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9/5/140

REPORT

Operations and Maintenance (O&M) Report

Compressor Station 229
Eden, Erie County, New York
Site No. 9-15-140

Tennessee Gas Pipeline Company
(an El Paso Energy Company)
Houston, Texas

November 1999

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

TECHNICAL REPORT

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6723 Towpath Road, P.O. Box 66
Syracuse, New York, 13214-0066
(315) 446-9120

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1. Introduction

Between September 30 and October 1, 1998, Blasland, Bouck & Lee, Inc. (BBL), on behalf of Tennessee Gas Pipeline Company (TGPL), performed resident fish, sediment, and groundwater sampling activities adjacent to TGPL's Compressor Station 229 near the town of Eden, Erie County, New York (see Appendix A). These sampling activities comprise the downstream tributary area monitoring component of the post-construction Operations and Maintenance (O&M) Plan for Compressor Station 229. Biennial downstream tributary testing was completed to monitor and identify potential trends in PCB levels in off-site media downgradient of Compressor Station 229. Sampling activities were completed in accordance with guidelines and procedures stipulated in the Record of Decision (March 1997) issued by the New York State Department of Environmental Conservation (NYSDEC), TGPL's draft O&M Plan (June 1997), and BBL's letter to NYSDEC (September 1998). In addition, reporting requirements previously identified in the O&M Plan have been modified, to address NYSDEC comments on the O&M Plan received on April 27, 1999, consistent with TGPL's June 16, 1999 response letter. TGPL's June 16, 1999 response letter was approved by the NYSDEC, as indicated, in a letter dated September 1, 1999.

2. Resident Fish

2.1 Sample Collection

In July 1994, Woodward-Clyde Consultants (Woodward-Clyde), on behalf of TGPL, completed downstream tributary fish collection efforts in portions of the Station Lake Tributary and Breached Pond (see Figure 1) prior to remediation activities. The subsequent testing and results from those efforts serve as a reference for comparison of pre-remediation to post-remediation polychlorinated biphenyl (PCB) levels in resident fish. Consistent with the 1994 effort, the 1998 monitoring plan targeted blacknose dace (*Rhinichthys atratulus*) and creek chub (*Semotilus atromaculatus*) from Station Lake Tributary (whole-body composite samples; size ranges of 60-100mm and 60-130mm, respectively); and bluegill (*Lepomis macrochirus*), creek chub, and largemouth bass (*Micropterus salmoides*) from Breached Pond (whole-body composite samples; size ranges of 60-90mm, 90-120mm and <120mm, respectively). A copy of the NYSDEC Fish and Wildlife License to Collect or Possess is provided as Appendix B. The scope of the 1998 collection, sampling, and testing effort is outlined below:

1998 Station Lake Tributary/Breached Pond Sampling Scope	
Sample Design	**1998 Downstream Tributary Area Monitoring**
Sample Date	Late September / early October
Sample Area	Approximately 1,500 feet of creek bed between Highway 75 and Hickman Road.
Sampling Locations	Samples obtained from a single reach within Station Lake Tributary (combination of fish from different pools).
Target Species	Two species collected / analyzed - Station Lake Tributary. Zero species collected / analyzed - Breached Pond. *Breached Pond Scope of Work (SOW) included 3 targeted species.
Sample Size (Whole-body Composite)	Eight samples / species - Station Lake Tributary. No samples collected - Breached Pond. *Breached Pond SOW targeted eleven samples / species.

1998 Station Lake Tributary/Breached Pond Sampling Scope	
Sample Design	**1998 Downstream Tributary Area Monitoring**
Total Samples / Sample Preparation	16 whole-body composite - Station Lake Tributary.

BBL completed fish sampling activities in Station Lake Tributary during September 30 and October 1, 1998 using a back pack electrofishing unit. As noted above, the 1998 downstream tributary fish monitoring program was to include the collection of eight whole-body composite samples for each of two resident fish species in Station Lake Tributary (16 samples total) and eleven whole-body composite samples for each of three resident fish species in Breached Pond (33 samples total). Each whole-body composite sample was to consist of a minimum of 5 individual fish, and provide sufficient mass (20 grams minimum) for chemical analyses of PCB Aroclors and percent lipids. However, as discussed further below, fish collection efforts in Breach Pond were unsuccessful.

Target species for Station Lake Tributary included creek chub and blacknose dace. Species-specific size ranges were also to be considered when selecting the individual fish to retain for each sample. Sampling activities in Station Lake Tributary were initiated in the middle and lower reaches of the creek during the afternoon of September 30, 1998. The decision to focus on the downstream section of the sampling reach (in closer proximity to Hickman Road) was reached after reconnaissance of Station Lake Tributary revealed that there was no observable flow or pooled water in the upper third of the sampling area, and that conditions in the remaining upper half of the creek offered only a series of stagnant pools. Electrofishing of the stagnant pools was performed to collect any fish that may have been present, however, fish were not observed or captured.

During September 30 and October 1, 1998 BBL collected 40 creek chub and 70 blacknose dace from the middle and lower reaches of the Station Lake Tributary sampling area in the vicinity of Hickman Road; all fish retained for analysis were within the target size range (length) for each species. All sampling activities were completed in accordance with the draft O&M Plan. Copies of the resident fish sampling log sheets and field notes are provided as Appendix C.

Following completion of fish collections in Station Lake Tributary, BBL initiated sampling activities in Breached Pond on October 1, 1998. Target species for the Breached Pond collections included bluegill, largemouth bass, and creek chub. Efforts to collect fish using the primary sampling method, a stream-side electrofishing unit, were unsuccessful as no fish were observed throughout the duration of the electrofishing effort. Since the sampling crew was unsuccessful at observing/capturing fish stunned by the electrofisher, an alternative sampling technique, seining, was employed at the site. Seining activities employing both active (shore-trap) and passive (baited seine) sampling techniques were also unsuccessful and no fish were observed or captured. Based on the results of the sampling efforts, it was concluded that Breached Pond did not support a resident fish population at that time. Another sampling effort was initiated prior to departure from the site to confirm that Breached Pond was void of fish. This effort consisted of a baited minnow trap left overnight at the site. The trap was checked the morning of October 2, 1998 and also found to be empty.

The 1998 downstream tributary creek chub and blacknose dace fish samples collected from Station Lake Tributary were retained on ice until received by the analytical laboratory. Field processing included sorting into representative composite samples, recording the range of lengths and weights (maximum and minimum length and weight of the largest and smallest fish, respectively) representative of each composite sample, recording of the total sample weight, and observation of general fish condition. Resident fish samples were submitted to EnChem, Inc. (EnChem), of Madison, Wisconsin for analysis of PCBs in whole-body composites using USEPA Method 8081 and lipids using standard gravimetric analyses.

2.2 Analytical Results

Field and laboratory data describing the number of fish samples collected in 1998, including length and weight range, composite sample total weight, percent lipid, and the results of chemical analyses for PCB Aroclors and lipids, are presented in Table 1; analytical data sheets and chain-of-custody forms are presented as Attachment 1. PCBs were detected in all Station Lake Tributary fish samples submitted for analyses: Aroclor 1254 was the sole Aroclor quantified by the analytical laboratory in each sample. PCB concentrations in blacknose dace whole-body composites ranged from 1.2 milligrams per kilogram (mg/kg) to 2.6 mg/kg with a mean concentration of 1.9 mg/kg. Creek chub samples (whole-body composites) exhibited a narrower range of concentrations and lower mean at 0.66 mg/kg to 1.9 mg/kg, and 1.1 mg/kg, respectively. Lipid-normalized PCB concentrations exhibited similar results with blacknose dace mean concentration (51 mg/kg lipid) slightly higher than that observed in creek chub (36.8 mg/kg lipid).

Table 2 includes a comparison of mean concentrations for the 1994 and 1998 resident fish sampling events. Mean values for the 1994 data, summarized in Table 2, are computed from only those whole-body composite samples collected in Station Lake Tributary between Highway 75 and Hickman Road, to provide a more representative comparison to the 1998 results. Mean total PCB concentrations in both target species appear relatively lower in 1998 as compared to 1994. Mean concentrations of blacknose dace were 2.8 mg/kg in 1994 and 1.9 mg/kg in 1998, and creek chub were 1.9 mg/kg in 1994 and 1.1 mg/kg in 1998. Lipid-normalized PCB concentrations were slightly higher in 1998; 44 mg/kg lipid (1994) and 51 mg/kg lipid (1998) in dace, 27 mg/kg lipid (1994) and 37 mg/kg lipid (1998) in creek chub.

3. Sediment

3.1 Sample Collection

The 1998 sediment sampling activities in Station Lake Tributary were completed as part of the downstream tributary sediment monitoring program specified in TGPL's draft O&M Plan. Sediment sampling in 1998 for analysis of PCBs was performed adjacent to three previously sampled locations between Farm Road and North Boston Road (see Figures 1 and 2) and was not intended to duplicate the 1994 sediment program conducted between Highways 75 and 62 by Woodward-Clyde. Nonetheless, comparisons between the 1998 (BBL) and 1994 (Woodward-Clyde) sediment data will be included in the discussion that follows. In general, sediment samples in 1998 were collected from depositional areas in Station Lake Tributary having sediment depths of 0 to 6 inches, with a bias towards areas of more significant sediment accumulations. A summary of activities specific to this sampling effort is presented below.

Sediment sampling efforts were initiated on September 30, 1998 at downstream locations along the Station Lake Tributary between the Farm Road and North Boston Road (see Figure 1, sediment sampling locations #1, #2, and #3). Using a core sampler and lexan tubing, the sampling crew collected sediments from locations #2 and #3 (sample depths of 6 inches and 4.5 inches at refusal, respectively) then moved to location #1 off of North Boston Road to repeat the process (sample depth of 6 inches). All three sediment sampling locations were staked with rebar to allow replication of the locations during subsequent sampling events. After completion of sediment sampling, the samples were placed on ice and shipped by overnight courier to Recra Labnet (Recra), in Amherst, New York for analysis of PCBs utilizing Recra Environmental, Inc., Method REI-111-01-04 (USEPA Method 8081 equivalent). In accordance with the procedures specified in the *Quality Assurance Project Plan for Soil/Drainline Remediation, New York State Compressor Stations* ("the QAPP"; BBL, May 1995 and TGPL, February 1996), a rinse blank, matrix spike/matrix spike duplicate, and a field duplicate were also analyzed by Recra.

3.2 Analytical Results

Field and laboratory data describing the sediment samples collected in 1998, including total PCBs, are presented in Table 3; analytical data sheets and chain-of-custody forms are presented as Attachment 1. PCB data ranged from non-detect to 0.48 mg/kg.

Table 3 includes a comparison of total PCB concentrations for the 1994 and 1998 sediment sampling events. Since the 1998 sediment sampling event was not intended to duplicate the 1994 effort performed by Woodward-Clyde, comparisons between the 1994 and 1998 sampling events are based on adjacent sample locations and results. Figure

2 shows sediment sampling locations and results of the 1994 and 1998 sampling events. For all sediment sampling locations, a comparison between the 1994 and 1998 data indicates that total PCB concentrations appear relatively lower in 1998 as compared to 1994. Total PCB concentrations for location #1 ranged from 0.64 mg/kg to 1.0 mg/kg in 1994 and was 0.35 mg/kg in 1998; for location #2, total PCB concentrations were 0.49 mg/kg in 1994 and 0.48 mg/kg in 1998; and for location #3, total PCB concentrations were 0.98 mg/kg in 1994 and non-detect in 1998.

4. Groundwater

4.1 Sample Collection

The 1998 groundwater sampling activities were performed, at the newly installed monitoring well, MW-12 near the sediment trap at Farm Road, as part of downstream tributary groundwater monitoring following completion of the remedial activities performed at the site. A summary of these sampling activities is presented below.

Groundwater sampling was performed on September 30, 1998 at monitoring well MW-12. Using a peristaltic pump, the well was purged and one groundwater sample was collected. Groundwater characteristics, such as temperature, pH, conductivity, turbidity, dissolved oxygen and water level, were measured approximately every 4 minutes during the sampling event. Turbidity measurements remained less than 10 NTUs throughout the sampling event, allowing the sample to remain unfiltered prior to analysis (in accordance with the O&M Plan, groundwater turbidity exceeding 50 NTUs would require that the sample be filtered by the laboratory prior to analysis). The sample was then processed and shipped by overnight courier to Recra for analysis of PCBs using USEPA Method 608. In accordance with the procedures specified in the QAPP (BBL, May 1995 and TGPL, February 1996), a rinse blank, matrix spike/matrix spike duplicate, and a field blank from monitoring well MW-12 were also analyzed by Recra Labnet. A copy of the groundwater sampling log sheet is provided as Appendix D.

4.2 Analytical Results

Laboratory results for the groundwater samples collected in 1998, including total PCBs, are presented in Table 4; analytical data sheets and chain-of-custody forms are presented as Attachment 1. PCBs were not detected in either the sample or the duplicate at a detection limit of 1 microgram per liter (ug/L). The detection limit of 1 ug/L has been recently modified, based on NYSDEC comments received on April 27, 1999, to 0.5 ug/L. All future groundwater samples will be analyzed at the revised detection limit of 0.5 ug/L.

Tables

TABLE 1

TENNESSEE GAS PIPELINE COMPANY - AN EL PASO ENERGY COMPANY
HOUSTON, TEXAS

OPERATIONS AND MAINTENANCE REPORT
COMPRESSOR STATION 229 - ERIE COUNTY, NEW YORK

FISH SAMPLING AND ANALYTICAL RESULTS [1]
1998 STATION LAKE TRIBUTARY [2]
(Collection Dates: 9/30/98 - 10/1/98)

Species/Sample #	Fish per Sample	Length-range (cm)	Weight-range (g)	Sample Weight (g)	Lipid (%)	Total PCB [3,4] (mg/kg)	Lipid-Normalized PCB [4] (mg/kg-lipid)
Blacknose Dace							
SLT-001	10	6.3-8.1	2.4-5.5	36.6	4.09	2.00	48.9
SLT-002	10	6.2-8.2	2.2-5.4	34.5	4.32	1.50	34.7
SLT-003	9	6.0-8.0	1.8-4.8	26.4	3.51	2.10	59.8
SLT-004	9	6.0-7.3	2.0-4.5	26.5	3.68	2.60	70.7
SLT-005	9	6.0-7.5	2.1-4.0	28.1	3.43	1.90	55.4
SLT-006	8	6.7-7.8	2.4-4.6	26.9	4.15	1.20	28.9
SLT-007	8	6.0-8.3	2.2-5.5	26.8	3.25	1.50	46.2
SLT-008	7	6.0-8.5	2.2-5.8	28.3	3.95	2.50	63.3
Mean [5]	NA	NA	NA	29.3	3.80	1.91	51.0
Standard Deviation	NA	NA	NA	4.0	0.38	0.49	14.2
Creek Chub							
SLT-009	5	8.7-12.0	6.4-17.1	62.4	2.36	0.66	28.0
SLT-010	5	7.6-12.3	4.5-17.5	52.8	3.08	1.10	35.7
SLT-011	5	9.4-11.6	7.9-16.8	62.3	2.73	1.10	40.3
SLT-012	5	7.8-12.1	5.0-20.3	47.9	2.79	0.78	28.0
SLT-013	5	9.4-11.7	8.5-17.0	54.5	2.68	0.89	33.2
SLT-014	5	8.1-12.5	5.6-19.4	60.6	5.14	1.90	37.0
SLT-015	5	8.3-11.0	5.8-13.0	43.0	2.23	0.77	34.5
SLT-016	5	10.4-11.3	10.9-14.9	63.2	3.28	1.90	57.9
Mean [5]	NA	NA	NA	55.8	3.04	1.14	36.8
Standard Deviation	NA	NA	NA	7.6	0.92	0.50	9.5

Notes:

[1] Fish samples prepared as whole-body composites.

[2] 1998 fish sampling also targeted breached pond and Station Lake Tributary. Breached pond did not support a resident fish population at the time of sampling.

[3] Total PCBs represented by Aroclor 1254.

[4] Total PCB and lipid-normalized PCB concentrations reported on a wet-weight basis.

[5] Arithmetic mean concentration.

cm = centimeters
g = grams
mg/kg = milligram per kilogram (ppm - parts per million)
NA = not applicable

TABLE 2

TENNESSEE GAS PIPELINE COMPANY - AN EL PASO ENERGY COMPANY
HOUSTON, TEXAS

OPERATIONS AND MAINTENANCE REPORT
COMPRESSOR STATION 229 - ERIE COUNTY, NEW YORK

COMPARISON OF MEAN PCB CONCENTRATIONS IN STATION LAKE TRIBUTARY FISH TISSUES [1,2]
(Collection Dates: 7/19/94 - 7/21/94 and 9/30/98 - 10/1/98)

Species/Year	Sample Size	Lipid (%)	Total PCB [3,4] (mg/kg)	Lipid-Normalized PCB [4] (mg/kg-lipid)
Blacknose Dace				
1994	3	6.43 (1.10)	2.77 (0.29)	44.4 (12.4)
1998	8	3.80 (0.38)	1.91 (0.49)	51.0 (14.2)
Creek Chub				
1994	9	7.03 (0.82)	1.88 (0.41)	26.6 (4.6)
1998	8	3.04 (0.92)	1.14 (0.50)	36.8 (9.5)

Notes:

[1] Arithmetic mean concentrations (and standard deviation) for whole-body composite samples collected from Station Lake Tributary between Highway 75 and Hickman Road.

[2] 1998 fish tissue PCB concentrations are unavailable for breached pond (since breached pond did not support a fish population at the time the 1998 fish collections were completed), and as such, an assessment of breached pond fish tissue PCB concentration trends was not performed at this time.

[3] Total PCBs represented by Aroclor 1254.

[4] Mean total PCB and lipid-normalized PCB concentrations reported on a wet-weight basis.

mg/kg = milligram per kilogram (ppm - parts per million)

TABLE 3

TENNESSEE GAS PIPELINE COMPANY - AN EL PASO ENERGY COMPANY
HOUSTON, TEXAS

OPERATIONS AND MAINTENANCE REPORT
COMPRESSOR STATION 229 - ERIE COUNTY, NEW YORK

SEDIMENT SAMPLING AND ANALYTICAL RESULTS [1]
1998 STATION LAKE TRIBUTARY [2]
(Collection Dates: 12/9/94 - 12/10/94 and 9/30/98)

Sample Location # [3]	Sample ID (Month/Year)	Sediment Depth Interval (in)	Total PCB (mg/kg)
Station Lake Tributary			
1	229-OC-DD10-001 (9/98)	0 - 6	0.35
	229-SD-046-102 (12/94) [4]	0 - 2	0.64
	229-SD-046-112 (12/94) [4]	2 - 12	1.0
2	229-OC-DD10-002 (9/98)	0 - 6	0.48
	229-SD-038-202 (12/94)	0 - 2	0.49
3	229-OC-DD10-003 (9/98)	0 - 4.5	ND (0.12)
	229-SD-029-402 (12/94)	0 - 2	0.98

Notes:

[1] Sediment samples collected at 0- to 6-inch depth intervals.

[2] 1998 sediment collections occurred in Station Lake Tributary between Farm Road and North Boston Road.

[3] Since the 1998 sediment sampling events was not intended to duplicate the 1994 effort performed by Woodward-Clyde, comparisons between the 1994 and 1998 sampling events are based on adjacent sample locations and results.

[4] For this sample location, three different sediment depth intervals were collect (0 - 2, 2 - 12, and 12 - 24 inches). The 0 - 2 and the 2 - 12 inch depth intervals are shown, for information pertaining to the 12 - 24 inch depth interval, refer to Figure 2 of the O&M Plan.

in = inches
mg/kg = milligram per kilogram (ppm - parts per million)
ND (0.12) = not detected (method detection limit is shown in parentheses)
NA = not applicable

TABLE 4

TENNESSEE GAS PIPELINE COMPANY - AN EL PASO ENERGY COMPANY
HOUSTON, TEXAS

OPERATIONS AND MAINTENANCE REPORT
COMPRESSOR STATION 229 - ERIE COUNTY, NEW YORK

GROUNDWATER SAMPLING AND ANALYTICAL RESULTS [1]
1998 MONITORING WELL MW-12 [2]
(Collection Date: 9/30/98)

Sample Location	Sample ID	Total PCB [3] (ug/L)
Bog Remediation Area		
MW-12	229-MW-12-DG10-001-01	ND (1.0)
Mean [4]	NA	NA
Standard Deviation	NA	NA

Notes:

[1] Groundwater samples were unfiltered.

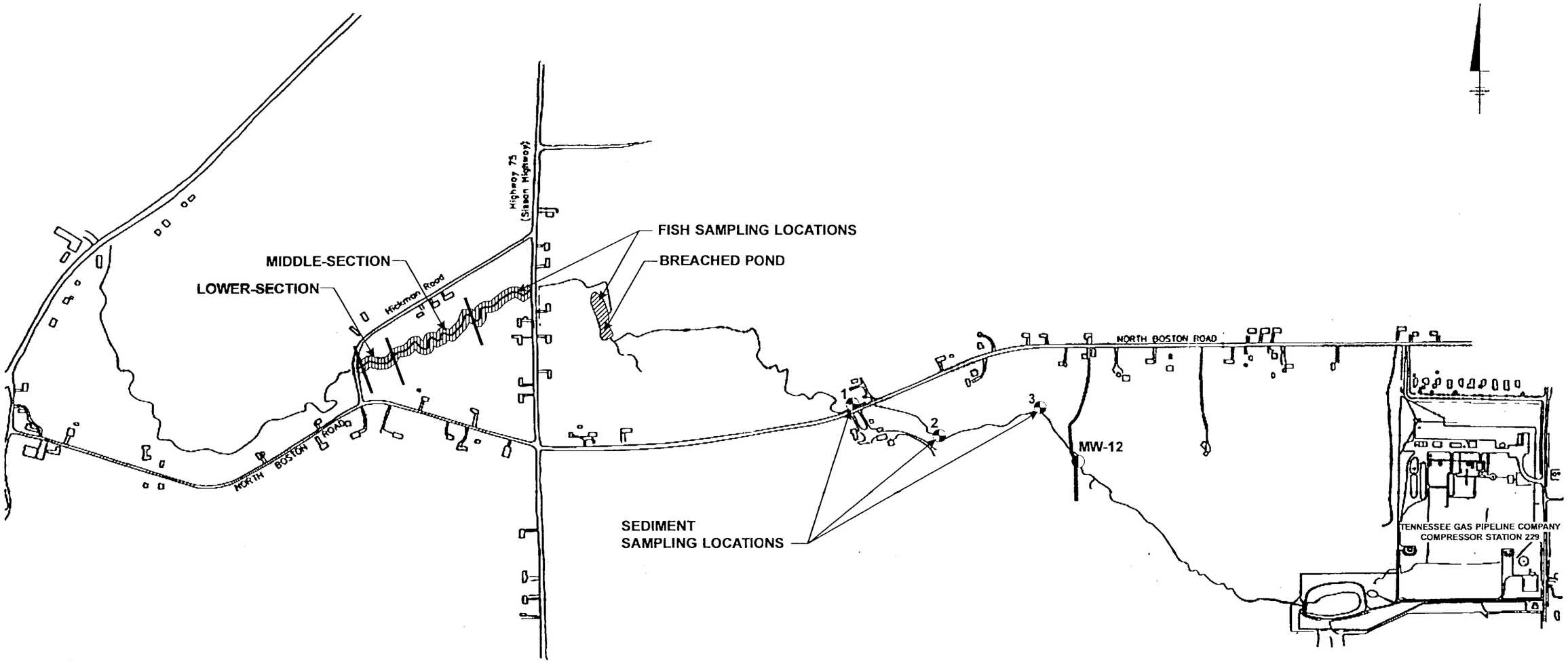
[2] 1998 groundwater sampling was performed at monitoring well MW-12 located on Farm Road within the Bog Remediation Area.

[3] PCBs were not detected in any of the Station Lake Tributary groundwater samples.

[4] Arithmetic mean concentration.

ug/L = microgram per Liter (ppb - parts per billion)
ND (1.0) = not detected (method detection limit is shown in parentheses)
NA = not applicable

Figures



800 0 800

APPROXIMATE SCALE

REFERENCES:
BASE MAP REFERENCE STATION 229 TRIBUTARY MAP,
DATED 9/16/96, DRAFTED BY HFZ, FROM ENVIRON.

LEGEND:

- SEDIMENT SAMPLING LOCATION
- MW-12 GROUNDWATER SAMPLING LOCATION
- FISH SAMPLING LOCATION

TENNESSEE GAS PIPELINE COMPANY
OPERATIONS AND MAINTENANCE REPORT
COMPRESSOR STATION 229
ERIE COUNTY, NEW YORK

RESIDENT FISH, SEDIMENT AND GROUNDWATER SAMPLING LOCATIONS

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 1

2/99 SYR D54-LBR
51341001/51341N01.cdr

MONTH/YEAR	SAMPLE ID	SAMPLE RESULT
12/94	229-SD-038-202	0.49 ppm
9/98	229-OC-DD10-002	0.48 ppm

MONTH/YEAR	SAMPLE ID	SAMPLE RESULT
12/94	229-SD-039-202	1.1 ppm

MONTH/YEAR	SAMPLE ID	SAMPLE RESULT
12/94	229-SD-042-302	0.41 ppm

MONTH/YEAR	SAMPLE ID	SAMPLE RESULT
12/94	229-SD-043-302	0.6 ppm

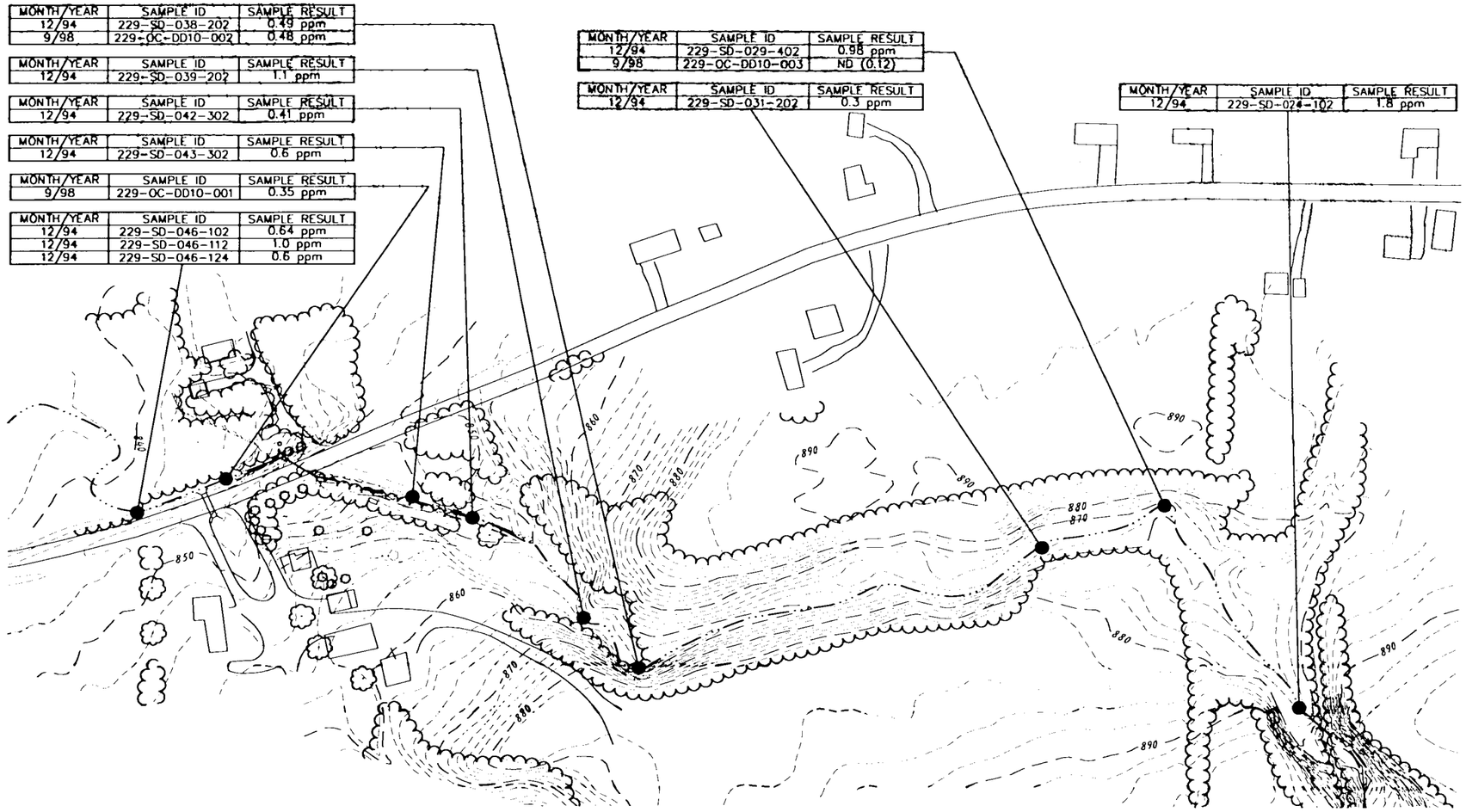
MONTH/YEAR	SAMPLE ID	SAMPLE RESULT
9/98	229-OC-DD10-001	0.35 ppm

MONTH/YEAR	SAMPLE ID	SAMPLE RESULT
12/94	229-SD-046-102	0.64 ppm
12/94	229-SD-046-112	1.0 ppm
12/94	229-SD-046-124	0.6 ppm

MONTH/YEAR	SAMPLE ID	SAMPLE RESULT
12/94	229-SD-029-402	0.98 ppm
9/98	229-OC-DD10-003	ND (0.12)

MONTH/YEAR	SAMPLE ID	SAMPLE RESULT
12/94	229-SD-031-202	0.3 ppm

MONTH/YEAR	SAMPLE ID	SAMPLE RESULT
12/94	229-SD-024-102	1.8 ppm



NOTES:

1. ALL SEDIMENT SAMPLE LOCATIONS ARE APPROXIMATE.
2. SEDIMENT SAMPLE LOCATIONS FROM 12/94 WERE OBTAINED FROM A DOCUMENT ENTITLED SOIL AND SEDIMENT SAMPLING RESULTS FROM A TRIBUTARY AND A BREACHED POND BETWEEN TENNESSEE GAS COMPRESSOR STATION 229 AND HIGHWAY 62 NEAR EDEN, NEW YORK DECEMBER 1994 (WOODWARD-CLYDE, MAY 1995).
3. BASE MAP INFORMATION DEPICTED ON THIS PLAN OBTAINED FROM AUTOCAD DRAWING PREPARED BY ERDMAN ANTHONY CONSULTING ENGINEERS (DRAWING FILE NUMBERS CREKS1.DWG, CREKS2.DWG, CREKS3.DWG, AND S2291996.DWG) AND FROM AUTOCAD DRAWING PREPARED BY LABELLA ASSOCIATES (DRAWING FILE NUMBER S2291996.DWG, CONTOURS SHOWN AT 2-FOOT INTERVALS).
4. MAP INFORMATION WAS PRODUCED ENTIRELY BY PHOTOGRAMMETRIC METHODS (PHOTOGRAPHY TAKEN ON APRIL 27, 1993). THE USER OF THIS MAP IS CAUTIONED THAT CERTAIN AREAS OBSCURED BY SHADOWS AND HEAVY VEGETATION MAY REQUIRE FIELD VERIFICATION. THE OUTLINE OF ALL BUILDINGS REPRESENT ROOF LINES.
5. VERTICAL ACCURACIES CAN BE EXPECTED TO BE +/- ONE HALF OF A CONTOUR INTERVAL FOR CONTOUR LINES, SPOT ELEVATIONS +/- ONE QUARTER OF A CONTOUR INTERVAL IN 90% OF THE AREAS WHICH WERE CLEARLY VISIBLE PHOTOGRAMMETRICALLY.
6. ADDITIONAL INFORMATION REGARDING SEDIMENT SAMPLING AND ANALYTICAL RESULTS ARE PRESENTED IN THE O&M REPORT.

LEGEND

890 — INDEX ELEVATION CONTOUR

2 FOOT ELEVATION CONTOUR

0 200' 400'

GRAPHIC SCALE

TENNESSEE GAS PIPELINE COMPANY
OPERATIONS AND MAINTENANCE REPORT
COMPRESSOR STATION 229
ERIE COUNTY, NEW YORK

SEDIMENT SAMPLING LOCATIONS AND RESULTS

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 2

X: 51341X01, 51341X02.DWG
L: ON=*, OFF=*REF*
P: STD-PCP/BL
9/10/99 SYR-54-KLN
51341003/51341B01.DWG

Attachments

BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Attachment 1
Analytical Data Sheets and Chain-of Custody Forms

PCB ANALYSIS SUMMARY

Lab Name : EN CHEM
Client : Blasland & Bouck Engineers
Project # : 51341002
SDG : 1

Instrument ID : GC01A
Matrix : TISSUE

EN CHEM	Client ID	Date Collected	Date Extracted	Date Analyzed	% Lipid	AROCLOR 1016 UG/KG	AROCLOR 1221 UG/KG	AROCLOR 1232 UG/KG	AROCLOR 1242 UG/KG	AROCLOR 1248 UG/KG	AROCLOR 1254 UG/KG	AROCLOR 1260 UG/KG	Total PCB UG/KG
BBLK 30	BBLANK 30	**********	12/03/98	12/19/98	0.00	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
CSPIKE 30	LCS 30	**********	12/03/98	12/19/98	1.17	< 50	< 50	< 50	< 50	< 50	260	< 50	260
985246-001	SLT-001	10/01/98	12/03/98	12/22/98	4.09	< 360	< 360	< 360	< 360	< 360	2000	< 360	2000
985246-002	SLT-002	10/01/98	12/03/98	12/22/98	4.32	< 300	< 300	< 300	< 300	< 300	1500	< 300	1500
985246-003	SLT-003	10/01/98	12/03/98	12/22/98	3.51	< 430	< 430	< 430	< 430	< 430	2100	< 430	2100
985246-004	SLT-004	10/01/98	12/03/98	12/22/98	3.68	< 470	< 470	< 470	< 470	< 470	2600	< 470	2600
985246-005	SLT-005	10/01/98	12/03/98	12/22/98	3.43	< 430	< 430	< 430	< 430	< 430	1900	< 430	1900
985246-006	SLT-006	10/01/98	12/03/98	12/22/98	4.15	< 340	< 340	< 340	< 340	< 340	1200	< 340	1200
985246-007	SLT-007	10/01/98	12/03/98	12/22/98	3.25	< 370	< 370	< 370	< 370	< 370	1500	< 370	1500
985246-008	SLT-008	10/01/98	12/03/98	12/22/98	3.95	< 460	< 460	< 460	< 460	< 460	2500	< 460	2500
985246-009	SLT-009	10/01/98	12/03/98	12/22/98	2.36	< 150	< 150	< 150	< 150	< 150	660	< 150	660
985246-010	SLT-010	10/01/98	12/03/98	12/22/98	3.08	< 250	< 250	< 250	< 250	< 250	1100	< 250	1100
985246-011	SLT-011	10/01/98	12/03/98	12/22/98	2.73	< 250	< 250	< 250	< 250	< 250	1100	< 250	1100
985246-012	SLT-012	10/01/98	12/03/98	12/22/98	2.79	< 200	< 200	< 200	< 200	< 200	780	< 200	780
985246-013	SLT-013	10/01/98	12/03/98	12/22/98	2.68	< 250	< 250	< 250	< 250	< 250	890	< 250	890
985246-014	SLT-014	10/01/98	12/03/98	12/22/98	5.14	< 440	< 440	< 440	< 440	< 440	1900	< 440	1900
985246-015	SLT-015	10/01/98	12/03/98	12/19/98	2.23	< 91	< 91	< 91	< 91	< 91	770	< 91	770
985246-016	SLT-016	10/01/98	12/03/98	12/23/98	3.28	< 500	< 500	< 500	< 500	< 500	1900	< 500	1900
985246-017MS	SLT-016MS	10/01/98	12/03/98	12/23/98	3.12	< 800	< 800	< 800	< 800	< 800	5000	< 800	5000
985246-018MSD	SLT-016MSD	10/01/98	12/03/98	12/23/98	2.96	< 800	< 800	< 800	< 800	< 800	4900	< 800	4900

Analyte (UG/KG)	RL	Result	Result	Result	Result	Result
Client Sample ID:		229-OC-DD10-001-01	229-OC-DD10-001-01	229-OC-DD10-002-01	229-OC-DD10-002-01	229-OC-DD10-003-01
Job Number & Lab Sample ID:		A98-4198 A8419803RA	A98-4198 A8419803RE	A98-4198 A8419802RA	A98-4198 A8419802RE	A98-4198 A8419801RA
Sample Date:		09/30/98	09/30/98	09/30/98	09/30/98	09/30/98
PCB ANALYSIS - REI METHOD						
Aroclor-1016	0.10	0.12 U	0.11 U	0.12 U	0.12 U	0.12 U
Aroclor-1221	0.10	0.12 U	0.11 U	0.12 U	0.12 U	0.12 U
Aroclor-1232	0.10	0.12 U	0.11 U	0.12 U	0.12 U	0.12 U
Aroclor-1242	0.10	0.12 U	0.11 U	0.12 U	0.12 U	0.12 U
Aroclor-1248	0.10	0.12 U	0.11 U	0.12 U	0.12 U	0.12 U
Aroclor-1254	0.10	0.35	0.19	0.48	0.12	0.12 U
Aroclor-1260	0.10	0.12 U	0.11 U	0.12 U	0.12 U	0.12 U
SURROGATES						
Decachlorobiphenyl	60-130	38 *	19 *	53 *	19 *	53 *

* Indicates Result is Outside QC Limits
NA = Not Applicable

SIL Buffalo

Client Sample ID:	229-OC-DD10-003-01	229-OC-DD10-004-01-F	229-OC-DD10-004-01-F		
Job Number & Lab Sample ID:	A98-4198 A8419801RE	A98-4198 A8419805RA	A98-4198 A8419805RE		
Sample Date:	09/30/98	09/30/98	09/30/98		

Analyte (MG/KG)	RL	Result	Result	Result		
PCB ANALYSIS - REI METHOD						
Aroclor-1016	0.10	0.13 U	0.12 U	0.13 U		
Aroclor-1221	0.10	0.13 U	0.12 U	0.13 U		
Aroclor-1232	0.10	0.13 U	0.12 U	0.13 U		
Aroclor-1242	0.10	0.13 U	0.12 U	0.13 U		
Aroclor-1248	0.10	0.13 U	0.12 U	0.13 U		
Aroclor-1254	0.10	0.13 U	0.13	0.25		
Aroclor-1260	0.10	0.13 U	0.12 U	0.13 U		
SURROGATES						
Decachlorobiphenyl	60-130	53 *	13 *	20 *		

* Indicates Result is Outside QC Limits
NA = Not Applicable

Date: 03/01/1999
Time: 16:58:15

El Paso Energy-New York Sampling Event
Station 229
METHOD 608 - POLYCHLORINATED BIPHENYLS

Rept: AN0326

Client ID Job No / Lab ID Sample Date		229-MW-12-DG10 - 001-61 A98-4199 / AB419901 09/30/1998		229-MW-12-DG10 A98-4199 / AB419901FD 09/30/1998					
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Aroclor-1016	UG/L	ND	1.0	ND	1.0	NA		NA	
Aroclor-1221	UG/L	ND	1.0	ND	1.0	NA		NA	
Aroclor-1232	UG/L	ND	1.0	ND	1.0	NA		NA	
Aroclor-1242	UG/L	ND	1.0	ND	1.0	NA		NA	
Aroclor-1248	UG/L	ND	1.0	ND	1.0	NA		NA	
Aroclor-1254	UG/L	ND	1.0	ND	1.0	NA		NA	
Aroclor-1260	UG/L	ND	1.0	ND	1.0	NA		NA	
SURROGATE(S)									
Tetrachloro-m-xylene	%	80	36-132	78	36-132	NA		NA	
Decachlorobiphenyl	%	49	36-144	72	36-144	NA		NA	

NA = Not Applicable ND = Not Detected

STL Buffalo

Date: 03/01/1999
Time: 16:57:08

El Paso Energy-New York Sampling Event
Station 229
METHOD 608 - POLYCHLORINATED BIPHENYLS

Rept: AN0326

Client ID Job No Sample Date	Lab ID	229-OC-DD10-005-01 A98-4198 09/30/1998	A8419804						
Analyte	Units	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit	Sample Value	Reporting Limit
Aroclor-1016	UG/L	ND	1.0	NA		NA		NA	
Aroclor-1221	UG/L	ND	1.0	NA		NA		NA	
Aroclor-1232	UG/L	ND	1.0	NA		NA		NA	
Aroclor-1242	UG/L	ND	1.0	NA		NA		NA	
Aroclor-1248	UG/L	ND	1.0	NA		NA		NA	
Aroclor-1254	UG/L	ND	1.0	NA		NA		NA	
Aroclor-1260	UG/L	ND	1.0	NA		NA		NA	
SURROGATE(S)									
Tetrachloro-m-xylene	%	58	36-132	NA		NA		NA	
Decachlorobiphenyl	%	106	36-144	NA		NA		NA	

NA = Not Applicable ND = Not Detected

STL Buffalo

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists
6723 Towpath Road, P.O. Box 66
Syracuse, New York 13214-0066
TEL.: (315) 446-9120

CHAIN OF CUSTODY RECORD (FISH)

PROJ. NO.	PROJECT NAME
5134.1002	Tenneco Station 229 Res Fish

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	Number of Containers (Whole Fish)	PCBs (Aroclor)	% Lipids					REMARKS
SLT-001	10/1/98	09:00	X		Station Lake Trib - BlackNose Dace	1	X	X					Analyze whole body composite samples following
SLT-002													analytical procedures cited in the
SLT-003													Station 229 monitoring Plan (enclosed)
SLT-004													
SLT-005													
SLT-006													
SLT-007													
SLT-008													
SLT-009													
SLT-010					Station Lake Trib. Creek Chub								
SLT-011													
SLT-012													
SLT-013													
SLT-014													

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	Relinquished by: (Signature)	DATE	TIME	Relinquished by: (Signature)
[signature]	10/1/98	16:00					

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	Relinquished by: (Signature)	DATE	TIME	Relinquished by: (Signature)

Relinquished by: (Signature)	DATE	TIME	Received for Laboratory by: (Signature)	DATE	TIME	Remarks:

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

10/23/95
5951188L.CDR

BBL
BARTON & LOGUIDICE, INC.
Engineers & Scientists
6723 Towpath Road, P.O. Box 66
Syracuse, New York 13214-0066
TEL: (315) 446-9120

CHAIN OF CUSTODY RECORD (FISH, contd)

PROJ. NO.: 5139.002 | PROJECT NAME: Terrace Station 229, Resident Fish

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	Number of Containers: White Fish	PCBs (Aroclor)	% Lipids	REMARKS
SLT-015	10/1/98	09:00	X		Station Lake Trib Creek Chub	1	X	X	Analyze whole body composite samples following analytical procedures cited in the Station 229 Monitoring Plan (enclosed)
SLT-016	X	X	X		" "	1	X	X	

Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	Relinquished by: (Signature)	DATE	TIME	Relinquished by: (Signature)
[signature]	10/1/98	16:00					
Relinquished by: (Signature)	DATE	TIME	Received by: (Signature)	Relinquished by: (Signature)	DATE	TIME	Relinquished by: (Signature)
Relinquished by: (Signature)	DATE	TIME	Received for Laboratory by: (Signature)	DATE	TIME	Remarks:	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

RECRA LABNET, a division of Recra Environmental, Inc. (SEDIMENT)

CHAIN OF CUSTODY RECORD

PROJECT NO	SITE NAME
513.41	TGPL #229

SAMPLERS (SIGNATURE) [illegible signature]

STATION NO	DATE	TIME	COMP	GRAB	STATION LOCATION	NO OF CONTAINERS	PCB; REI 11-8-0[illegible]							REMARKS
	9-30-98	1105	X		229-0C-DD10-003-01	1	X							
		1135	X		229-0C-DD10-002-01	1	X							
		1230	X		229-0C-DD10-001-01-MS	1	X							MATRIX ~~MATRIX~~ SPIKE
		1230	X		229-0C-DD10-001-01-SD	1	X							MATRIX SPIKE DUPLICATE
		1215	X		229-0C-DD10-005-01-RS	1	X							RINSE BLANK
		1230	X		229-0C-DD10-001-01	1	X							
		—	X		229-0C-DD10-004-01-FD	1	X							DUPLICATE of 229-0C-DD10-001-01

RELINQUISHED BY (SIGNATURE)	DATE/TIME		RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE/TIME		RECEIVED BY (SIGNATURE)
[illegible signature]	[illegible]	1742	[illegible signature]				
RELINQUISHED BY (SIGNATURE)	**DATE/TIME**		**RECEIVED BY (SIGNATURE)**	**RELINQUISHED BY (SIGNATURE)**	**DATE/TIME**		**RECEIVED BY (SIGNATURE)**
RELINQUISHED BY (SIGNATURE)	**DATE/TIME**		**RECEIVED FOR LABORATORY BY (SIGNATURE)**	**DATE/TIME**		**REMARKS**	

Distribution: Original accompanies shipment copy to coordinator field files

RECRA LABNET, a division of Recra Environmental, Inc. (WATER)

CHAIN OF CUSTODY RECORD

PROJECT NO	SITE NAME
523.41	TGPL-229

SAMPLERS (SIGNATURE)

STATION NO	DATE	TIME	COMP	GRAB	STATION LOCATION	NO OF CONTAINERS	RAS (LOC)	REMARKS
MW-12	9/30/93	1515		X	229-MW-12-DGJP-001-01	2	X	
		1555		X	229-MW-12-DGJP-001-01-FD	2	X	FIELD DUP
		1555		X	229-MW-12-DGJP-001-01-MS	2	X	MATRIX SPIKE
		1515		X	229-MW-12-DGJP-001-01-SD	2	X	MATRIX SPIKE DUP.

RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)
	10/1/93 1745				
RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)
RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED FOR LABORATORY BY (SIGNATURE)	DATE/TIME	REMARKS	

Distribution: Original accompanies shipment copy to coordinator field files

Appendices

Appendix A

BLASLAND, BOUCK & LEE, INC.
engineers & scientists

O&M Activity Log Form

ATTACHMENT A

OPERATIONS AND MAINTENANCE PLAN
TENNESSEE GAS PIPELINE COMPANY
COMPRESSOR STATION 229 (Site No. 9-15-140)
ERIE COUNTY, NEW YORK

O&M ACTIVITY LOG FORM

Personnel Performing O&M Activity: KARL STRAUSE, DAVID BUYS, PETER SPENSE

Date: 9/30/98 - 10/1/98

☐ Drainline D Excavation - Provide Description of Activity (include sketch as attachment)

Drainline Component Removed? (Yes/No)
Drainline Component Disposed? (Yes/No) (Attach Manifest)
Repairs Made to Exposed Drainlines? (Yes/No)
Describe:

☐ Air Tank Receiver Area Excavation - Provide Description of Activity (include sketch as attachment)

Excavation Below Geotextile Fabric Layer of Low-Permeability Cap Performed? (Yes/No)
Excavated Materials Disposed Off-Site? (Yes/No) (Attach Manifest)
Cap Restored to Original Conditions? (Yes/No)
Describe:

ATTACHMENT A

OPERATIONS AND MAINTENANCE PLAN
TENNESSEE GAS PIPELINE COMPANY
COMPRESSOR STATION 229 (Site No. 9-15-140)
ERIE COUNTY, NEW YORK

O&M ACTIVITY LOG FORM

☐ Tributary Areas Inspections - Monitor Covered/Stabilized Areas for Integrity and monitor outlet structures for proper operation

Maintenance necessary? (Yes/No)
Describe:

_____
_____
_____
_____

☐ Observations at Fiery, Skura, and Zulawski properties - Observe Covered/Stabilized Areas for Integrity [to be performed from public rights-of-way (e.g., North Boston Road)]

Describe:

_____
_____
_____
_____

☐ Station Lake Inspection - Monitoring outlet structure for proper operation

Describe:

_____
_____
_____
_____

☒ Fish Monitoring - Fish Tissue Sampling Performed? (Yes/No)
(Attach Summary Report and Analytical Results)

☒ Sediment Monitoring - Sediment Sampling Performed? (Yes/No)
(Attach Summary Report and Analytical Results)

☒ Groundwater Monitoring - Groundwater Sampling Performed (Yes/No)
(Attach Summary Report and Analytical Results)

Notes:
1. Figures 1, 2, and 3 show the general areas subject to Operation and Maintenance activities.
2. See Operations and Maintenance Plan (O&M Plan) text for additional details regarding inspection/monitoring activities, frequency, and duration. Also, see O&M Plan for additional sampling information.

Appendix B

BLASLAND, BOUCK & LEE, INC.
engineers & scientists

NYSDEC Fish and Wildlife License to Collect or Possess

82-20-162 (9/95)—7e

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF FISH AND WILDLIFE • SPECIAL LICENSES UNIT
50 WOLF ROAD, ALBANY, NEW YORK 12233-4752

LICENSE NUMBER
LCP98-538

NEW YORK STATE FISH AND WILDLIFE LICENSE

1. License Type LICENSE TO COLLECT OR POSSESS AMENDMENT I

2. Licensee:

KARL D STRAUSE
BLASLAND, BOUCK & LEE INC.
6723 TOWPATH ROAD BOX 66
SYRACUSE NY 13214

3. DOB 1/20/61

4. Fee 10.00

5. Effective Date 8/27/98

6. Expiration Date 8/31/99

7. County ONONDAGA

8. Region 7

9. STATUTORY AUTHORITY ECL 11-0515 (1), 6 NYCRR PART 175

10. CONDITIONS (All conditions on the reverse side and any attached conditions apply to this license.)

A. THE LICENSEE AND/OR HIS DESIGNATED AGENTS ARE AUTHORIZED TO COLLECT AND POSSESS NO MORE THAN 60 OF EACH OF THE FOLLOWING SPECIES; BLUEGILL, CREEK CHUB, LARGEMOUTH BASS AND BLACKNOSE DACE FROM THE STATION LAKE TRIBUTARY AND BREACHED POND NEAR TENNESSEE GAS COMPRESSER STATION 229, NEAR EDEN, IN ERIE COUNTY, FOR SCIENTIFIC PURPOSES.

B. NO ENDANGERED/THREATENED SPECIES OR SPECIES OF SPECIAL CONCERN MAY BE COLLECTED OR POSSESSED PURSUANT TO THIS LICENSE.

C. AUTHORIZED COLLECTING GEAR TO INCLUDE ELECTROFISHING. SEINING, GILL NETTING AND MINNOW TRAPS MAY BE EMPLOYED IF ELECTROFISHING TECHNIQUES ARE UNSUCCESSFUL.

D. THE LICENSEE AND/OR HIS DESIGNATED AGENTS SHALL NOTIFY THE APPROPRIATE REGIONAL ENVIRONMENTAL CONSERVATION OFFICER AT LEAST 48 HOURS PRIOR TO ANY COLLECTING ACTIVITY, (716) 851-7000.

E. THE LICENSEE SHALL FILE WITH THE DEPARTMENT ON OR BEFORE FEBRUARY 1 A REPORT OF ACTIVITIES CONDUCTED UNDER THIS LICENSE DURING THE PRECEDING CALENDAR YEAR, OR UPON REQUEST FOR LICENSE RENEWAL. FOR FISH COLLECTIONS, THIS REPORT WILL LIST BY COLLECTION DATE AND GEAR, THE NUMBER OF SPECIMENS OF EACH SPECIES COLLECTED AND THE DISPOSITION OF SUCH FISH AFTER COLLECTION

F. THE LICENSEE MAY DESIGNATE AGENTS TO CONDUCT ACTIVITIES AUTHORIZED BY THIS LICENSE. SUCH DESIGNATIONS MUST BE IN WRITING AND THE LICENSEE MUST

MAINTAIN AN ACCURATE LIST OF AGENTS DESIGNATED PURSUANT TO THIS LICENSE AND SUCH LIST MUST BE ON FILE WITH THE NYS DEC SPECIAL LICENSES UNIT. THE LICENSEE IS RESPONSIBLE FOR ALL ACTIONS TAKEN BY DESIGNATED AGENTS UNDER THIS LICENSE.

G. THE LICENSEE MUST SUBMIT A WRITTEN REQUEST FOR RENEWAL OF THIS LICENSE. TO THE NYS DEC SPECIAL LICENSES UNIT, 50 WOLF ROAD, ALBANY, NEW YORK 12233-4752, WITHIN THE MONTH PRIOR TO THE EXPIRATION DATE OF THIS LICENSE. THE WRITTEN REQUEST MUST INCLUDE THE LICENSEES CORRECT ADDRESS AND A REPORT OF ACTIVITIES UNDER THE CURRENT LICENSE AS SPECIFIED IN CONDITION E ABOVE.

H. THIS LICENSE IS DEEMED EXPIRED ON THE DATE OF EXPIRATION LISTED ABOVE, UNLESS OTHERWISE NOTIFIED BY THE DEPARTMENT.

ORIGINAL

GENERAL TERMS AND CONDITIONS

1. Any person issued a New York State Fish and Wildlife License assumes all liability and responsibility for any activity conducted under the authority of such license or actions resulting from activities authorized by the license.

2. This license may be revoked for any of the following reasons:

   a. licensee provided materially false or inaccurate statements in his or her application, supporting papers or on required reports;

   b. failure by the licensee to comply with any terms or conditions of this license;

   c. licensee exceeds the scope of the purpose or activities described in his or her application for the license;

   d. the licensee fails to comply with any provisions of the NYS Environmental Conservation Law, any other State or Federal laws or regulations of the Department directly related to the licensed activity;

   e. the licensee submits a check, money order or voucher for a license or application for a license that is returned to the Department for insufficient funds or nonpayment after a license has been issued.

3. The renewal of this license is the responsibility of the licensee.

DIRECT ALL QUESTIONS CONCERNING THIS LICENSE TO THE SPECIAL LICENSES UNIT (518) 457-0689

Appendix C

BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Resident Fish Sampling Log Sheets and Field Notes

ATTACHMENT B

OPERATIONS AND MAINTENANCE PLAN
TENNESSEE GAS PIPELINE COMPANY
COMPRESSOR STATION 229 (Site No. 9-15-140)
ERIE COUNTY, NEW YORK

RESIDENT FISH SAMPLING LOG SHEET

Personnel Performing Resident Fish Sampling: KDS, DJB (Karl D. Strause, David J. Buys)

Water Body/Sample Location: Station Lake Tributary (SLT) Sample ID: SLT-001

Date and Time of Capture: 9/30-10/1, 1999. 4-7pm and 7:30-9:30am, respectively

Method of Capture: Backpack electrofishing unit

Stream Conditions: Small amount of flow in middle and lower reaches (increasing downstream). No visible surface flow and isolated stagnant pools in most of upper reach.

Sample Number	Type of Species	Total Length (cm)	Weight (grams)	Gender	Sample Type	Comments
SLT-001	Blacknose dace	7.8	4.6	NA	whole-body	
	"	7.1	3.6	"	Composite	
	"	8.1	5.5	"	"	
	"	6.3	2.4	"	"	
	"	7.9	4.8	"	"	
	"	6.9	3.0	"	"	
	"	7.6	4.1	"	"	
	"	6.7	2.6	"	"	
	"	7.1	3.4	"	"	
	"	6.5	2.6	"	"	

Method of Compositing:
Describe:
Each whole-body composite fish sample (consisting of a minimum of 5 individual fish and 20 grams of tissue mass) was wrapped in aluminum foil and freezer paper, placed in a ziplock bag, and shipped on ice to the analytical laboratory (EnChem, Inc, Madison, WI) for chemical analyses of PCB Aroclors and percent lipids.
Miscellaneous Observations/Notes:
NA = not applicable.
Total number of fish in composite = 10.

ATTACHMENT B

OPERATIONS AND MAINTENANCE PLAN
TENNESSEE GAS PIPELINE COMPANY
COMPRESSOR STATION 229 (Site No. 9-15-140)
ERIE COUNTY, NEW YORK

RESIDENT FISH SAMPLING LOG SHEET

Personnel Performing Resident Fish Sampling: KDS, DJB (Karl D. Strause, David J. Buys)

Water Body/Sample Location: Station Lake Tributary (SLT) Sample ID: SLT-002

Date and Time of Capture: 9/30-10/1, 1999. 4-7pm and 7:30-9:30am, respectively

Method of Capture: Backpack electrofishing unit

Stream Conditions: Small amount of flow in middle and lower reaches (increasing downstream). No visible surface flow and isolated stagnant pools in most of upper reach.

Sample Number	Type of Species	Total Length (cm)	Weight (grams)	Gender	Sample Type	Comments
SLT-002	Blacknose dace	8.2	5.4	NA	whole-body	
	"	6.8	2.9	"	Composite	
	"	7.4	4.0	"	"	
	"	7.5	4.5	"	"	
	"	6.6	2.6	"	"	
	"	6.4	2.6	"	"	
	"	7.8	4.6	"	"	
	"	7.1	3.3	"	"	
	"	6.2	2.4	"	"	
	"	6.3	2.2	"	"	

Method of Compositing:
Describe:
Each whole-body composite fish sample (consisting of a minimum of 5 individual fish and 20 grams of tissue mass) was wrapped in aluminum foil and freezer paper, placed in a ziplock bag, and shipped on ice to the analytical laboratory (EnChem, Inc, Madison, WI) for chemical analyses of PCB Aroclors and percent lipids.

Miscellaneous Observations/Notes:
NA = not applicable
Total number of fish in composite = 10.

ATTACHMENT B

OPERATIONS AND MAINTENANCE PLAN
TENNESSEE GAS PIPELINE COMPANY
COMPRESSOR STATION 229 (Site No. 9-15-140)
ERIE COUNTY, NEW YORK

RESIDENT FISH SAMPLING LOG SHEET

Personnel Performing Resident Fish Sampling: KDS, DJB (Kael D. Strause, David J. Buys)

Water Body/Sample Location: Station Lake Tributary (SLT) Sample ID: SLT-003.

Date and Time of Capture: 9/30-10/1, 1999. 4-7pm and 7:30-9:30am, respectively

Method of Capture: Backpack electrofishing unit

Stream Conditions: Small amount of flow in middle and lower reaches (increasing downstream). No visible surface flow and isolated stagnant pools in most of upper reach.

Sample Number	Type of Species	Total Length (cm)	Weight (grams)	Gender	Sample Type	Comments
SLT-003	Blacknosedace	7.7	4.1	NA	Whole-body	
	"	6.2	2.3	"	Composite	
	"	6.0	1.9	"	"	
	"	8.0	4.8	"	"	
	"	6.1	2.2	"	"	
	"	6.7	2.9	"	"	
	"	6.0	1.8	"	"	
	"	7.4	4.1	"	"	
	"	6.3	2.3	"	"	

Method of Compositing:
Describe:
Each whole-body composite fish sample (consisting of a minimum of 5 individual fish and 20 grams of tissue mass) was wrapped in aluminum foil and freezer paper, placed in a ziplock bag, and shipped on ice to the analytical laboratory (EnChem, Inc, Madison, WI) for chemical analyses of PCB Aroclors and percent lipids.
Miscellaneous Observations/Notes:
NA = not applicable.
Total number of fish in composite = 9.

ATTACHMENT B

OPERATIONS AND MAINTENANCE PLAN
TENNESSEE GAS PIPELINE COMPANY
COMPRESSOR STATION 229 (Site No. 9-15-140)
ERIE COUNTY, NEW YORK

RESIDENT FISH SAMPLING LOG SHEET

Personnel Performing Resident Fish Sampling: KDS, DJB (Karl D. Strause, David J. Buys)

Water Body/Sample Location: Station Lake Tributary (SLT) Sample ID: SLT-004

Date and Time of Capture: 9/30-10/1, 1999. 4-7pm and 7:30-9:30am, respectively

Method of Capture: Backpack electrofishing unit

Stream Conditions: Small amount of flow in middle and lower reaches (increasing downstream). No visible surface flow and isolated stagnant pools in most of upper reach.

Sample Number	Type of Species	Total Length (cm)	Weight (grams)	Gender	Sample Type	Comments
SLT-004	Blacknose dace	6.4	2.6	NA	whole-body	
	"	7.3	3.7	"	Composite	
	"	6.7	2.9	"	"	
	"	7.0	3.3	"	"	
	"	6.0	2.0	"	"	
	"	7.2	4.5	"	"	
	"	6.4	2.3	"	"	
	"	6.7	2.8	"	"	
	"	6.4	2.4	"	"	

Method of Compositing:
Describe:
Each whole-body composite fish sample (consisting of a minimum of 5 individual fish and 20 grams of tissue mass) was wrapped in aluminum foil and freezer paper, placed in a ziplock bag, and shipped on ice to the analytical laboratory (EnChem, Inc, Madison, WI) for chemical analyses of PCB Aroclors and percent lipids.
Miscellaneous Observations/Notes:
NA = not applicable.
Total number of fish in composite = 9.

ATTACHMENT B

OPERATIONS AND MAINTENANCE PLAN
TENNESSEE GAS PIPELINE COMPANY
COMPRESSOR STATION 229 (Site No. 9-15-140)
ERIE COUNTY, NEW YORK

RESIDENT FISH SAMPLING LOG SHEET

Personnel Performing Resident Fish Sampling: KDS, DJB (Karl D. Strause, David J. Buys)

Water Body/Sample Location: Station Lake Tributary (SLT) Sample ID: SLT-005

Date and Time of Capture: 9/30-10/1, 1999. 4-7pm and 7:30-9:30am, respectively

Method of Capture: Backpack electrofishing unit

Stream Conditions: Small amount of flow in middle and lower reaches (increasing downstream). No visible surface flow and isolated stagnant pools in most of upper reach.

Sample Number	Type of Species	Total Length (cm)	Weight (grams)	Gender	Sample Type	Comments
SLT-005	Blacknose dace	7.2	3.8	NA	whole-body	
	"	6.7	3.2	"	Composite	
	"	7.5	3.9	"	"	
	"	7.3	4.0	"	"	
	"	7.2	3.0	"	"	
	"	6.0	2.2	"	"	
	"	6.0	2.1	"	"	
	"	6.7	3.1	"	"	
	"	6.7	2.8	"	"	

Method of Compositing:
Describe:
Each whole-body composite fish sample (consisting of a minimum of 5 individual fish and 20 grams of tissue mass) was wrapped in aluminum foil and freezer paper, placed in a ziplock bag, and shipped on ice to the analytical laboratory (EnChem, Inc., Madison, WI) for chemical analyses of PCB Aroclors and percent lipids.
Miscellaneous Observations/Notes:
NA = not applicable.
Total number of fish in composite = 9.

ATTACHMENT B

OPERATIONS AND MAINTENANCE PLAN
TENNESSEE GAS PIPELINE COMPANY
COMPRESSOR STATION 229 (Site No. 9-15-140)
ERIE COUNTY, NEW YORK

RESIDENT FISH SAMPLING LOG SHEET

Personnel Performing Resident Fish Sampling: KDS, DJB (Karl D. Strawse, David J. Buys)

Water Body/Sample Location: Station Lake Tributary (SLT) Sample ID: SLT-006

Date and Time of Capture: 9/30-10/1, 1999. 4-7pm and 7:30-9:30am, respectively

Method of Capture: Backpack electrofishing unit

Stream Conditions: Small amount of flow in middle and lower reaches (increasing downstream). No visible surface flow and isolated stagnant pools in most of upper reach.

Sample Number	Type of Species	Total Length (cm)	Weight (grams)	Gender	Sample Type	Comments
SLT-006	Blacknose dace	7.8	4.6	NA	whole-body	
	"	6.8	3.2	"	Composite	
	"	7.4	3.7	"	"	
	"	6.8	2.4	"	"	
	"	7.3	4.1	"	"	
	"	6.7	2.9	"	"	
	"	6.8	3.2	"	"	
	"	6.7	2.8	"	"	

Method of Compositing:
Describe:
Each whole-body composite fish sample (consisting of a minimum of 5 individual fish and 20 grams of tissue mass) was wrapped in aluminum foil and freezer paper, placed in a ziplock bag, and shipped on ice to the analytical laboratory (EnChem, Inc., Madison, WI) for chemical analyses of PCB Aroclors and percent lipids.
Miscellaneous Observations/Notes:
NA = not applicable.
Total number of fish in composite = 8.

ATTACHMENT B

OPERATIONS AND MAINTENANCE PLAN
TENNESSEE GAS PIPELINE COMPANY
COMPRESSOR STATION 229 (Site No. 9-15-140)
ERIE COUNTY, NEW YORK

RESIDENT FISH SAMPLING LOG SHEET

Personnel Performing Resident Fish Sampling: KDS, DJB (Karl D. Strause, David J. Buys)

Water Body/Sample Location: Station Lake Tributary (SLT) Sample ID: SLT-007

Date and Time of Capture: 9/30-10/1, 1999 - 4-7pm and 7:30-9:30am, respectively

Method of Capture: Backpack electrofishing unit

Stream Conditions: Small amount of flow in middle and lower reaches (increasing downstream). No visible surface flow and isolated stagnant pools in most of upper reach.

Sample Number	Type of Species	Total Length (cm)	Weight (grams)	Gender	Sample Type	Comments
SLT-007	Blacknose dace	6.2	2.5	NA	whole-body	
	"	7.0	3.2	"	Composite	
	"	7.0	3.4	"	"	
	"	6.8	3.0	"	"	
	"	8.3	5.5	"	"	
	"	6.0	2.2	"	"	
	"	6.5	2.7	"	"	
	"	7.7	4.3	"	"	

Method of Compositing:

Describe:
Each whole-body composite fish sample (consisting of a minimum of 5 individual fish and 20 grams of tissue mass) was wrapped in aluminum foil and freezer paper, placed in a ziplock bag, and shipped on ice to the analytical laboratory (En Chem, Inc, Madison, WI) for chemical analyses of PCB Aroclors and percent lipids.

Miscellaneous Observations/Notes:
NA = not applicable.
Total number of fish in composite = 8.

ATTACHMENT B

OPERATIONS AND MAINTENANCE PLAN
TENNESSEE GAS PIPELINE COMPANY
COMPRESSOR STATION 229 (Site No. 9-15-140)
ERIE COUNTY, NEW YORK

RESIDENT FISH SAMPLING LOG SHEET

Personnel Performing Resident Fish Sampling: KDS, DJB (Karl D. Strause, David J. Buys)

Water Body/Sample Location: Station Lake Tributary (SLT) Sample ID: SLT-008

Date and Time of Capture: 9/30-10/1, 1999. 4-7pm and 7:30-9:30am, respectively

Method of Capture: Backpack electrofishing unit

Stream Conditions: Small amount of flow in middle and lower reaches (increasing downstream). No visible surface flow and isolated stagnant pools in most of upper reach.

Sample Number	Type of Species	Total Length (cm)	Weight (grams)	Gender	Sample Type	Comments
SLT-008	Blacknose dace	7.5	4.5	NA	whole-body	
	"	6.0	2.2	"	Composite	
	"	7.5	4.1	"	"	
	"	8.5	5.8	"	"	
	"	6.6	2.6	"	"	
	"	7.4	3.9	"	"	
	"	8.3	5.2	"	"	

Method of Compositing:
Describe:
Each whole-body composite fish sample (consisting of a minimum of 5 individual fish and 20 grams of tissue mass) was wrapped in aluminum foil and freezer paper, placed in a ziplock bag, and shipped on ice to the analytical laboratory (EnChem, Inc, Madison, WI) for chemical analyses of PCB Aroclors and percent lipids.
Miscellaneous Observations/Notes:
NA = not applicable.
Total number of fish in composite = 7

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OPERATIONS AND MAINTENANCE PLAN
TENNESSEE GAS PIPELINE COMPANY
COMPRESSOR STATION 229 (Site No. 9-15-140)
ERIE COUNTY, NEW YORK

RESIDENT FISH SAMPLING LOG SHEET

Personnel Performing Resident Fish Sampling: KDS, DJB (Karl D. Strause, David J. Buys)

Water Body/Sample Location: Station Lake Tributary (SLT) Sample ID: SLT-009

Date and Time of Capture: 9/30-10/1, 1999. 4-7pm and 7:30-9:30am, respectively

Method of Capture: Backpack electrofishing unit

Stream Conditions: Small amount of flow in middle and lower reaches (increasing downstream). No visible surface flow and isolated stagnant pools in most of upper reach.

Sample Number	Type of Species	Total Length (cm)	Weight (grams)	Gender	Sample Type	Comments
SLT-009	Creek chub	12.0	17.0	NA	Whole-body	
	"	11.2	14.9	"	Composite	
	"	9.0	7.0	"	"	
	"	8.7	6.4	"	"	
	"	11.9	17.1	"	"	

Method of Compositing:
Describe:
Each whole-body composite fish sample (consisting of a minimum of 5 individual fish and 20 grams of tissue mass) was wrapped in aluminum foil and freezer paper, placed in a ziplock bag, and shipped on ice to the analytical laboratory (EnChem, Inc., Madison, WI) for chemical analyses of PCB Aroclors and percent lipids.
Miscellaneous Observations/Notes:
NA = not applicable.
Total number of fish in composite = 5.

ATTACHMENT B

OPERATIONS AND MAINTENANCE PLAN
TENNESSEE GAS PIPELINE COMPANY
COMPRESSOR STATION 229 (Site No. 9-15-140)
ERIE COUNTY, NEW YORK

RESIDENT FISH SAMPLING LOG SHEET

Personnel Performing Resident Fish Sampling: KDS, DJB (Karl D. Strause, David J. Buys)

Water Body/Sample Location: Station Lake Tributary (SLT) Sample ID: SLT-010

Date and Time of Capture: 9/30-10/1, 1999. 4-7pm and 7:30-9:30am, respectively

Method of Capture: Backpack electrofishing unit

Stream Conditions: Small amount of flow in middle and lower reaches (increasing downstream). No visible surface flow and isolated stagnant pools in most of upper reach.

Sample Number	Type of Species	Total Length (cm)	Weight (grams)	Gender	Sample Type	Comments
SLT-010	Creek chub	7.6	4.5	NA	whole-body	
	"	8.6	6.0	"	Composite	
	"	12.3	17.2	"	"	
	"	12.0	17.5	"	"	
	"	9.0	7.6	"	"	

Method of Compositing:
Describe:
Each whole-body composite fish sample (consisting of a minimum of 5 individual fish and 20 grams of tissue mass) was wrapped in aluminum foil and freezer paper, placed in a ziplock bag, and shipped on ice to the analytical laboratory (EnChem, Inc, Madison, WI) for chemical analyses of PCB Aroclors and percent lipids.
Miscellaneous Observations/Notes:
NA = not applicable.
Total number of fish in composite = 5.

ATTACHMENT B

OPERATIONS AND MAINTENANCE PLAN
TENNESSEE GAS PIPELINE COMPANY
COMPRESSOR STATION 229 (Site No. 9-15-140)
ERIE COUNTY, NEW YORK

RESIDENT FISH SAMPLING LOG SHEET

Personnel Performing Resident Fish Sampling: KDS, DJB (Karl D. Strause, David J. Buys)

Water Body/Sample Location: Station Lake Tributary (SLT) Sample ID: SLT-011

Date and Time of Capture: 9/30-10/1, 1999. 4-7pm and 7:30-9:30am, respectively

Method of Capture: Backpack electrofishing unit

Stream Conditions: Small amount of flow in middle and lower reaches (increasing downstream). No visible surface flow and isolated stagnant pools in most of upper reach.

Sample Number	Type of Species	Total Length (cm)	Weight (grams)	Gender	Sample Type	Comments
SLT-011	Creek chub	9.4	7.9	NA	whole-body	
	"	11.6	16.8	"	Composite	
	"	10.4	11.2	"	"	
	"	11.4	14.1	"	"	
	"	11.0	12.3	"	"	

Method of Compositing:
Describe:
Each whole-body composite fish sample (consisting of a minimum of 5 individual fish and 20 grams of tissue mass) was wrapped in aluminum foil and freezer paper, placed in a ziplock bag, and shipped on ice to the analytical laboratory (EnChem, Inc, Madison, WI) for chemical analyses of PCB Aroclors and percent lipids.
Miscellaneous Observations/Notes:
NA = not applicable.
Total number of fish in composite = 5.

ATTACHMENT B

OPERATIONS AND MAINTENANCE PLAN
TENNESSEE GAS PIPELINE COMPANY
COMPRESSOR STATION 229 (Site No. 9-15-140)
ERIE COUNTY, NEW YORK

RESIDENT FISH SAMPLING LOG SHEET

Personnel Performing Resident Fish Sampling: KDS, DJB (Kent D. Strause, David J. Buys)

Water Body/Sample Location: Station Lake Tributary (SLT) Sample ID: SLT-012

Date and Time of Capture: 9/30-10/1, 1999. 4-7pm and 7:30-9:30am, respectively

Method of Capture: Backpack electrofishing unit

Stream Conditions: Small amount of flow in middle and lower reaches (increasing downstream). No visible surface flow and isolated stagnant pools in most of upper reach.

Sample Number	Type of Species	Total Length (cm)	Weight (grams)	Gender	Sample Type	Comments
SLT-012	Creek chub	12.1	20.3	NA	whole-body	
	"	9.5	8.3	"	Composite	
	"	9.1	7.0	"	"	
	"	9.0	7.3	"	"	
	"	7.8	5.0	"	"	

Method of Compositing:

Describe:

Each whole-body composite fish sample (consisting of a minimum of 5 individual fish and 20 grams of tissue mass) was wrapped in aluminum foil and freezer paper, placed in a ziplock bag, and shipped on ice to the analytical laboratory (EnChem, Inc, Madison, WI) for chemical analyses of PCB Aroclors and percent lipids.

Miscellaneous Observations/Notes:

NA = not applicable.

Total number of fish in composite = 5

ATTACHMENT B

OPERATIONS AND MAINTENANCE PLAN
TENNESSEE GAS PIPELINE COMPANY
COMPRESSOR STATION 229 (Site No. 9-15-140)
ERIE COUNTY, NEW YORK

RESIDENT FISH SAMPLING LOG SHEET

Personnel Performing Resident Fish Sampling: KDS, DJB (Karl D. Strause, David J. Buys)

Water Body/Sample Location: Station Lake Tributary (SLT) Sample ID: SLT-013

Date and Time of Capture: 9/30-10/1, 1999. 4-7pm and 7:30-9:30am, respectively

Method of Capture: Backpack electrofishing unit

Stream Conditions: Small amount of flow in middle and lower reaches (increasing downstream). No visible surface flow and isolated stagnant pools in most of upper reach.

Sample Number	Type of Species	Total Length (cm)	Weight (grams)	Gender	Sample Type	Comments
SLT-013	Creek chub	11.7	17.0	NA	whole-body	
	"	9.4	9.0	"	Composite	
	"	9.6	8.5	"	"	
	"	9.5	9.1	"	"	
	"	10.2	10.9	"	"	

Method of Compositing:
Describe:
Each whole-body composite fish sample (consisting of a minimum of 5 individual fish and 20 grams of tissue mass) was wrapped in aluminum foil and freezer paper, placed in a ziplock bag, and shipped on ice to the analytical laboratory (EnChem, Inc, Madison, WI) for chemical analyses of PCB Aroclors and percent lipids.
Miscellaneous Observations/Notes:
NA = not applicable.
Total number of fish in composite = 5.

ATTACHMENT B

OPERATIONS AND MAINTENANCE PLAN
TENNESSEE GAS PIPELINE COMPANY
COMPRESSOR STATION 229 (Site No. 9-15-140)
ERIE COUNTY, NEW YORK

RESIDENT FISH SAMPLING LOG SHEET

Personnel Performing Resident Fish Sampling: KDS, DJB (Karl D. Strause, David J. Buys)

Water Body/Sample Location: Station Lake Tributary (SLT) Sample ID: SLT-014

Date and Time of Capture: 9/30-10/1, 1999. 4-7pm and 7:30-9:30am, respectively

Method of Capture: Backpack electrofishing unit

Stream Conditions: Small amount of flow in middle and lower reaches (increasing downstream). No visible surface flow and isolated stagnant pools in most of upper reach.

Sample Number	Type of Species	Total Length (cm)	Weight (grams)	Gender	Sample Type	Comments
SLT-014	Creek chub	12.5	19.4	NA	whole-body	
	"	11.3	14.1	"	Composite	
	"	10.4	11.6	"	"	
	"	9.9	9.9	"	"	
	"	8.1	5.6	"	"	

Method of Compositing:
Describe:
Each whole-body composite fish sample (consisting of a minimum of 5 individual fish and 20 grams of tissue mass) was wrapped in aluminum foil and freezer paper, placed in a ziplock bag, and shipped on ice to the analytical laboratory (En Chem, Inc, Madison, WI) for chemical analyses of PCB Aroclors and percent lipids.
Miscellaneous Observations/Notes:
NA = not applicable.
Total number of fish in composite = 5.

ATTACHMENT B

OPERATIONS AND MAINTENANCE PLAN
TENNESSEE GAS PIPELINE COMPANY
COMPRESSOR STATION 229 (Site No. 9-15-140)
ERIE COUNTY, NEW YORK

RESIDENT FISH SAMPLING LOG SHEET

Personnel Performing Resident Fish Sampling: KDS, DJB (Karl D. Strause, David J. Buys)

Water Body/Sample Location: Station Lake Tributary (SLT) Sample ID: SLT-015

Date and Time of Capture: 9/30-10/1, 1999. 4-7pm and 7:30-9:30am, respectively

Method of Capture: Backpack electrofishing unit

Stream Conditions: Small amount of flow in middle and lower reaches (increasing downstream). No visible surface flow and isolated stagnant pools in most of upper reach.

Sample Number	Type of Species	Total Length (cm)	Weight (grams)	Gender	Sample Type	Comments
SLT-015	Creek chub	11.0	13.0	NA	whole-body	
	"	10.0	10.4	"	Composite	
	"	9.0	7.8	"	"	
	"	8.3	5.8	"	"	
	"	8.6	6.0	"	"	

Method of Compositing:
Describe:
Each whole-body composite fish sample (consisting of a minimum of 5 individual fish and 20 grams of tissue mass) was wrapped in aluminum foil and freezer paper, placed in a ziplock bag, and shipped on ice to the analytical laboratory (EnChem, Inc, Madison, WI) for chemical analyses of PCB Aroclors and percent lipids.
Miscellaneous Observations/Notes:
NA = not applicable.
Total number of fish in composite = 5.

ATTACHMENT B

OPERATIONS AND MAINTENANCE PLAN
TENNESSEE GAS PIPELINE COMPANY
COMPRESSOR STATION 229 (Site No. 9-15-140)
ERIE COUNTY, NEW YORK

RESIDENT FISH SAMPLING LOG SHEET

Personnel Performing Resident Fish Sampling: KDS, DJB (Karl D. Strause, David J. Buys)

Water Body/Sample Location: Station Lake Tributary (SLT) Sample ID: SLT-016

Date and Time of Capture: 9/30-10/1, 1999. 4-7pm and 7:30-9:30am, respectively

Method of Capture: Backpack electrofishing unit

Stream Conditions: Small amount of flow in middle and lower reaches (increasing downstream). No visible surface flow and isolated stagnant pools in most of upper reach.

Sample Number	Type of Species	Total Length (cm)	Weight (grams)	Gender	Sample Type	Comments
SLT-016	Creek chub	16.3	14.9	NA	whole-body	
	"	10.9	13.3	"	Composite	
	"	10.9	12.7	"	"	
	"	10.4	10.9	"	"	
	"	10.4	11.4	"	"	

Method of Compositing:
Describe:
Each whole-body composite fish sample (consisting of a minimum of 5 individual fish and 20 grams of tissue mass) was wrapped in aluminum foil and freezer paper, placed in a ziplock bag, and shipped on ice to the analytical laboratory (EnChem, Inc, Madison, WI) for chemical analyses of PCB Aroclors and percent lipids.

Miscellaneous Observations/Notes:
NA = not applicable.
Total number of fish in composite = 5.

Resident Fish

9/30/98 Unnamed Tributary to 18-Mile Creek

Crew: KDS/DJB No Oversight Sunny Warm mid 60's.

Electrofishing w/ Backpack unit in the Unnamed Trib between Rt 75 and the Hickman Rd Culvert.

Arrived at site at 4:00 pm and met Dave Petrosewicz at Station 229 office bldg. Discuss site access & property owners w/ Dave and then walk the stretch of creek to be sampled. Observe no flow in the creek and see only discrete and seperate pools of fetid standing water (no fish present in these pools - probably from low O_2) in upper section and then discrete pools w/ increasing water quality as distance from Rt. 75 increases. Water quality in the last 3 pools before Hickman Rd is generally good it is obvious that this section of the trib. is still receiving groundwater discharges. In pools with marginal water quality (generally in the mid-point between Rt. 75 & Hickman Rd.) we observed larger fish (creek chub) swimming at the surface and gulping air. Some large dead fish (creek chub and a single sm bass) were also observed

at the edge of these pools.

Began sampling this location at 6:00 pm and continued until darkness at approx. 7:30 pm.

Accessed the trib. from the Mike Stetson property at the intersection of Rt. 75 and Hickman Road and worked our way downstream until darkness. Observed many small to medium sized juvenile/adult creek chub, blacknose dace were also present in significant numbers but generally less abundant than the C. chubs. Also observed an unidentified darter spp. Sample all accessable pools except the last 3 pools before Hickman Rd. Sampling was completed w/out any oversight or interaction with any property owners or residents of the area. Return with fish to the hotel and sort/count to determine sampling success.

Sample Count:

C. Chub 60-130 mm	B-nose dace
𝍸 𝍸 𝍸 𝍸	60-100 mm
𝍸 𝍸 𝍸 𝍸	𝍸 𝍸 𝍸 (15)
(40)	< 60 mm
	𝍸 𝍸 𝍸 𝍸
	𝍸 𝍸 𝍸 1 (31)

10/1/98

IKOS / DJB

Sunny Cool low 60s

8:00 am - 10:00 am

Access station Lalc Trib (unnamed trib) via the Mike Stetson property and ~~bar~~ sample at the 3 most downstream pools to complete the Blacknose dace sample (25 indiv required) Obtain all individuals w/no problem. Blacknose dace, Creek chub and ~~of~~ darter spp. are all v. numerous in these last 3 pools.

10:00 - 4:00 pm (IKOS, DJB, D. Petrosewicz)

Setup streamside electrofisher at Branched Road Access Pond across Tenneco ... property. Electrofish entire pond w/ great difficulty, pond is shallow and muddy. It is difficult to move w/out getting stuck in bottom mud. Capture no fish w/ streamside unit. Attempt to capture fish w/ Seine Complete numerous (10 or more) Seine runs in the deeper section of the pond w/no captures. Do not observe any fish during either sampling event (streamside or seine) Discontinue sampling active efforts in favor of baited minnow traps and baited seine. Obtain a variety of baits from local store

including cheese, dog food, bacon, bread etc. Bait trap and seine for 2 hours while we break for lunch and put equipment away. Return to check traps/seine and record no captures.

During entire sampling effort in the harvested pond we did not observe any fish (either living or dead). We did see & capture a couple of tadpoles (bullfrog). The pond did not appear to be supporting a fish population at this time. Left the site at approx. 4:30 pm. Leaving baited trap and seine in water for overnight sampling.

Proceed back to hotel to process fish samples.

10/1/97 SAMPLE PROCESSING
KDS, DJB
Station Lake Tributary
Rt 75 to Hickman Rd.

Blacknose Dace Composite Samples. (whole-body)

Sample #	# in Composite	Date Collected	Length (cm)	Weight (g)
SLT-001	10	9/30 or 10/1	7.8	4.6
		"	7.1	3.6
		"	8.1	5.5
		"	6.3	2.4
		"	7.9	4.8
		"	6.9	3.0
		"	7.6	4.1
		"	6.7	2.6
		"	7.1	3.4
		"	6.5	2.6 / 3.6
SLT-002	10	"	8.2	5.4
		"	6.8	2.9
		"	7.4	4.0
		"	7.5	4.5
		"	6.6	2.6
		"	6.4	2.6
		"	7.8	4.6
		"	7.1	3.3
		"	6.2	2.4

10/1/98 Sample Processing

Blacknose Dace Cont'd.

Sample #	# fish	Date/s Collected	length (cm)	Weight (g)
SLT-003	9	9/30 or 10/1	7.7	4.1
		"	6.2	~~4.1~~ 2.3
		"	6.0	~~2.3~~ 1.9
		"	8.0 -	4.8 -
		"	6.1	2.2
		"	6.7	2.9
		"	6.0 -	1.8 -
		"	7.4	4.1
		"	6.3	2.3 / 26.4
SLT-004	9	"	6.4	2.6
		"	7.3 -	3.7
		"	6.7	2.9
		"	7.0	3.3
		"	6.0 -	2.0 -
		"	7.2	4.5 -
		"	6.4	2.3
		"	6.7	2.8
		"	6.4	2.4 / 26.5
SLT-005	9	"	7.2	3.8
		"	~~6.5~~ 6.7	3.2
		"	7.5 -	3.9
		"	7.3	4.0 -
		"	7.2	3.0
		"	6.0 -	2.2

10/1/98

Blacknose Dace (Cont).

Samp #	# fish		length (cm)	Weight (g)
SLT-005	9	9/30 or 10/1	6.0	2.1 -
		"	6.7	3.1
		"	6.7	2.8 / 28.1
SLT-006	8	"	7.8 -	4.6 -
		"	6.8	3.2
		"	7.4	3.7
		"	6.8	2.4 -
		"	7.3	4.1
		"	6.7 -	2.9
		"	6.8	3.2
		"	6.7	2.8 / 26.9
SLT-007	8	"	6.2	2.5
		"	7.0	3.2
		"	7.0	3.4
		"	6.8	3.0
		"	8.3 -	5.5 -
		"	6.0 -	2.2 -
		"	6.5	2.7
		"	7.7	4.3 / 26.8
SLT-008	7	"	7.5	4.5
		"	6.0 -	2.2 -
		"	7.5	4.1
		"	8.5 -	5.8 -
		"		

Blacknose Dace (cont'd)

Sample #	# fish	Date/s Collected	length (cm)	Weight (g)
SLT-008	7	9/30 or 10/1	7.4	3.9
		"	8.3	5.2 / 28.3

CREEK CHUB – Whole body Composite Samples.

Sample #	# fish	Date Collected	length (cm)	Weight (g)
SLT-009	5	9/30	12 -	17
		"	11.2	14.9
		"	9.0	7.0
		"	8.7 -	6.4 -
		"	11.9	17.1 - / 60.4
SLT-010	5	"	7.6 -	4.5 -
		"	8.6	6.0
		"	12.3 -	17.2
		"	12.0	17.5 -
		"	9.0	7.6 / 52.8
SLT-011	5	"	9.4 -	7.9 -
		"	11.6 -	16.8 -
		"	10.4	11.2
		"	11.4	14.1
		"	11.0	12.3 / 62.3
SLT-012	5	"	12.1 -	20.3 -
		"	9.5	8.3
		"	9.1	7.0
		"	9.0	7.3

Creek Chub (cont'd.)

Sample #	# fish	Date Collected	length (cm)	Weight (g)
SLT-013	5	9/30	11.7 -	17.0 -
		"	9.4 -	9.0
		"	9.6	8.5 -
		"	9.5	9.1
		"	10.2	10.9 / 54.5
SLT-014	5	"	12.5 -	19.4 -
		"	11.3	14.1
		"	10.4	11.6
		"	9.9	9.9
		"	8.1 -	5.6 / 60.6
SLT-015	5	"	11.0 -	13.0 -
		"	10.0	10.4
		"	9.0	7.8
		"	8.3 -	5.8 -
		"	8.6	6.0 / 43.0
SLT-016	5	"	11.3 -	14.9 -
		"	10.9	13.3
		"	10.9	12.7
		"	10.4 -	10.9 -
		"	10.4	11.4 / 63.2

	Crew:	Weather:
10/2/98	DJB	Overcast, 50°-60°.

Arrive at brackish pond in the morning. Pulled equipment (baited seine and minnow trap) and discontinued sampling effort following DEC request to terminate sampling per request of Mark Gravelding, BBL. We did not get the message until the evening of 10/1/98 when we were able to check voice mail (i.e., had access to a phone). No fish were seen or collected in the minnow trap or seine. One bullfrog tadpole was captured and released.

Appendix D

BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Groundwater Sampling Log Sheet

ATTACHMENT C

PAGE 1 OF 1

Tennessee Gas Pipeline Station 229 #9-15-140

GROUNDWATER SAMPLING LOG SHEET

DATE: 9/30/98

SAMPLE LOCATION ID: 229-MW-12

LOCATION ACTIVITY START: 14:24 END: 15:25

FIELD QC DATA: ☒ FIELD DUPLICATE COLLECTED DUP ID: 229-MW-12

WATER LEVEL / WELL DATA

WELL DEPTH: 16.68 FT — ☒ MEASURED ☐ HISTORICAL — ☒ TOP OF WELL ☐ TOP OF CASING ☐ _____

PROTECTIVE CASING STICK-UP (FROM GROUND): 3.1 FT

PROTECTIVE CASING/WELL DIFF.: 0.25 FT

DEPTH TO WATER: 6.72 FT

HISTORICAL WELL DEPTH: N/A FT

WELL DIA. ☒ 2 INCH ☐ 4 INCH ☐ 6 INCH ☐ _____

WELL MATERIAL: ☐ PVC ☐ _____ ☒ SS

WELL INTEGRITY: PROT. CASING SECURE — YES ☒ NO ☐ N/A ☐; CONCRETE COLLAR INTACT — YES ☒ NO ☐ N/A ☐; WELL LOCKED — YES ☐ NO ☐ N/A ☐; OTHER: _____

HEIGHT OF WATER COLUMN: 9.56 FT

X ☒ .16 GAL/FT (2 IN) ☐ .65 GAL/FT (4 IN) ☐ 1.5 GAL/FT (6 IN) ☐ ___ GAL/FT (__ IN)

~1.5 GAL/VOL

~7 TOTAL GAL PURGED

AMBIENT AIR VOA: _____ PPM

WELL MOUTH: _____ PPM

PURGE DATA

Time	1500	1504	1508	1512	1525
PURGE VOLUME (SAMPLE OBTAINED @ 1515)	≈ 4.1 GAL	≈ 4.6 GAL	≈ 5 GAL	≈ 5.5 GAL	≈ 7 GAL
TEMP, DEG C	14.7	14.6	14.5	14.6	14.9
pH, UNITS	10.97	10.63	10.12	9.97	9.87
SPECIFIC CONDUCTIVITY umhos/cm	0.697	0.685	0.680	0.686	0.698
TURBIDITY, NTUs	<10	<10	<10	<10	<10

SAMPLE OBSERVATIONS: ☒ CLEAR ☐ COLORED _____ ☐ CLOUDY _____ ☐ TURBID _____ ☐ ODOR _____ ☐ OTHER (SEE NOTES)

EQUIPMENT DOCUMENTATION

BORING: ☒

SAMPLING: ☒ PERISTALTIC PUMP ☐ SUBMERSIBLE PUMP ☐ BAILER ☐ PVC/SILICON TUBING ☐ TEFLON/SILICON TUBING ☐ AIR LIFT ☐ WATERRA ☐ IN-LINE FILTER ☐ PRESS/VAC FILTER

EQUIPMENT ID: ISCO # _____ KECK # _____ ☐ 2" ☐ 1" # _____

☐ USED

DECON FLUIDS USED: ☒ LIQUI-NOX ☒ DEIONIZED WATER ☐ NMOS/D.I. WATER ☐ POTABLE WATER ☐ TSP SOLUTION ☐ NONE

WATER LEVEL EQUIP. USED: ☒ ELECTRIC COND. PROBE ☐ FLOAT ACTIVATED ☐ KECK INTERFACE PROBE ☐ OTHER

NUMBER OF FILTERS USED: _____

ANALYTICAL PARAMETERS

	METHOD NUMBER	FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	SAMPLE BOTTLE ID NUMBERS
☒ PCBs	608	No	None	2L	☒	229 / MW-12 / DG10 / 1001-01
VOCs	524.2					229 / QC / DD10-005-0NMS/MSD
						229 / MW-12 / DG10 / (Duplicate)

NOTES

SIGNATURE: _____


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