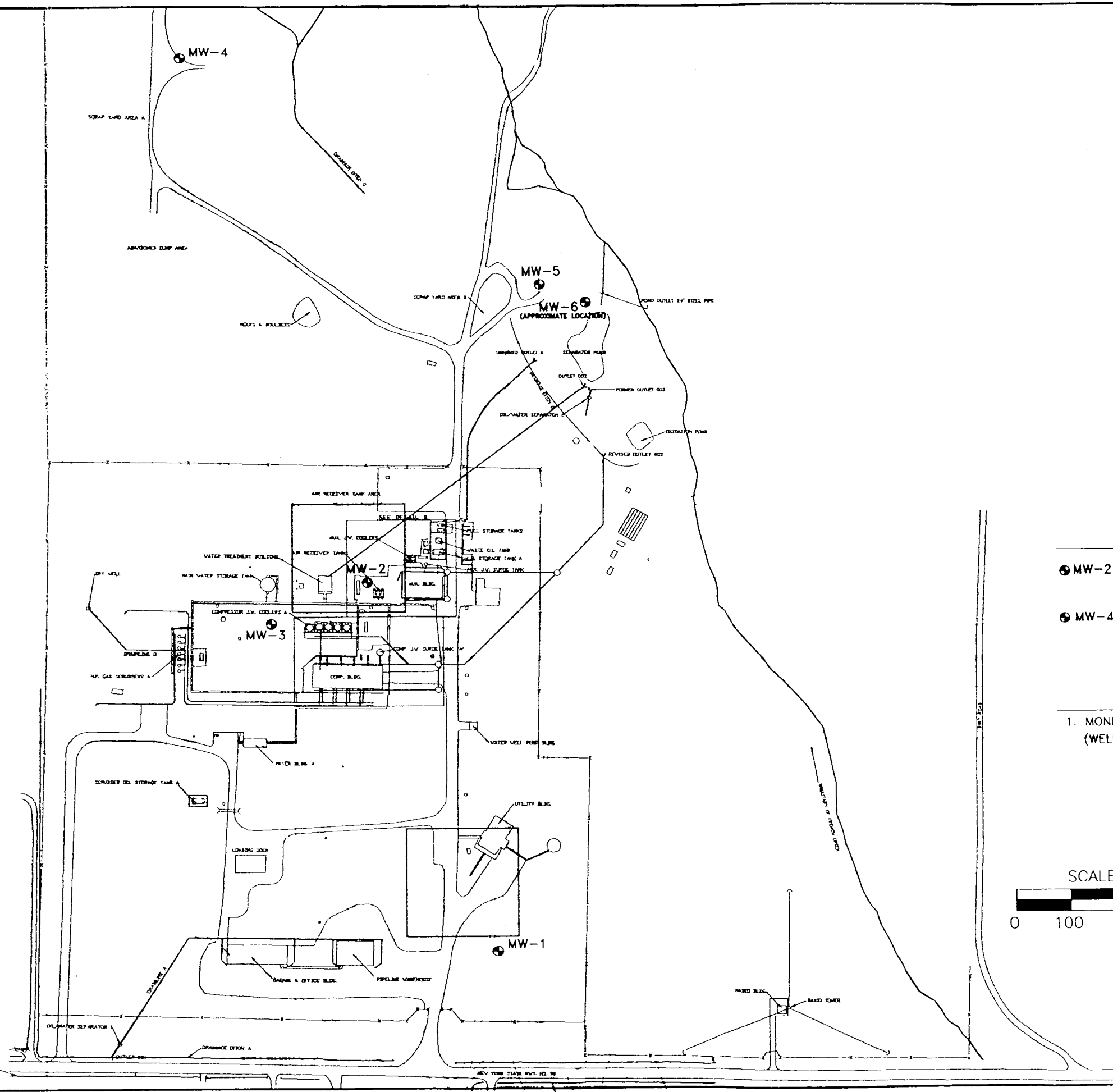
**TABLE 3**  
**Historic Groundwater Analytical Results**  
**Tennessee Gas Pipeline Company**  
**Station 224 - Clymer, New York**

Parameter	1984	1985	1986	1987	1988	1989	1990	1991	1992
<u>PCBs(Total)</u>	U	U	U	U	U	U	U	U	0.09

"U" indicates parameter was sampled for, but not detected above the reported numerical value.  
 NY ROD action levels are equal to NYS groundwater quality standards per 6NYCRR Part 703  
 All data in micrograms per liter (µg/L).

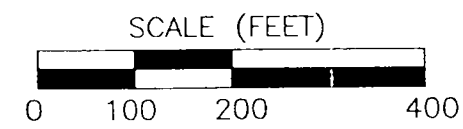
FIGURES





- LEGEND
- MW-2 MONITORING WELL LOCATION AND IDENTIFICATION (TO BE MONITORED)
  - MW-4 MONITORING WELL LOCATION AND IDENTIFICATION (ABANDONED)

- NOTES
1. MONITORING WELL MW-6 LOCATION IS APPROXIMATE. (WELL NOT SURVEYED)



TENNESSEE GAS PIPELINE COMPRESSOR STATION 224 CLYMER, NEW YORK		
<b>Eco-Systems, Inc.</b> Consultants, Engineers and Scientists		
SCALE: 1"=200'	DRAWN BY: J. COOLEY CHKD. BY:	DATE: 7-9-99 DATE:
PROJECT NO. ELP97710	CAD FILE TGP224-SM-060800.DWG	
SITE LAYOUT MAP		FIGURE 1

## **ATTACHMENT A**

**QA/QC Review Reports and Analytical Results**

**ANALYTICAL DATA QA/QC REVIEW:  
TENNESSEE GAS PIPELINE  
COMPRESSOR STATION 224  
STL SDG A00-4046**

**Reviewer:** Patty Sartor, Project Scientist

**Date:** July 19, 2000

**Laboratory:** Severn Trent Laboratories, Inc.  
Audubon Business Center  
10 Hazelwood Drive  
Amherst, NY 14228-2298

**Sampling Location:** Tennessee Gas Pipeline  
Compressor Station 224  
Clymer, New York

## **1.0 Introduction**

### **1.1 Samples Reviewed**

*Eco-Systems, Inc. (Eco-Systems)* collected 8 groundwater samples (including QA/QC samples) from Station 224 for analysis of polychlorinated biphenyls (PCBs). These samples were received by Severn Trent Laboratories, Inc. (STL) on June 10, 2000. STL submitted a data package to *Eco-Systems* that contained the results and QA/QC data for each of the samples received and analyzed. The data package underwent a full data review following the criteria set forth in the QA Project Plan (Tenneco 1994), as well as the EPA document "SW-846 On-line Test Methods for Evaluating Solid Waste Physical/Chemical Methods - 8000 Series Methods" (EPA Revision 2, December 1996). Table 1 lists the samples that underwent the full data review, the analytes or analyte groups that were requested on the chain-of-custody form for each sample, as well as the date the analyses were run.

**Table 1. Samples Collected from Station 224**

<u>Sample</u>	<u>PCBs</u>
224-FD1-B-060800	6/18/00
224-MW02-B-060800	6/18/00
224-MW2F-B-060800	6/18/00
224-MW06-B-060800	6/18/00
224-MW6F-B-060800	6/18/00
224-RS1-B-060800	6/18/00

This data review is divided into three sections: Introduction, PCBs, and a Summary. Section 2.0 describes what parameter(s) is being evaluated, the criteria being used to evaluate the data, and the results of the full data review. The qualifiers, if any, have been added to the laboratory data analysis sheets that are provided in Attachment A. Copies of the data validation summary sheets are provided in Attachment B.

## 1.2 References

U.S. Environmental Protection Agency, *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review*, Office of Solid Waste and Emergency Response, EPA 540/R-94-013, February 1994b.

U.S. Environmental Protection Agency. *SW-846 On-line Test Methods for Evaluating Solid Waste Physical/Chemical Methods 8000 Series Methods*. Office of Solid Waste. Revision 2, December 1996.

Tenneco Gas, Quality Assurance Project Plan, Revision 2, November 1997.

## 2.0 PCBs

### 2.1 Holding Times

The technical holding time criteria for PCBs in cooled ( $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ) water samples is seven days from sample collection to time of extraction and then 40 days from sample extraction to analysis.

It was noted in the SDG narrative that the coolers were received at temperatures of 4 and 6°C. The holding times were met. No qualification of data is needed.

### 2.2 Initial Calibration

Compliance requirements for satisfactory initial calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for PCB compounds on the Target Compound List (TCL). Initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analytical sequence and of producing a linear calibration curve.

An initial calibration is determined using five calibration standards. A calibration factor is calculated for each standard using the total area of the peaks and the weight injected. The percent relative standard deviation (%RSD) of the calibration factors must be no greater than 20%. For the two surrogates, the % RSD must be no greater than 30%.

There were no problems noted with the initial calibration.

### 2.3 Calibration Verification

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data. Calibration verification checks and documents satisfactory performance of the instrument over specific time periods during sample analysis. To confirm the calibration and evaluate instrument performance, calibration verification is performed, consisting of the analysis of verification samples.

There were no problems noted with the calibration verification.

### 2.4 Surrogate Spikes

Laboratory performance on individual samples is established by means of spiking samples prior to extraction and analysis to determine surrogate spike recoveries. All samples are spiked with tetrachloro-m-xylene (TCMX) and decachlorobiphenyl (DCB) prior to sample extraction. The evaluation of the recovery results of these surrogate spikes is not necessarily straightforward. The sample itself may produce effects due to such factors as interference and high concentrations of target and/or non-target analytes. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the evaluation and review of data based on specific sample results are often subjective. The surrogate QC limits have been set as historical laboratory values, which are 22-128 for DCBP and 22-120 for TCMX.

There were no problems noted with the surrogate spikes. No qualification of data is necessary.

## 2.5 Blanks

The purpose of laboratory (or field) blanks is to determine the existence and magnitude of contamination problems resulting from laboratory (or field) activities. The criteria for evaluation of laboratory blanks apply to any blank associated with the samples (e.g., method blanks, instrument blanks, sulfur cleanup blanks). If problems with any blank exist, all associated data must be carefully evaluated to determine whether or not there is an inherent variability in the data, or if the problem is an isolated occurrence not affecting the other data.

None of the PCB target compounds were detected in the rinsate or method blank samples.

## 2.6 Matrix Spike/Matrix Spike Duplicates

Data for matrix spikes (MS) and matrix spike duplicates (MSD) are generated to determine long-term accuracy and precision of the analytical method on various matrices. No action is taken on MS/MSD data alone. However, the MS/MSD results can be used in conjunction with other QC criteria and determine the need for qualification.

The MS/MSD recoveries were inside the QC acceptance limits.

## 2.7 Target Compound Identification

Qualitative criteria for compound identification have been established to minimize the number of erroneous identifications of compounds. An erroneous identification can either be a false positive (reporting a compound that is not present) or a false negative (not reporting a compound that is present).

There were no target compounds detected in any of the samples.

## 2.8 Compound Quantitation

Compound quantitation, as well as the adjustment of the contract required quantitation limit (CRQL), must be calculated according to the correct equation. Compound area responses must be calculated based on the ICAL response factor for the standard associated with that compound.

There were no problems noted with the compound quantitation.

## 2.9 Field Duplicates

Field duplicates are collected and analyzed as an indicator of the sampling and analytical precision. Since these analyses measure both the field and laboratory precision, the results may have more variability than laboratory duplicates which measure only laboratory performance.

A field duplicate was collected with MW02 for PCB analysis. All results were nondetect.

### 3.0 Summary

A full data review of PCBs was performed on the data package submitted for Station 224. There were no major problems that would prohibit the use of the data. Based on the data reviewed, there is sufficient information to conclude that the data are acceptable for use as stated in this report.

ATTACHMENT A  
DATA SHEETS



EL PASO ENERGY  
METHOD 608 - POLYCHLORINATED BIPHENYLS  
ANALYSIS DATA SHEET

Client No.

224-FDI-B-060800

Lab Name: STL Buffalo

Contract: ECOSYS

Lab Code: RECNY

Case No.: \_\_\_\_\_

SAS No.: \_\_\_\_\_

SDG No.: \_\_\_\_\_

Matrix: (soil/water) WATER

Lab Sample ID: A0404605

Sample wt/vol: 1020.00 (g/mL) ML

Lab File ID: SA80166.TX0

Moisture: \_\_\_\_\_ decanted: (Y/N) N

Date Samp/Recv: 06/08/2000 06/10/2000

Extraction: (SepF/Cont/Sonc/Soxh): SEPF

Date Extracted: 06/13/2000

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 06/18/2000

Injection Volume: 1.00 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.00

Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

Q

CAS NO. COMPOUND

12674-11-2----Aroclor-1016  
11104-28-2----Aroclor-1221  
11141-16-5----Aroclor-1232  
53469-21-9----Aroclor-1242  
12672-29-6----Aroclor-1248  
11097-69-1----Aroclor-1254  
11096-82-5----Aroclor-1260

1.0  
1.0  
1.0  
1.0  
1.0  
1.0  
1.0

U  
U  
U  
U  
U  
U  
U

EL PASO ENERGY  
METHOD 608 - POLYCHLORINATED BIPHENYLS  
ANALYSIS DATA SHEET

000006

Client No.

224-MW02-B-060800

Lab Name: STL Buffalo

Contract: ECOSYS

Lab Code: REONY

Case No.: \_\_\_\_\_

SAS No.: \_\_\_\_\_

SDG No.: \_\_\_\_\_

Matrix: (soil/water) WATER

Lab Sample ID: A0404601

Sample wt/vol: 1000.00 (g/mL) ML

Lab File ID: SA80158.TX0

% Moisture: \_\_\_\_\_ decanted: (Y/N) N

Date Samp/Recv: 06/08/2000 06/10/2000

Extraction: (SepF/Cont/Sonc/Soxh): SEPF

Date Extracted: 06/13/2000

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 06/18/2000

Injection Volume: 1.00 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.00

Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/L

Q

12674-11-2----	Aroclor-1016
11104-28-2----	Aroclor-1221
11141-16-5----	Aroclor-1232
53469-21-9----	Aroclor-1242
12672-29-6----	Aroclor-1248
11097-69-1----	Aroclor-1254
11096-82-5----	Aroclor-1260

1.0
1.0
1.0
1.0
1.0
1.0
1.0

U
U
U
U
U
U
U

EL PASO ENERGY  
METHOD 608 - POLYCHLORINATED BIPHENYLS  
ANALYSIS DATA SHEET

000007

Client No.

224-MW2F-B-060800

Lab Name: STL Buffalo

Contract: ECOSYS

Lab Code: REONY Case No.: \_\_\_\_\_ SAS No.: \_\_\_\_\_ SDG No.: \_\_\_\_\_

Matrix: (soil/water) WATER

Lab Sample ID: A0404603

Sample wt/vol: 1000.00 (g/mL) ML

Lab File ID: SA80164.TX0

% Moisture: \_\_\_\_\_ decanted: (Y/N) N

Date Samp/Recv: 06/08/2000 06/10/2000

Extraction: (SepF/Cont/Sonc/Soxh): SEPF

Date Extracted: 06/13/2000

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 06/18/2000

Injection Volume: 1.00 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.00

Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

Q

CAS NO. COMPOUND

12674-11-2-----Aroclor-1016  
11104-28-2-----Aroclor-1221  
11141-16-5-----Aroclor-1232  
53469-21-9-----Aroclor-1242  
12672-29-6-----Aroclor-1248  
11097-69-1-----Aroclor-1254  
11096-82-5-----Aroclor-1260

1.0 U  
1.0 U  
1.0 U  
1.0 U  
1.0 U  
1.0 U  
1.0 U

EL PASO ENERGY  
METHOD 608 - POLYCHLORINATED BIPHENYLS  
ANALYSIS DATA SHEET

000008

Client No.

224-MW06-B-060800

Lab Name: STL Buffalo

Contract: ECOSYS

Lab Code: RECNY

Case No.: \_\_\_\_\_

SAS No.: \_\_\_\_\_

SDG No.: \_\_\_\_\_

Matrix: (soil/water) WATER

Lab Sample ID: A0404602

Sample wt/vol: 1000.00 (g/mL) ML

Lab File ID: SA80159.TX0

Moisture: \_\_\_\_\_ decanted: (Y/N) N

Date Samp/Recv: 06/08/2000 06/10/2000

Extraction: (SepF/Cont/Sonc/Soxh): SEPF

Date Extracted: 06/13/2000

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 06/18/2000

Injection Volume: 1.00 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.00

Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/L

Q

12674-11-2----	Aroclor-1016	1.0	U
11104-28-2----	Aroclor-1221	1.0	U
11141-16-5----	Aroclor-1232	1.0	U
53469-21-9----	Aroclor-1242	1.0	U
12672-29-6----	Aroclor-1248	1.0	U
11097-69-1----	Aroclor-1254	1.0	U
11096-82-5----	Aroclor-1260	1.0	U

EL PASO ENERGY  
METHOD 608 - POLYCHLORINATED BIPHENYLS  
ANALYSIS DATA SHEET

000009

Client No.

224-MW6F-B-060800

Lab Name: STL Buffalo

Contract: ECOSYS

Lab Code: RECNY Case No.: \_\_\_\_\_ SAS No.: \_\_\_\_\_ SDG No.: \_\_\_\_\_

Matrix: (soil/water) WATER

Lab Sample ID: A0404604

Sample wt/vol: 1000.00 (g/mL) ML

Lab File ID: SA80165.TX0

Moisture: \_\_\_\_\_ decanted: (Y/N) N

Date Samp/Recv: 06/08/2000 06/10/2000

Extraction: (SepF/Cont/Sonc/Soxh): SEPF

Date Extracted: 06/13/2000

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 06/18/2000

Injection Volume: 1.00 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.00

Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.

COMPOUND

Q

12674-11-2----	Aroclor-1016	1.0	U
11104-28-2----	Aroclor-1221	1.0	U
11141-16-5----	Aroclor-1232	1.0	U
53469-21-9----	Aroclor-1242	1.0	U
12672-29-6----	Aroclor-1248	1.0	U
11097-69-1----	Aroclor-1254	1.0	U
11096-82-5----	Aroclor-1260	1.0	U

EL PASO ENERGY  
METHOD 608 - POLYCHLORINATED BIPHENYLS  
ANALYSIS DATA SHEET

000010

Client No.

224-RSI-B-060800

Lab Name: STL Buffalo

Contract: ECOSYS

Lab Code: RECNY

Case No.: \_\_\_\_\_

SAS No.: \_\_\_\_\_

SDG No.: \_\_\_\_\_

Matrix: (soil/water) WATER

Lab Sample ID: A0404606

Sample wt/vol: 1070.00 (g/mL) ML

Lab File ID: SA80167.TX0

% Moisture: \_\_\_\_\_ decanted: (Y/N) N

Date Samp/Recv: 06/08/2000 06/10/2000

Extraction: (SepF/Cont/Sonc/Soxh): SEPF

Date Extracted: 06/13/2000

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 06/18/2000

Injection Volume: 1.00 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.00

Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.

COMPOUND

Q

12674-11-2----	Aroclor-1016
11104-28-2----	Aroclor-1221
11141-16-5----	Aroclor-1232
53469-21-9----	Aroclor-1242
12672-29-6----	Aroclor-1248
11097-69-1----	Aroclor-1254
11096-82-5----	Aroclor-1260

1.0
1.0
1.0
1.0
1.0
1.0
1.0

U
U
U
U
U
U
U

**ATTACHMENT B**  
**DATA VALIDATION SUMMARY SHEETS**

Report To: Patty Sarter

Bill To:

Internal Use Only

Contact:

Contact:

Company:

Company:

Address:

Address:

Phone:

Phone:

Fax:

Fax:

E-Mail:

Quote:

Sampler Name:

Signature:

Project Name:

Project Number:

Project Location:

Date Required:

STL  
Sample No.Client  
Sample IDSampling  
Date TimeM  
A  
T  
R  
I  
XC  
O  
M  
P  
I  
G  
R  
A  
BW  
O  
B  
P  
C  
B  
SINDICATE PRESERVATIVE USING KEY BELOW (OPTIONAL)  
INDICATE CONTAINER USING KEY BELOW (OPTIONAL)

Additional Analyses / Remarks

224-MW02-B-D60800	6/8/00	1245	W	G	X
224-MW06-B-D60800	6/8/00	1142	W	G	X
224-MW2F-B-D60800	6/8/00	1245	W	G	X
224-MW6F-B-D60800	6/8/00	1142	W	G	X
224-F21-B-D60800	6/8/00	—	W	G	X
224-R31-B-D60800	6/8/00	1105	W	G	X

ms/msd  
filtered  
filtered  
field duplicate  
rinseateRELINQUISHED BY  
Nick FuentesCOMPANY  
Eco-SystemsDATE  
6/9/00TIME  
10 a.m.RECEIVED BY  
Jason KnechtCOMPANY  
STLDATE  
6-10-00TIME  
1045

RELINQUISHED BY

COMPANY

DATE

TIME

RECEIVED BY

COMPANY

DATE

TIME

## Matrix Key

WW = Wastewater  
W = Water  
S = Soil  
SL = Sludge  
MS = Miscellaneous Solids  
OL = Oil  
A = Air  
O =

## Container Key

1. Plastic  
2. VOA Vial  
3. Sterile Plastic  
4. Amber Glass  
5. Widemouth Glass  
6. Other

## Preservative Key

1. HCl, Cool to 4°  
2. H2SO4, Cool to 4°  
3. HNO3, Cool to 4°  
4. NaOH, Cool to 4°  
5. NaOH/Zn Acetate, Cool to 4°  
6. Cool to 4°  
7. None

## COMMENTS:

Airbill #'s  
8217 413/2891  
800990 236777  
collected, 40°C

Courier:

Bill of Lading:



Station #

224

SDG#

1700-4046

## DATA VALIDATION CRITERIA

## STATUS

### I. HOLDING TIMES

1. Compare the sample dates on the EPA Sample Traffic Report with the dates of analysis on Form I-PEST.
2. Compare the dates of extraction on the sample extraction sheets with the dates of analysis on Form I-PEST.
3. Verify that the samples were received intact and iced.

Sampled 6/8/00

Received 6/10/00

Extracted 6/13/00

Analyzed 6/18/00

Codens 4 + 6.2 4 ± 2 = 0.6

### II. INITIAL CALIBRATION

#### 1. Multi-component Target Compounds

- a. Verify that each of the multi-component target compounds were analyzed at the required frequency. Check the raw data for the standards to verify that the multi-component analytes were analyzed at the required concentration.
- b. Check the data for the multi-component target compounds and to verify that at least three peaks were used for calibration and that the retention time windows were calculated as required.
- c. Check the data to verify that calibration factors have been determined for each selected peak.

$$CF = \frac{35943}{.005} = 7188600 \quad (wb = 7188600 \checkmark)$$
$$KSD = \frac{(1.21) + (.136) + (.25) + (.3025) + (.1936)}{4}$$
$$8.29 \times 100 = 8.72 \quad (wb = 8.7 \checkmark)$$

### III. CALIBRATION VERIFICATION

1. Verify that the instrument blanks, PEMs, and Individual Standard Mixtures were analyzed at the required frequency and that no more than 12 hours elapsed between continuing calibration brackets in an ongoing analytical sequence.

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### IV. BLANKS

1. Review the results of all associated blanks on the Form I-GC EXT and raw data to evaluate the presence of target and non-target compounds in the blanks. *RSI-U*
2. Verify that a method blank analysis has been reported per SDG, per matrix, per concentration level, for each extraction batch and for each GC system used to analyze samples. ✓
3. Verify that the method blank analysis contains less than the CRQL of any target analyte or any interfering peak. *MB-U*
4. Verify that the instrument blank analysis has been performed every 12 hours as the first analysis of the continuing calibration sequence. All acceptable sample analysis are to be bracketed by acceptable instrument blanks. Additionally, the instrument blank must follow sample analysis which contain an analyte at high concentration. Evaluate the results from various instrument blanks to verify that they do not contain any target analytes above one-half the CRQL values for water samples (assuming a 1-L extraction of water sample). ✓
5. Verify that the sulfur clean-up blanks were analyzed at the required frequency and that (assuming a 1-L extraction of water sample) the sulfur blanks do not contain any target compound above the CRQL. If a separate sulfur cleanup blank was prepared, one version of Form IV-GC EXT should be completed associating all the samples with the method blank, and a second version of Form IV-GC EXT should be completed listing only those samples associated with the separate sulfur cleanup blank. *no sulfur*

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### V. SURROGATE SPIKES

1. Check the raw data to verify the surrogate spike recoveries on Form II-GC EXT. ✓  
Check for any calculation or transcription errors.
2. If recoveries are not within limits, check the raw data for possible interferences which may have affected surrogate recoveries. If low surrogate recoveries are observed, the reviewer should investigate whether the low recoveries were a result of sample dilution.
3. Check the raw data to verify that the retention times are accurate and within retention time windows.
4. If retention times were not met, check the raw data for possible misidentification of GC peaks. Non-recovery of surrogates may also be due to shifts in retention times.

✓ all ok.

RMX

$$2F = 4.82 \quad 4.83 = .01$$

$$DGP = 19.39 \quad 19.42 = .03$$

### VI. MATRIX SPIKE/MATRIX SPIKE DUPLICATES

1. Verify that MS and MSD samples were analyzed at the required frequency and that results are provided for each sample matrix. ✓
2. Check raw data and Form III-GC EXT to verify that the results for matrix spike recoveries were calculated and transcribed correctly.
3. Check raw data and Form III-GC EXT to verify that the results for matrix spike relative percent difference were calculated and transcribed correctly.

$$MSR = \frac{1456 - 0}{.526 \times 100} = 86.7 \quad (lab = 87) \checkmark$$

$$RPD = \frac{87 - 84}{\frac{87 + 84}{2} \times 100} = \frac{3}{85.5 \times 100} = 3.5 \quad (lab = 4) \checkmark$$

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**VI. MATRIX SPIKE/MATRIX SPIKE DUPLICATES (continued)**

4. Compare %RSD results of non-spiked compounds between the original result, MS and MSD.

*All were non-detect*

**VII. TARGET COMPOUND IDENTIFICATION**

1. Review Form I-GC EXT and the associated raw data to confirm reported detected analytes by comparing the sample chromatograms to the tabulated results and verifying peak measurements and retention times.
2. Confirm reported non-detected analytes by a review of the sample chromatograms. Check the associated blank data for potential interferences and check the calibration data for adequate retention time windows.
2. For multi-component target compounds (Toxaphene and Aroclors), the retention times and relative peak height ratios of major component peaks should be compared against the appropriate standard chromatogram.
3. Verify that GC/MS confirmation was performed for pesticide concentrations in the final extract which exceeded 10 ng/uL.

*There were no detections.*

*NA*



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**VIII. COMPOUND QUANTITATION AND REPORTED CRQLS**

1. Raw data should be examined to verify the correct calculation of all sample results reported by the laboratory. Data system printouts, chromatograms, and sample preparation log sheets should be compared to the reported positive sample results and quantitation limits. Verify that the sample values are reported correctly. ✓
2. Verify that the CRQLs have been adjusted to reflect all sample dilutions, splits, clean-up activities, and dry weight factors that area not accounted for by the method. ✓

**IX. FIELD DUPLICATES**

1. Compare the results reported for each sample and calculate the relative percent difference (RPD), if appropriate.

FD1 = u

MU2 = u