



RECEIVED

MAR 17 1987

BUREAU OF
HAZARDOUS WASTE TECHNOLOGY
DIVISION OF SOLID AND
HAZARDOUS WASTE

March 12, 1987

Ms. Mary McIntosh
New York State Department of
Environmental Conservation
600 Delaware Avenue
Buffalo, New York 14202-1073

Re: Analytical Results on Sampling
of Sludge Settler

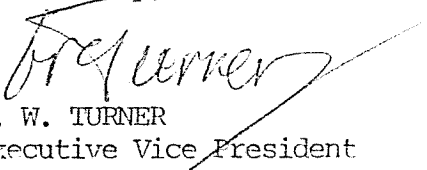
Dear Ms. McIntosh:

Enclosed for your review and comment is a copy of the analytical report of the samples of soil collected from the old sludge settler. Analyses were performed in accordance with your requirements.

Also enclosed is a copy of the report prepared by Earth Dimensions which details the method by which samples were collected and the locations at which they were collected.

Please let me know if you require anything further.

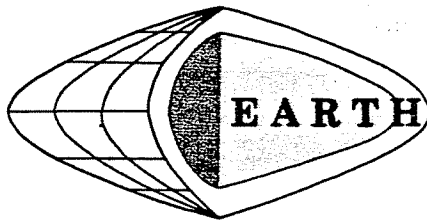
Yours truly,


E. W. TURNER
Executive Vice President

EWT/sm

cc: Mr. P. Counterman
Mr. M. Cullen

November 4, 1986

**EARTH DIMENSIONS, INC.***Soil Investigations and Natural Resource Assessments*

Roycroft Campus, 31 S. Grove St. • East Aurora, NY 14052 • (716) 655-1717

SOIL REPORT

Soil Sampling

Sludge Settler Lagoon

Royal Avenue and 47th. Street

Niagara Falls, New York

for

FRONTIER CHEMICAL WASTE PROCESS INC.

INTRODUCTION:

Eight (8) soil borings were hand augered, continuously sampled visually described, and selected samples were containerized into glass jars for submittal to laboratory analysis. The borings were located in the sludge settler lagoon located just west of Buildings 24 and 55. The sampling, classifying and containerizing of select samples were completed on-site October 30-31, 1986 by Dale M. Gramza, Geologist.

FIELD INVESTIGATIVE TECHNIQUE:

All of the soil borings coded 1-86 through 8-86 were located in the base (bottom) of a shallow excavated lagoon.

Continuous six (6) inch increment samples were obtained using three inch outside diameter hand bucket augers. The bucket augers were steamcleaned prior to sampling each bore hole location and before securing each soil sample that was retained for laboratory analysis. Composite samples from two (2) bucket auger samples representing one (1) foot depth from two (2) foot depth below the base

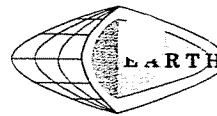
Continued on page 2.

of the lagoon, and the lower (1) foot zone of the coarse-silty Lake Tonawanda sediment was placed in new but not precleaned 8 ounce paragon jars covered with teflon skive tape lids. The sampling depths of samples to be submitted for laboratory analysis were predetermined by agreement between NYS Department of Environmental Conservation and Frontier Chemical Waste Process Inc. The jars with soil samples were officially transferred to Rudy Scarpelli of Frontier Chemical Waste Process Inc., at the end of each sampling day with a chain of custody record form.

FINDINGS:

All of the borings penetrated coarse silty lacustrine sediment over very dense loamy glacial till. Both glacial sediments have a dominant texture according to the Unified Classification System of (ML). The major differences between the lacustrine and glacial till sediments is the lack of stone fragments in the lake sediment and a higher component of fine to coarse size sand (silt still dominating) in the glacial till. The coarse silty lacustrine sediment is bedded indicating that the sediments were deposited in thin (less than 1/8 inch thick) beds. An occasional interbed of fine and very fine sand usually is present and was observed in the samples obtained from the Lake Tonawanda sediment. The glacial till below the lacustrine unit is massive with no stratification observed.

Two (2) relatively thin coarser textured layers containing a higher sand content were described in some of the eight (8) soil borings; a stratified mostly sand and gravel layer at the base of



the coarse-silty lacustrine sediment, at the contact of the glacial till, and a sandy inter lens within the coarse silt lacustrine zone. A thin CLAYEY-SILT mantle, also part of Lake Tonawanda was described in bore holes #1-86, #5-86 and #8-86 located in the southeast, north-east and central locations of the base of the lagoon respectively. This CLAYEY-SILT may have originally mantled the total site prior to man excavating and removing this finer-textured zone.

The stratified sand and gravel layer was described in the southeast positioned bore hole #1-86 between 7.8-8.3 foot depth suggesting that this is a tubular glaciofluvial stringer at the base of the Lake Tonawanda sediments. Similarly, bore hole #1-85 located in the southwest corner of the sampled lagoon encountered a stratified sand and gravel layer at about the same depth and stratigraphy sequence. None of the other borings penetrated the stratified sand and gravel but bore hole #6-86 description, located in the east central part of the lagoon, noted a lowering of silt with a corresponding increase in sand content within the coarse silty lake sediment.

The fine sand thin nearly horizontal interbeds within the coarse silt Lake Tonawanda sediment are slightly more permeable. Likewise, the sandy loam (SILTY-SAND) sediment near the base of the Lake Tonawanda sediment in hand auger borings #6-86 is more permeable than the silt matrix. Liquid flow in the stratified sand and gravel described at 7.8-8.3 foot depth in bore hole #1-86 (near southeast

corner of lagoon) is at least several magnitudes more permeable than the glacial till or coarse silty lacustrine sediment.

Following are the depths of the select samples retained for future reference and submittal for chemical analysis:

<u>Hand auger #</u>	<u>Sample #</u>	<u>Depth (feet)</u>
1-86	1	2.0 - 3.0
1-86	2	7.0 - 7.8
2-86	1	2.0 - 3.0
2-86	2	6.5 - 7.5
3-86	1	2.0 - 3.0
3-86	3	7.5 - 8.5
4-86	1	2.0 - 3.0
4-86	2	6.0 - 7.0
5-86	1	2.0 - 3.0
5-86	2	5.8 - 6.8
6-86	1	2.0 - 3.0
6-86	2	7.3 - 8.0
7-86	1	2.0 - 3.0
7-86	2	7.3 - 8.0
8-86	1	2.0 - 3.0
8-86	2	7.2 - 8.2

All of the above samples were from the coarse-silty Lake Tona-wanda lacustrine stratas.

Prepared by,

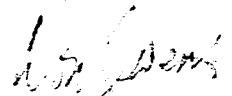
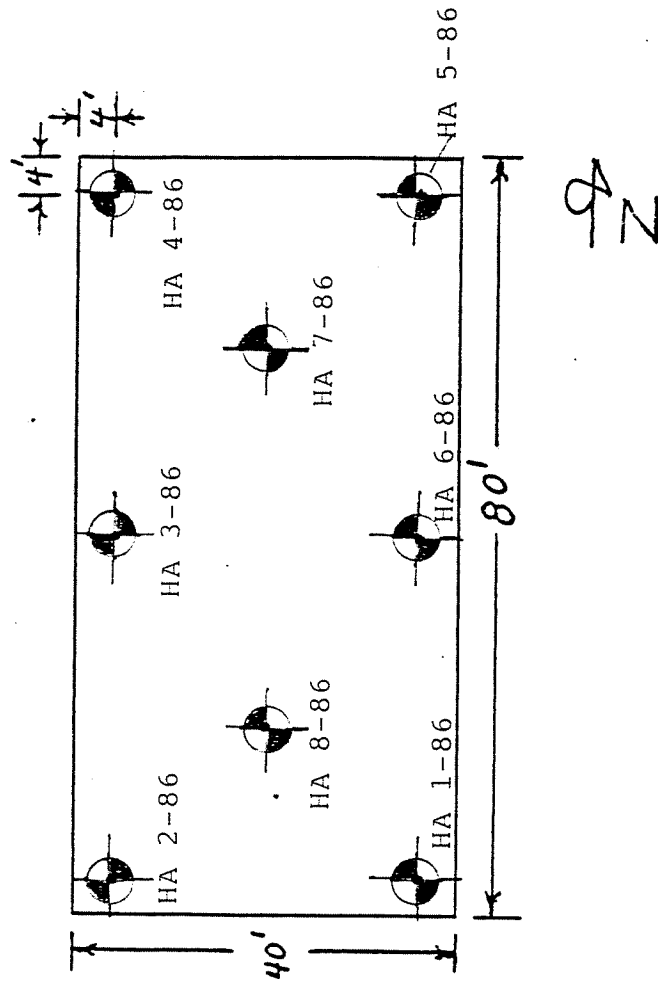
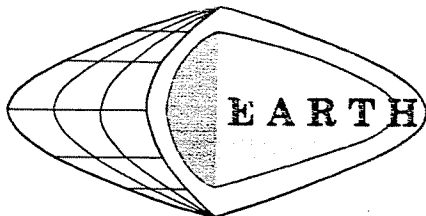

Donald W. Owens
Soil Scientist

FIG. 1 - SLUDGE SETTLER; SAMPLING LOCATIONS, OCT., 1986.





EARTH DIMENSIONS, INC.

Test Borings and Logs

East Aurora, New York 14052 • (716) 655-1717

HAND AUGER

HOLE NO. 1-86

SURF. ELEV. _____

Soil sampling sludge

PROJECT settler lagoon investigation LOCATION Southeast corner of sludge
2H85b 47th St & Royal Ave., Niagara Falls, NY settler lagoon, inside lagoon

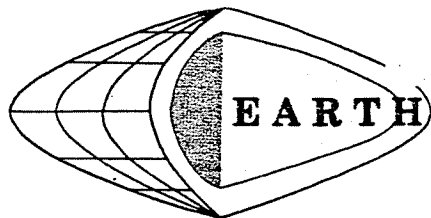
CLIENT FRONTIER CHEMICAL WASTE DATE STARTED 10/30/86 COMPLETED 10/30/86
PROCESS INC.

DEPTH feet	SAMPLE NO.	BLOWS ON SAMPLER							DESCRIPTION & CLASSIFICATION	WATER TABLE & REMARKS
		0	6	12	18	24	N			
									Extremely moist distinctly mot- tled olive gray silty clay loam (CLAYEY-SILT), stiff, (CL)	1.2
									Extremely moist distinctly mot- tled olive gray silt loam (SANDY-SILT) with 2 to 5% fine to medium size gravel, compact, weak thinly bedded with fine sand lenses, (ML)	
	1									
									--- grades downward to ---	3.8
5									Wet distinctly mottled olive gray silt loam (SANDY-SILT), compact, weak thinly bedded, with fine sand lenses, (ML)	
									--- grades downward to ---	7.0
	2								Wet gray silt loam (SANDY-SILT), compact, weak thinly bedded, with very fine size roots, little very fine size sand, (ML)	7.8
10									Wet distinctly mottled greenish brown gravelly sandy loam (SAND) with 15 to 40% mostly fine size gravel, medium to coarse size sand, compact, loose when disturbed, (SP)	8.3
									Extremely moist reddish brown gravelly loam (SANDY-SILT) with 15 to 40% mostly subangular dolomitic gravel, occasional cobble, very dense, massive soil structure, (ML)	9.2
15									Refusal to hand auger at 9.2 feet.	Water level at 4.8 feet below ground surface at completion.

N = NUMBER OF BLOWS TO DRIVE ---" SPOON ---" WITH --- lb. WT. FALLING ---" PER BLOW.

bs LOGGED BY Dale M. Gramza/Geologist

SHEET 1 OF 1



EARTH DIMENSIONS, INC.

Soil Investigations and Natural Resource Assessments

Roycroft Campus, 31 S. Grove St. • East Aurora, NY 14052 • (716) 655-1717

HAND AUGER

HOLE NO. 2-86

SURF. ELEV. _____

Soil sampling sludge

PROJECT settler lagoon investigation LOCATION Southwest corner of sludge

2H85b 47th St & Royal Ave., Niagara Falls, NY settler lagoon, inside lagoon

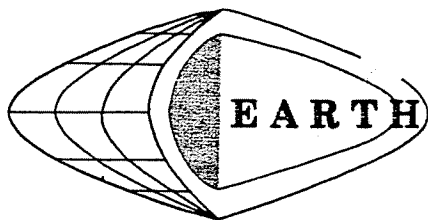
CLIENT FRONTIER CHEMICAL WASTE DATE STARTED 10/30/86 COMPLETED 10/30/86
PROCESS INC.

DEPTH feet	SAMPLE NO	BLOWS ON SAMPLER						DESCRIPTION & CLASSIFICATION	WATER TABLE & REMARKS
		0	6	12	18	24	N		
								Extremely moist to wet mixed gray and olive gray gravelly silt loam (SANDY-SILT) fill, with 15 to 40% gravel and broken concrete fragments, loose	Soil fill to 1.2 feet over coarse silty lake sediment to 7.5 feet over loamy glacial till to refusal.
	1								1.2
								Extremely moist distinctly mottled gray silt loam (SANDY-SILTY) with 2 to 5% fine size gravel, compact, weak thinly bedded with thin very fine sand lenses, (ML)	
5									
	2							----- grades downward to -----	7.0
								Wet gray silt loam (SANDY-SILT), compact, weak thinly bedded with little very fine size sand, some very fine size roots and fine gravel size white shell fragments, (ML)	7.5
10								Extremely moist reddish brown gravelly loam (SANDY-SILT) with 15 to 40% mostly sub-angular fine to coarse size dolomitic gravel, occasional cobble, dense, massive soil structure, (ML)	9.1
								Refusal to hand auger at 9.1 feet.	Water level at 4.5 feet below ground surface at completion.
15									

N = NUMBER OF BLOWS TO DRIVE " SPOON " WITH " lb. WT. FALLING " PER BLOW.

bls LOGGED BY Dale M. Gramza/Geologist

SHEET 1 OF 1



EARTH DIMENSIONS, INC.

Soil Investigations and Natural Resource Assessments

Roycroft Campus, 31 S. Grove St. • East Aurora, NY 14052 • (716) 655-1717

HAND AUGER

HOLE NO. 3-86

SURF. ELEV. _____

PROJECT Soil sampling sludge

2H85b settler lagoon investigation

LOCATION 6.5 feet east of west side, approx.

47th St & Royal Ave., Niagara Falls, NY immediately centerline of lagoon, inside lagoon

CLIENT FRONTIER CHEMICAL WASTE

DATE STARTED 10/30/86 COMPLETED 10/30/86

PROCESS INC.

DEPTH feet	SAMPLE NO.	BLOWS ON SAMPLER						DESCRIPTION & CLASSIFICATION	WATER TABLE & REMARKS
		0 6	6 12	12 18	18 24	N			
								Wet faintly mottled mixed olive gray and gray silt loam fill, (ML)	0.1
1								Extremely moist distinctly mottled olive gray silt loam (SANDY-SILT) with 2 to 5% fine size subangular gravel, compact, weak thinly bedded, with thin fine size sand lenses, noticed nearly vertical crack filled with brown oil substance at 7.0 foot depth, (ML)	Soil fill to 0.1 feet over coarse silty lake sediments to 8.5 feet over loamy glacial till to refusal.
5									Noticed dark brown oily liquid coating on samples below 6 foot depth.
	2								
								----- grades downward to -----	7.5
10								Extremely moist top wet gray silt loam (SANDY-SILT), compact, weak thinly bedded with some very fine size sand, some very fine size roots and occasional fine gravel size white shell fragments, (ML)	8.5
								Extremely moist reddish brown gravelly loam (SANDY-SILT) with 15 to 40% mostly subangular fine to coarse size dolomitic gravel, occasional cobble, very dense, massive soil structure, (ML)	8.9
15								Refusal to hand auger at 8.9 feet.	Water level at 6.3 feet below ground surface at completion.

N = NUMBER OF BLOWS TO DRIVE " SPOON " WITH " lb. WT. FALLING " PER BLOW.

bs LOGGED BY Dale M. Gramza/Geologist

SHEET 1 OF 1



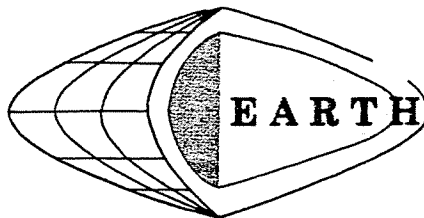
Roycroft Campus, 31 S. Grove St. • East Aurora, NY 14052 • (716) 655-1717

SURF. ELEV. _____

CLIENT FRONTIER CHEMICAL WASTE
PROCESS INC.

DATE STARTED 10/30/86 COMPLETED 10/30/86

SHEET 1 OF 1



EARTH DIMENSIONS, INC.

Soil Investigations and Natural Resource Assessments

Roycroft Campus, 31 S. Grove St. • East Aurora, NY 14052 • (716) 655-1717

HAND AUGER

HOLE NO. 5-86

SURF. ELEV. _____

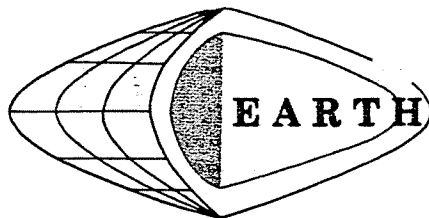
PROJECT Soil sampling sludge settler lagoon investigation LOCATION Northeast corner sludge settler lagoon, inside lagoon
 2H85b 47th St & Royal Ave., Niagara Falls, NY
 CLIENT FRONTIER CHEMICAL WASTE PROCESS INC. DATE STARTED 10/30/86 COMPLETED 10/30/86

DEPTH feet	SAMPLE NO.	BLOWS ON SAMPLER						DESCRIPTION & CLASSIFICATION	WATER TABLE & REMARKS
		0	6	12	18	24	N		
								Wet mixed gray and reddish brown gravelly silt loam (SANDY-SILT) fill with 15 to 40% gravel (ML)	0.3
	1							Extremely moist distinctly mottled olive gray silty clay loam (CLAYEY-SILT), very stiff, (CL)	0.7
5	2							Extremely moist distinctly mottled olive gray sandy loam (SANDY-SILT) with 2 to 5% fine size gravel, compact, weak thinly bedded with thin fine sand lenses, (ML)	6.8
								Extremely moist reddish brown gravelly loam (SANDY-SILT) with 15 to 40% mostly sub-angular dolomitic gravel with occasional cobble, very dense, massive soil structure, (ML)	7.8
10								Refusal to hand auger at 7.8 feet.	Water level at 6.8 feet below ground surface at completion.
15									

N = NUMBER OF BLOWS TO DRIVE " SPOON " WITH " lb. WT. FALLING " PER BLOW.

bls LOGGED BY Dale M. Gramza/Geologist

SHEET 1 OF 1



EARTH DIMENSIONS, INC.

Soil Investigations and Natural Resource Assessments

Roycroft Campus, 31 S. Grove St. • East Aurora, NY 14052 • (716) 655-1717

HAND AUGER

HOLE NO. 6-86

SURF. ELEV. _____

PROJECT Soil sampling sludge

2H85b settler lagoon investigation LOCATION 4.5 feet west of east side, approx
47th St & Royal Ave., Niagara Falls, NY ately centerline of lagoon, insi
lagoon

CLIENT FRONTIER CHEMICAL WASTE DATE STARTED 10/31/86 COMPLETED 10/31/86
PROCESS INC.

DEPTH feet	SAMPLE NO.	BLOWS ON SAMPLER						DESCRIPTION & CLASSIFICATION	WATER TABLE & REMARKS	
		0 6	6 12	12 18	18 24	N				
								Wet faintly mottled mixed brown and olive gray silt loam (SANDY-SILT) fill with 5 to 15% gravel and broken concrete fragments,	0.3	Soil fill to 0.3 feet over coarse silty lake sediment to 7.0 feet over water sorted and deposited mostly sand, little silt
	1 (2.0-3.0)							Extremely moist distinctly mottled olive gray silt loam (SANDY-SILT) with 2 to 5% fine size gravel, compact, weak thinly bedded with thin fine sand lenses, (ML)	2.5	7.3 over coarse silty sediment to 8.0 over loamy glacial till to refusal.
5								- - - grades downward to - - -	7.0	
								Extremely moist distinctly mottled olive gray silt loam (SANDY-SILT) with 2 to 5% fine size gravel, dense, weak thinly bedded with thin fine sand lenses, (ML)	7.3	Noticed dark brown oily substance coating samples below 5.3 feet visually very evident in interval 7.0-7.3 feet.
	2 (7.3-8.0)							- - - clear transition to - - -	8.0	
10								Wet olive gray sandy loam (SILTY-SAND), fine to medium size sand, little silt, compact, soil material tends to liquify when disturbed, (SM)	8.4	
								Wet gray silt loam (SANDY-SILT) with some very fine size sand, with very fine size roots and some fine gravel size white shell fragments, (ML)		
								Extremely moist reddish brown gravelly loam (SANDY-SILT) with 15 to 40% mostly sub-angular dolomitic gravel and occasional cobble, very dense, massive soil structure, (ML)		
15								Refusal to hand auger at 8.4 feet.		Water level at 7.0 feet feet below ground surface at completion.

N = NUMBER OF BLOWS TO DRIVE " SPOON " WITH " lb. WT. FALLING " PER BLOW.

bls LOGGED BY Dale M. Gramza/Geologist

SHEET 1 OF 1



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SURF. ELEV. _____

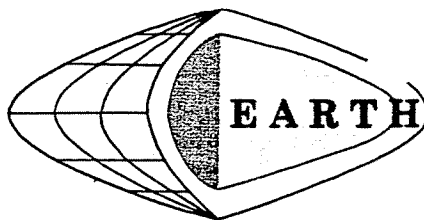
PROCESS INC.

DEPTH feet	SAMPLE NO.	BLOWS ON SAMPLER						DESCRIPTION & CLASSIFICATION	WATER TABLE & REMARKS
		0 6	6 12	12 18	18 24	N			
								Wet faintly mottled mixed brown and olive gray silt loam (SANDY-SILT) fill with 5 to 15% fine size gravel with few broken cement fragments, compact	Soil fill to 0.5 feet over coarse silty lake sediment to 8.0 feet over loamy glacial till to refusal.
	1	(2.0-3.0)							0.5
5								Extremely moist distinctly mottled olive gray silt loam (SANDY-SILT) with 2 to 5% fine size gravel, compact, weak thinly bedded with thin fine size sand lenses, (ML)	Noticed dark brown oily liquid coating samples below 4.3 feet.
	2	(7.3-8.0)						- - - - - clear transition to - - -	7.3-
								Wet gray silt loam (SANDY-SILT), compact weak thinly bedded with fine size sand, some very fine size roots, (ML)	8.0
10								Extremely moist reddish brown gravelly loam (SANDY-SILT) with 15 to 40% mostly sub-angular dolomitic gravel and occasional cobble, very dense, massive soil structure, (ML)	8.5
								Refusal to hand auger at 8.5 feet.	Water level at 7.3 feet below ground surface at completion.
15									

N = NUMBER OF BLOWS TO DRIVE " SPOON " WITH lb. WT. FALLING " PER BLOW.

bls LOGGED BY Dale M. Gramza/Geologist

SHEET 1 OF 1



EARTH DIMENSIONS, INC.

Soil Investigations and Natural Resource Assessments

Roycroft Campus, 31 S. Grove St. • East Aurora, NY 14052 • (716) 655-1717

HAND AUGER

HOLE NO. 8-86

SURF. ELEV. _____

PROJECT Soil sampling sludge

2H85b settler lagoon investigation

LOCATION Center of sludge lagoon, 10.0 feet

47th St & Royal Ave., Niagara Falls, NY south of centerline, inside lagoon

CLIENT FRONTIER CHEMICAL WASTE

DATE STARTED 10/31/86 COMPLETED 10/31/86

PROCESS INC.

DEPTH feet	SAMPLE NO.	BLOWS ON SAMPLER					DESCRIPTION & CLASSIFICATION	WATER TABLE & REMARKS
		0 6	6 12	12 18	18 24	N		
							Wet faintly mottled mixed brown and olive gray silt loam (SANDY-SILT) fill with 5 to 15% fine size gravel, occasional cement fragment, compact	Soil fill to 0.6 feet over clayey lake sediment to 0.6 feet over coarse silty lake sediment to 8.2 feet over loamy glacial till to refusal.
	1	(2.0-3.0)					Extremely moist distinctly mottled olive gray silty clay loam (CLAYEY-SILT), stiff, (CL)	0.6
5							Extremely moist distinctly mottled olive gray silt loam (SANDY-SILT) with 2 to 5% fine size gravel, compact, weak thinly bedded with thin fine size sand lenses, (ML)	0.9
	2	(7.2-8.2)					----- grades downward to -----	7.2
10							Wet gray silt loam (SANDY-SILT), compact, loose when disturbed, weak thinly bedded with some very fine and fine size sand, some fine size roots, with occasional fine gravel size all white shell fragments, (ML)	8.2
							Extremely moist reddish brown gravelly loam (SANDY-SILT) with 15 to 40% mostly sub-angular dolomitic gravel and occasional cobble, very dense, massive soil structure, (ML)	8.3
15							Refusal to hand auger at 8.3 feet.	Water level at 3.4 feet below ground surface at completion.

N = NUMBER OF BLOWS TO DRIVE _____ " SPOON _____ " WITH _____ lb. WT. FALLING _____ " PER BLOW.

LOGGED BY Dale M. Gramza/Geologist

SHEET 1 OF 1



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ANALYTICAL ANALYSIS FOR

Frontier Chemical Waste Process, Inc.

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM (ELAP)
CERTIFICATION #10797

Invoice # 501

FIELD INFORMATION

Name of Collector: Rudy Scarpelli

<u>ASSIGNED BLT# I.D.</u>	<u>SAMPLE I.D.#</u>	<u>SAMPLE TYPE</u>	<u>Site, Time and Date of Collection</u>
1475-01 to 1475-16	HA 1-86 to HA 8-86 Top and Bottom	soil	Site: Frontier Chemical Niagara Falls, N.Y. Time: not available Date: Oct 30-31, 1986
1475-17	Composite; HA 1-86 to 8-86 Top and Bottom	" "	" "

Laboratory Information

<u>Sample I.D.#</u>	<u>Collection/Preservation Status</u>	<u>Date/Time Received</u>
HA 1-86 to HA 8-86 Top and Bottom	properly collected and preserved	Date: Oct 31, 1986 Time: 13:15 est
Composite	"	" "



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 1-86 Top	Benzene	44	130
	Trichloroethene	19	11,100
	Dibromochloromethane	31	<31
	1,1,2-Trichloroethane	50	<50
	cis-1,3-Dichloropropene	NE	<50
	Bromoform	47	<47
	1,1,2,2-Tetrachloroethane	69	7,850
	Tetrachloroethene	41	10,900
	Toluene	60	5,310
	Chlorobenzene	60	<60
	Ethyl benzene	72	2,240
	1,3-Dichlorobenzene	NE	560
	1,2-Dichlorobenzene	NE	730
	1,4-Dichlorobenzene	NE	730
	trans-1,3-Dichloropropene	50	<50

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 1-86 Top	Chloromethane	NE	<50
	Bromomethane	NE	<50
	Vinyl chloride	NE	<50
	Chloroethane	NE	<50
	Methylene chloride	28	90
	Trichlorofluoromethane	NE	<50
	1,1-Dichloroethene	28	<50
	1,1-Dichloroethane	47	1,630
	trans-1,2-Dichloroethene	16	<16
	Chloroform	16	<16
	1,2-Dichloroethane	28	<28
	1,1,1-Trichloroethane	38	6,220
	Carbon tetrachloride	28	<28
	Bromodichloromethane	22	<22
	1,2-Dichloropropane	60	<60

METHOD REFERENCE: EPA SW-846 (8240)
Extraction Method: EPA SW-846 (5030)
NE: Not Established
ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP # 10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample I.D.</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 1-86 Top	1,3-Dichlorobenzene	19	<19
	1,4-Dichlorobenzene	44	<44
	Hexachloroethane	16	<16
	Bis(2-chloroethyl) ether	57	<57
	1,2-Dichlorobenzene	19	<19
	Bis(2-chloroisopropyl) ether	57	<57
	N-Nitrosodi-n-propyl amine	NE	ND
	Nitrobenzene	19	<19
	Hexachlorobutadiene	9	<9
	1,2,4-Trichlorobenzene	19	<19
	Isophorone	22	<22
	Naphthalene	16	180
	Bis(2-chloroethoxy) methane	53	<53
	Hexachlorocyclopentadiene	NE	<60
	2-Chloronaphthalene	19	<19
	Acenaphthylene	35	<35
	Acenaphthene	19	420
	Dimethyl phthalate	16	<16
	2,6-Dinitrotoluene	19	<19
	Fluorene	19	<19
	4-Chlorophenyl phenyl ether	42	<42
	2,4-Dinitrotoluene	57	<57

METHOD REFERENCE: EPA SW-846 (8250)

Extraction Procedure: EPA SW-846 (3550)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 1-86 Top	Diethylphthalate	220	400
	N-Nitrosodiphenylamine	19	<19
	Hexachlorobenzene	19	<19
	alpha-BHC	NE	ND
	4-Bromophenyl phenyl ether	19	<19
	gamma-BHC	NE	ND
	Phenanthrene	54	<54
	Anthracene	19	<19
	beta-BHC	42	<42
	Heptachlor	19	<19
	delta-BHC	31	<31
	Aldrin	19	<19
	Dibutyl phthalate	25	1,020
	Heptachlor epoxide	22	<22
	Endosulfan I	NE	ND
	Fluoranthene	22	<22
	Dieldrin	25	<25
	4,4'-DDE	56	<56
	Pyrene	19	<19
	Endrin	NE	ND
	Endosulfan II	NE	ND
	4,4'-DDD	28	<28
	Benzidine	440	<440
	4,4'-DDT	47	<47

METHOD REFERENCE: EPA SW-846 (8250)
Extraction Procedure: EPA SW-846 (3550)
NE: Not Established
ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

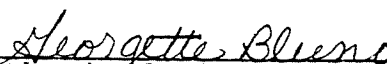
ELAP #10797

ANALAYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 1-86 Top	Endosulfan sulfate	56	<56
	Endrin aldehyde	NE	ND
	Butyl benzyl phthalate	25	760
	Bis(2-ethylhexyl)phthalate	25	2,640
	Chrysene	25	<25
	Benzo(a)anthracene	78	<78
	3,3'-Dichlorobenzidine	165	<165
	Di-n-octylphthalate	25	<25
	Benzo(b)fluoranthene	48	<48
	Benzo(k)fluoranthene	25	<25
	Benzo(a)pyrene	25	<25
	Indeno(1,2,3-c,d)pyrene	37	<37
	Dibenzo(a,h)anthracene	25	<25
	Benzo(ghi)perylene	41	<41
	N-Nitrosodimethyl amine	NE	ND
	Chlordane	NE	ND
	Toxaphene	NE	ND
	PCB 1016	NE	ND
	PCB 1221	300	<300
	PCB 1232	NE	ND
	PCB 1242	NE	ND
	PCB 1248	NE	ND
	PCB 1254	360	<360
	PCB 1260	NE	ND

METHOD REFERENCE: EPA SW-846 (8250)
Extraction Method: EPA SW-846 (3550)
NE: Not Established
ND: None Detected

QA/QC



Authorized Signature
Georgette Bluno

Released By:



Authorized Signature
Dr. Randy von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Test</u>	<u>Test Method</u>	<u>Detection limit</u>	<u>Results</u>
HA 1-86 Top	Total Phenol	SM14 (510A)	0.1ppm	1.6ppm
	Total Cyanide	SM16 (412B)	1.0 ppm	<1.0 ppm

SM: Standard Method 14th and 16th Edition

QA/QC

Georgette Bluno
Quality Control Officer
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Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 1-86	Benzene	44	<44
Bottom	Trichloroethene	19	10,800
	Dibromochloromethane	31	<31
	1,1,2-Trichloroethane	50	<50
	cis-1,3-Dichloropropene	NE	<50
	Bromoform	47	<47
	1,1,2,2-Tetrachloroethane	69	8,090
	Tetrachloroethene	41	8,670
	Toluene	60	1,790
	Chlorobenzene	60	<60
	Ethyl benzene	72	330
	1,3-Dichlorobenzene	NE	ND
	1,2-Dichlorobenzene	NE	ND
	1,4-Dichlorobenzene	NE	ND
	trans-1,3-Dichloropropene	50	<50

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 1-86	Chloromethane	NE	<50
Bottom	Bromomethane	NE	<50
	Vinyl chloride	NE	<50
	Chloroethane	NE	<50
	Methylene chloride	28	6,090
	Trichlorofluoromethane	NE	<50
	1,1-Dichloroethene	28	250
	1,1-Dichloroethane	47	500
	trans-1,2-Dichloroethene	16	<16
	Chloroform	16	250
	1,2-Dichloroethane	28	<28
	1,1,1-Trichloroethane	38	9,080
	Carbon tetrachloride	28	<28
	Bromodichloromethane	22	<22
	1,2-Dichloropropane	60	<60

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP # 10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample I.D.</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 1-86 Bottom	1,3-Dichlorobenzene	19	<19
	1,4-Dichlorobenzene	44	<44
	Hexachloroethane	16	<16
	Bis(2-chloroethyl) ether	57	<57
	1,2-Dichlorobenzene	19	<19
	Bis(2-chloroisopropyl) ether	57	<57
	N-Nitrosodi-n-propyl amine	NE	ND
	Nitrobenzene	19	<19
	Hexachlorobutadiene	9	<9
	1,2,4-Trichlorobenzene	19	<19
	Isophorone	22	<22
	Naphthalene	16	<160
	Bis(2-chloroethoxy)methane	53	<53
	Hexachlorocyclopentadiene	NE	<60
	2-Chloronaphthalene	19	<19
	Acenaphthylene	35	<35
	Acenaphthene	19	<19
	Dimethyl phthalate	16	<16
	2,6-Dinitrotoluene	19	<19
	Fluorene	19	<19
	4-Chlorophenyl phenyl ether	42	<42
	2,4-Dinitrotoluene	57	<57

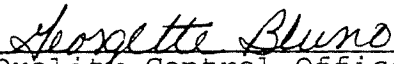
METHOD REFERENCE: EPA SW-846 (8250)

Extraction Procedure: EPA SW-846 (3550)

NE: Not Established

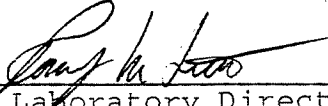
ND: None Detected

QA/QC



Quality Control Officer
Georgette Bluno

Released By:



Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 1-86	Endosulfan sulfate	56	<56
Bottom	Endrin aldehyde	NE	ND
	Butyl benzyl phthalate	25	720
	Bis(2-ethylhexyl)phthalate	25	2,500
	Chrysene	25	<25
	Benzo(a)anthracene	78	<78
	3,3'-Dichlorobenzidine	165	<165
	Di-n-octylphthalate	25	<25
	Benzo(b)fluoranthene	48	<48
	Benzo(k)fluoranthene	25	<25
	Benzo(a)pyrene	25	<25
	Indeno(1,2,3-c,d)pyrene	37	<37
	Dibenzo(a,h)anthracene	25	<25
	Benzo(ghi)perylene	41	<41
	N-Nitrosodimethyl amine	NE	ND
	Chlordane	NE	ND
	Toxaphene	NE	ND
	PCB 1016	NE	ND
	PCB 1221	300	<300
	PCB 1232	NE	ND
	PCB 1242	NE	ND
	PCB 1248	NE	ND
	PCB 1254	360	<360
	PCB 1260	NE	ND

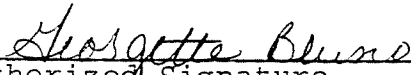
METHOD REFERENCE: EPA SW-846 (8250)

Extraction Method: EPA SW-846 (3550)

NE: Not Established

ND: None Detected

QA/QC



Authorized Signature
Georgette Bluno

Released By:



Authorized Signature
Dr. Randy von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 1-86 Bottom	Diethylphthalate	220	360
	N-Nitrosodiphenylamine	19	<19
	Hexachlorobenzene	19	<19
	alpha-BHC	NE	ND
	4-Bromophenyl phenyl ether	19	<19
	gamma-BHC	NE	ND
	Phenanthrene	54	<54
	Anthracene	19	<19
	beta-BHC	42	ND
	Heptachlor	19	<19
	delta-BHC	31	<31
	Aldrin	19	<19
	Dibutyl phthalate	25	960
	Heptachlor epoxide	22	<22
	Endosulfan I	NE	ND
	Fluoranthene	22	<22
	Dieldrin	25	<25
	4,4'-DDE	56	<56
	Pyrene	19	<19
	Endrin	NE	ND
	Endosulfan II	NE	ND
	4,4'-DDD	28	<28
	Benzidine	440	440
	4,4'-DDT	47	<47

METHOD REFERENCE: EPA SW-846 (8250)

Extraction Procedure: EPA SW-846 (3550)

NE: Not Established

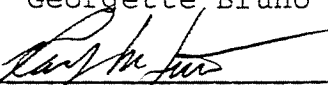
ND: None Detected

QA/QC



Quality Control Officer
Georgette Bluno

Released By:



Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Test</u>	<u>Test Method</u>	<u>Detection limit</u>	<u>Results</u>
HA 2-86 Top	Total Phenol	SM14 (510A)	0.1ppm	1.0 ppm
	Total Cyanide	SM16 (412B)	1.0 ppm	<1.0 ppm

SM: Standard Method 14th and 16th Edition

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 2-86 Top	Benzene	44	<44
	Trichloroethene	19	2,520
	Dibromochloromethane	31	<31
	1,1,2-Trichloroethane	50	<50
	cis-1,3-Dichloropropene	NE	<50
	Bromoform	47	<47
	1,1,2,2-Tetrachloroethane	69	4,920
	Tetrachloroethene	41	6,050
	Toluene	60	170
	Chlorobenzene	60	<60
	Ethyl benzene	72	380
	1,3-Dichlorobenzene	NE	ND
	1,2-Dichlorobenzene	NE	ND
	1,4-Dichlorobenzene	NE	ND
	trans-1,3-Dichloropropene	50	<50

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 2-86 Top	Chloromethane	NE	<50
	Bromomethane	NE	<50
	Vinyl chloride	NE	<50
	Chloroethane	NE	<50
	Methylene chloride	28	170
	Trichlorofluoromethane	NE	<50
	1,1-Dichloroethene	28	<50
	1,1-Dichloroethane	47	160
	trans-1,2-Dichloroethene	16	<16
	Chloroform	16	<16
	1,2-Dichloroethane	28	<28
	1,1,1-Trichloroethane	38	210
	Carbon tetrachloride	28	<28
	Bromodichloromethane	22	<22
	1,2-Dichloropropane	60	<60

METHOD REFERENCE: EPA SW-846 (8240)
Extraction Method: EPA SW-846 (5030)
NE: Not Established
ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP # 10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample I.D.</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 2-86 Top	1,3-Dichlorobenzene	19	<19
	1,4-Dichlorobenzene	44	<44
	Hexachloroethane	16	<16
	Bis(2-chloroethyl) ether	57	<57
	1,2-Dichlorobenzene	19	<19
	Bis(2-chloroisopropyl) ether	57	<57
	N-Nitrosodi-n-propyl amine	NE	ND
	Nitrobenzene	19	<19
	Hexachlorobutadiene	9	<9
	1,2,4-Trichlorobenzene	19	<19
	Isophorone	22	<22
	Naphthalene	16	<16
	Bis(2-chloroethoxy) methane	53	<53
	Hexachlorocyclopentadiene	NE	<60
	2-Chloronaphthalene	19	<19
	Acenaphthylene	35	<35
	Acenaphthene	19	<19
	Dimethyl phthalate	16	<16
	2,6-Dinitrotoluene	19	<19
	Fluorene	19	<19
	4-Chlorophenyl phenyl ether	42	<42
	2,4-Dinitrotoluene	57	<57

METHOD REFERENCE: EPA SW-846 (8250)

Extraction Procedure: EPA SW-846 (3550)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALAYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 2-86 Top	Endosulfan sulfate	56	<56
	Endrin aldehyde	NE	ND
	Butyl benzyl phthalate	25	<25
	Bis(2-ethylhexyl)phthalate	25	<25
	Chrysene	25	<25
	Benzo(a)anthracene	78	<78
	3,3'-Dichlorobenzidine	165	165
	Di-n-octylphthalate	25	<25
	Benzo(b)fluoranthene	48	<48
	Benzo(k)fluoranthene	25	<25
	Benzo(a)pyrene	25	<25
	Indeno(1,2,3-c,d)pyrene	37	<37
	Dibenzo(a,h)anthracene	25	<25
	Benzo(ghi)perylene	41	<41
	N-Nitrosodimethyl amine	NE	ND
	Chlordane	NE	ND
	Toxaphene	NE	ND
	PCB 1016	NE	ND
	PCB 1221	300	<300
	PCB 1232	NE	ND
	PCB 1242	NE	ND
	PCB 1248	NE	ND
	PCB 1254	360	<360
	PCB 1260	NE	ND

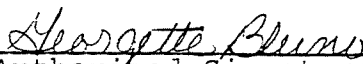
METHOD REFERENCE: EPA SW-846 (8250)

Extraction Method: EPA SW-846 (3550)

NE: Not Established

ND: None Detected

QA/QC



Authorized Signature
Georgette Bluno

Released By:



Authorized Signature
Dr. Randy von Smith



TECHNICAL SERVICES, INC.

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Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 2-86 Top	Diethylphthalate	220	<220
	N-Nitrosodiphenylamine	19	<19
	Hexachlorobenzene	19	<19
	alpha-BHC	NE	ND
	4-Bromophenyl phenyl ether	19	<19
	gamma-BHC	NE	ND
	Phenanthrene	54	<54
	Anthracene	19	<19
	beta-BHC	42	<42
	Heptachlor	19	<19
	delta-BHC	31	<31
	Aldrin	19	<19
	Dibutyl phthalate	25	<25
	Heptachlor epoxide	22	<22
	Endosulfan I	NE	ND
	Fluoranthene	22	<22
	Dieldrin	25	<25
	4,4'-DDE	56	<56
	Pyrene	19	<19
	Endrin	NE	ND
	Endosulfan II	NE	ND
	4,4'-DDD	28	<28
	Benzidine	440	<440
	4,4'-DDT	47	<47

METHOD REFERENCE: EPA SW-846 (8250)

Extraction Procedure: EPA SW-846 (3550)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Test</u>	<u>Test Method</u>	<u>Detection limit</u>	<u>Results</u>
HA 2-86 Top	Total Phenol	SM14 (510A)	0.1ppm	1.0 ppm
	Total Cyanide	SM16 (412B)	1.0 ppm	<1.0 ppm

SM: Standard Method 14th and 16th Edition

QA/QC

Georgette Bluno
Quality Control Officer
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Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 2-86	Benzene	44	<44
Bottom	Trichloroethene	19	4,850
	Dibromochloromethane	31	<31
	1,1,2-Trichloroethane	50	<50
	cis-1,3-Dichloropropene	NE	<50
	Bromoform	47	<47
	1,1,2,2-Tetrachloroethane	69	1,720
	Tetrachloroethene	41	1,920
	Toluene	60	120
	Chlorobenzene	60	<60
	Ethyl benzene	72	200
	1,3-Dichlorobenzene	NE	ND
	1,2-Dichlorobenzene	NE	ND
	1,4-Dichlorobenzene	NE	ND
	trans-1,3-Dichloropropene	50	<50

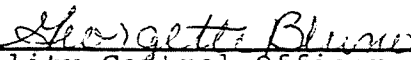
METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

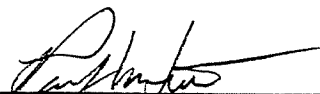
ND: None Detected

QA/QC



Quality Control Officer
Georgette Bluno

Released By:



Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 2-86	Chloromethane	NE	<50
Bottom	Bromomethane	NE	<50
	Vinyl chloride	NE	<50
	Chloroethane	NE	<50
	Methylene chloride	28	2,800
	Trichlorofluoromethane	NE	<50
	1,1-Dichloroethene	28	<50
	1,1-Dichloroethane	47	3,160
	trans-1,2-Dichloroethene	16	<16
	Chloroform	16	80
	1,2-Dichloroethane	28	<28
	1,1,1-Trichloroethane	38	80
	Carbon tetrachloride	28	<28
	Bromodichloromethane	22	<22
	1,2-Dichloropropane	60	<60

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP # 10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample I.D.</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 2-86	1,3-Dichlorobenzene	19	<19
Bottom	1,4-Dichlorobenzene	44	<44
	Hexachloroethane	16	<16
	Bis(2-chloroethyl) ether	57	<57
	1,2-Dichlorobenzene	19	<19
	Bis(2-chloroisopropyl) ether	57	<57
	N-Nitrosodi-n-propyl amine	NE	ND
	Nitrobenzene	19	<19
	Hexachlorobutadiene	9	<9
	1,2,4-Trichlorobenzene	19	<19
	Isophorone	22	<22
	Naphthalene	16	<16
	Bis(2-chloroethoxy) methane	53	<53
	Hexachlorocyclopentadiene	NE	<60
	2-Chloronaphthalene	19	<19
	Acenaphthylene	35	<35
	Acenaphthene	19	<19
	Dimethyl phthalate	16	<16
	2,6-Dinitrotoluene	19	<19
	Fluorene	19	<19
	4-Chlorophenyl phenyl ether	42	<42
	2,4-Dinitrotoluene	57	<57

METHOD REFERENCE: EPA SW-846 (8250)

Extraction Procedure: EPA SW-846 (3550)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 2-86	Endosulfan sulfate	56	<56
Bottom	Endrin aldehyde	NE	ND
	Butyl benzyl phthalate	25	<25
	Bis(2-ethylhexyl)phthalate	25	<25
	Chrysene	25	<25
	Benzo(a)anthracene	78	<78
	3,3'-Dichlorobenzidine	165	<165
	Di-n-octylphthalate	25	<25
	Benzo(b)fluoranthene	48	<48
	Benzo(k)fluoranthene	25	<25
	Benzo(a)pyrene	25	<25
	Indeno(1,2,3-c,d)pyrene	37	<37
	Dibenzo(a,h)anthracene	25	<25
	Benzo(ghi)perylene	41	<41
	N-Nitrosodimethyl amine	NE	ND
	Chlordane	NE	ND
	Toxaphene	NE	ND
	PCB 1016	NE	ND
	PCB 1221	300	<300
	PCB 1232	NE	ND
	PCB 1242	NE	ND
	PCB 1248	NE	ND
	PCB 1254	360	<360
	PCB 1260	NE	ND

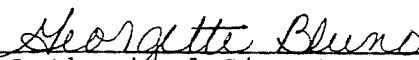
METHOD REFERENCE: EPA SW-846 (8250)

Extraction Method: EPA SW-846 (3550)

NE: Not Established

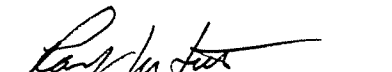
ND: None Detected

QA/QC



Authorized Signature
Georgette Biuno

Released By:



Authorized Signature
Dr. Randy von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 2-86 Bottom	Diethylphthalate	220	<220
	N-Nitrosodiphenylamine	19	<19
	Hexachlorobenzene	19	<19
	alpha-BHC	NE	ND
	4-Bromophenyl phenyl ether	19	<19
	gamma-BHC	NE	ND
	Phenanthrene	54	<54
	Anthracene	19	<19
	beta-BHC	42	<42
	Heptachlor	19	<19
	delta-BHC	31	<31
	Aldrin	19	<19
	Dibutyl phthalate	25	<25
	Heptachlor epoxide	22	<22
	Endosulfan 1	NE	ND
	Fluoranthene	22	<22
	Dieldrin	25	<25
	4,4'-DDE	56	<56
	Pyrene	19	<19
	Endrin	NE	ND
	Endosulfan II	NE	ND
	4,4'-DDD	28	<28
	Benzidine	440	<440
	4,4'-DDT	47	<47

METHOD REFERENCE: EPA SW-846 (8250)

Extraction Procedure: EPA SW-846 (3550)

NE: Not Established

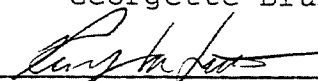
ND: None Detected

QA/QC



Quality Control Officer
Georgette Bluno

Released By:



Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

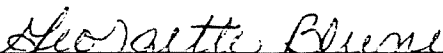
ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Test</u>	<u>Test Method</u>	<u>Detection limit</u>	<u>Results</u>
HA 2-86 Bottom	Total Phenol	SM14 (510A)	0.1ppm	50 ppm
	Total Cyanide	SM16 (412B)	1.0 ppm	<1.0 ppm

SM: Standard Method 14th and 16th Edition

QA/QC



Quality Control Officer
Georgette Bluno

Released By:



Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 3-86	Benzene	44	<44
Top	Trichloroethene	19	7,530
	Dibromochloromethane	31	<31
	1,1,2-Trichloroethane	50	<50
	cis-1,3-Dichloropropene	NE	<50
	Bromoform	47	<47
	1,1,2,2-Tetrachloroethane	69	6,460
	Tetrachloroethene	41	7,580
	Toluene	60	1,100
	Chlorobenzene	60	<60
	Ethyl benzene	72	440
	1,3-Dichlorobenzene	NE	ND
	1,2-Dichlorobenzene	NE	ND
	1,4-Dichlorobenzene	NE	ND
	trans-1,3-Dichloropropene	50	<50

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 3-86	Chloromethane	NE	<50
Top	Bromomethane	NE	<50
	Vinyl chloride	NE	<50
	Chloroethane	NE	<50
	Methylene chloride	28	1,220
	Trichlorofluoromethane	NE	<50
	1,1-Dichloroethene	28	<50
	1,1-Dichloroethane	47	410
	trans-1,2-Dichloroethene	16	<16
	Chloroform	16	80
	1,2-Dichloroethane	28	<28
	1,1,1-Trichloroethane	38	180
	Carbon tetrachloride	28	<28
	Bromodichloromethane	22	<22
	1,2-Dichloropropane	60	<60

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP # 10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample I.D.</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 3-86 Top	1,3-Dichlorobenzene	19	<19
	1,4-Dichlorobenzene	44	<44
	Hexachloroethane	16	<16
	Bis(2-chloroethyl) ether	57	<57
	1,2-Dichlorobenzene	19	<19
	Bis(2-chloroisopropyl) ether	57	<57
	N-Nitrosodi-n-propyl amine	NE	ND
	Nitrobenzene	19	<19
	Hexachlorobutadiene	9	<9
	1,2,4-Trichlorobenzene	19	<19
	Isophorone	22	<22
	Naphthalene	16	<16
	Bis(2-chloroethoxy) methane	53	<53
	Hexachlorocyclopentadiene	NE	<60
	2-Chloronaphthalene	19	<19
	Acenaphthylene	35	<35
	Acenaphthene	19	<19
	Dimethyl phthalate	16	<16
	2,6-Dinitrotoluene	19	<19
	Fluorene	19	<19
	4-Chlorophenyl phenyl ether	42	<42
	2,4-Dinitrotoluene	57	<57

METHOD REFERENCE: EPA SW-846 (8250)

Extraction Procedure: EPA SW-846 (3550)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 3-86	Endosulfan sulfate	56	<56
Top	Endrin aldehyde	NE	ND
	Butyl benzyl phthalate	25	<60
	Bis(2-ethylhexyl)phthalate	25	<80
	Chrysene	25	<25
	Benzo(a)anthracene	78	<78
	3,3'-Dichlorobenzidine	165	<165
	Di-n-octylphthalate	25	<60
	Benzo(b)fluoranthene	48	<48
	Benzo(k)fluoranthene	25	<25
	Benzo(a)pyrene	25	<25
	Indeno(1,2,3-c,d)pyrene	37	<37
	Dibenzo(a,h)anthracene	25	<25
	Benzo(ghi)perylene	41	<41
	N-Nitrosodimethyl amine	NE	ND
	Chlordane	NE	ND
	Toxaphene	NE	ND
	PCB 1016	NE	ND
	PCB 1221	300	<300
	PCB 1232	NE	ND
	PCB 1242	NE	ND
	PCB 1248	NE	ND
	PCB 1254	360	<360
	PCB 1260	NE	ND

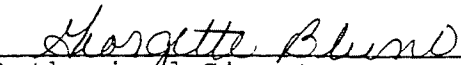
METHOD REFERENCE: EPA SW-846 (8250)

Extraction Method: EPA SW-846 (3550)

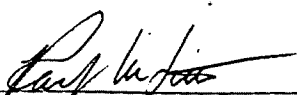
NE: Not Established

ND: None Detected

QA/QC


Authorized Signature
Georgette Bluno

Released By:


Authorized Signature
Dr. Randy von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 3-86 Top	Diethylphthalate	220	<220
	N-Nitrosodiphenylamine	19	<19
	Hexachlorobenzene	19	<19
	alpha-BHC	NE	ND
	4-Bromophenyl phenyl ether	19	<19
	gamma-BHC	NE	ND
	Phenanthrene	54	<54
	Anthracene	19	<19
	beta-BHC	42	<42
	Heptachlor	19	<19
	delta-BHC	31	<31
	Aldrin	19	<19
	Dibutyl phthalate	25	100
	Heptachlor epoxide	22	<22
	Endosulfan I	NE	ND
	Fluoranthene	22	<22
	Dieldrin	25	<25
	4,4'-DDE	56	<56
	Pyrene	19	<19
	Endrin	NE	ND
	Endosulfan II	NE	ND
	4,4'-DDD	28	<28
	Benzidine	440	<440
	4,4'-DDT	47	<47

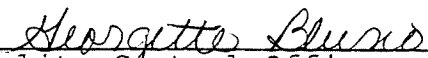
METHOD REFERENCE: EPA SW-846 (8250)

Extraction Procedure: EPA SW-846 (3550)

NE: Not Established

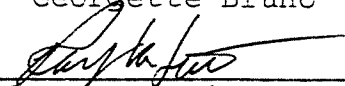
ND: None Detected

QA/QC



Quality Control Officer
Georgette Bluno

Released By:



Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Test</u>	<u>Test Method</u>	<u>Detection limit</u>	<u>Results</u>
HA 3-86 Top	Total Phenol	SM14 (510A)	0.1ppm	1.3 ppm
	Total Cyanide	SM16 (412B)	1.0 ppm	<1.0 ppm

SM: Standard Method 14th and 16th Edition

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 3-86	Benzene	44	<44
Bottom	Trichloroethene	19	9,270
	Dibromochloromethane	31	<31
	1,1,2-Trichloroethane	50	<50
	cis-1,3-Dichloropropene	NE	<50
	Bromoform	47	<47
	1,1,2,2-Tetrachloroethane	69	5,880
	Tetrachloroethene	41	6,500
	Toluene	60	2,240
	Chlorobenzene	60	<60
	Ethyl benzene	72	520
	1,3-Dichlorobenzene	NE	ND
	1,2-Dichlorobenzene	NE	ND
	1,4-Dichlorobenzene	NE	ND
	trans-1,3-Dichloropropene	50	<50

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 3-86	Chloromethane	NE	<50
Bottom	Bromomethane	NE	<50
	Vinyl chloride	NE	<50
	Chloroethane	NE	<50
	Methylene chloride	28	1,420
	Trichlorofluoromethane	NE	<50
	1,1-Dichloroethene	28	190
	1,1-Dichloroethane	47	4,070
	trans-1,2-Dichloroethene	16	<16
	Chloroform	16	<16
	1,2-Dichloroethane	28	<28
	1,1,1-Trichloroethane	38	2,390
	Carbon tetrachloride	28	<28
	Bromodichloromethane	22	<22
	1,2-Dichloropropane	60	<60

METHOD REFERENCE: EPA SW-846 (8240)
Extraction Method: EPA SW-846 (5030)
NE: Not Established
ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP # 10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample I.D.</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 3-86 Bottom	1,3-Dichlorobenzene	19	<19
	1,4-Dichlorobenzene	44	<44
	Hexachloroethane	16	<16
	Bis(2-chloroethyl) ether	57	<57
	1,2-Dichlorobenzene	19	<19
	Bis(2-chloroisopropyl) ether	57	<57
	N-Nitrosodi-n-propyl amine	NE	ND
	Nitrobenzene	19	<19
	Hexachlorobutadiene	9	<9
	1,2,4-Trichlorobenzene	19	<19
	Isophorone	22	<22
	Naphthalene	16	<16
	Bis(2-chloroethoxy) methane	53	<53
	Hexachlorocyclopentadiene	NE	<60
	2-Chloronaphthalene	19	<19
	Acenaphthylene	35	<35
	Acenaphthene	19	<19
	Dimethyl phthalate	16	<16
	2,6-Dinitrotoluene	19	<19
	Fluorene	19	<19
	4-Chlorophenyl phenyl ether	42	<42
	2,4-Dinitrotoluene	57	<57

METHOD REFERENCE: EPA SW-846 (8250)
Extraction Procedure: EPA SW-846 (3550)
NE: Not Established
ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 3-86	Endosulfan sulfate	56	<56
Bottom	Endrin aldehyde	NE	ND
	Butyl benzyl phthalate	25	<25
	Bis(2-ethylhexyl)phthalate	25	<25
	Chrysene	25	<25
	Benzo(a)anthracene	78	<78
	3,3'-Dichlorobenzidine	165	<165
	Di-n-octylphthalate	25	<25
	Benzo(b)fluoranthene	48	<48
	Benzo(k)fluoranthene	25	<25
	Benzo(a)pyrene	25	<25
	Indeno(1,2,3-c,d)pyrene	37	<37
	Dibenzo(a,h)anthracene	25	<25
	Benzo(ghi)perylene	41	<41
	N-Nitrosodimethyl amine	NE	ND
	Chlordane	NE	ND
	Toxaphene	NE	ND
	PCB 1016	NE	ND
	PCB 1221	300	<300
	PCB 1232	NE	ND
	PCB 1242	NE	ND
	PCB 1248	NE	ND
	PCB 1254	360	<360
	PCB 1260	NE	ND

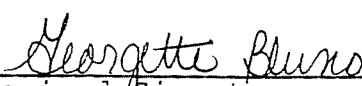
METHOD REFERENCE: EPA SW-846 (8250)

Extraction Method: EPA SW-846 (3550)

NE: Not Established

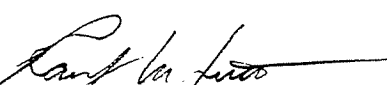
ND: None Detected

QA/QC



Authorized Signature
Georgette Bluno

Released By:



Authorized Signature
Dr. Randy von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 3-86 Bottom	Diethylphthalate	220	<220
	N-Nitrosodiphenylamine	19	<19
	Hexachlorobenzene	19	<19
	alpha-BHC	NE	ND
	4-Bromophenyl phenyl ether	19	<19
	gamma-BHC	NE	ND
	Phenanthrene	54	<54
	Anthracene	19	<19
	beta-BHC	42	<42
	Heptachlor	19	<19
	delta-BHC	31	<31
	Aldrin	19	<19
	Dibutyl phthalate	25	60
	Heptachlor epoxide	22	<22
	Endosulfan I	NE	ND
	Fluoranthene	22	<22
	Dieldrin	25	<25
	4,4'-DDE	56	<56
	Pyrene	19	<19
	Endrin	NE	ND
	Endosulfan II	NE	ND
	4,4'-DDD	28	<28
	Benzidine	440	<440
	4,4'-DDT	47	<47

METHOD REFERENCE: EPA SW-846 (8250)

Extraction Procedure: EPA SW-846 (3550)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

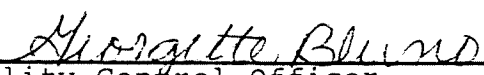
ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Test</u>	<u>Test Method</u>	<u>Detection limit</u>	<u>Results</u>
HA 3-86 Bottom	Total Phenol	SM14 (510A)	0.1ppm	62 ppm
	Total Cyanide	SM16 (412B)	1.0 ppm	<1.0 ppm

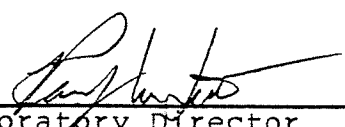
SM: Standard Method 14th and 16th Edition

QA/QC



Quality Control Officer
Georgette Bluno

Released By:



Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 4-86 Top	Benzene	44	<44
	Trichloroethene	19	6,540
	Dibromochloromethane	31	<31
	1,1,2-Trichloroethane	50	<50
	cis-1,3-Dichloropropene	NE	<50
	Bromoform	47	<47
	1,1,2,2-Tetrachloroethane	69	2,040
	Tetrachloroethene	41	2,400
	Toluene	60	4,340
	Chlorobenzene	60	390
	Ethyl benzene	72	720
	1,3-Dichlorobenzene	NE	ND
	1,2-Dichlorobenzene	NE	ND
	1,4-Dichlorobenzene	NE	ND
	trans-1,3-Dichloropropene	50	<50

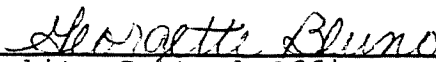
METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

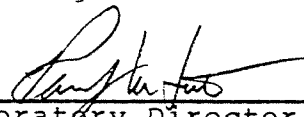
ND: None Detected

QA/QC



Quality Control Officer
Georgette Bluno

Released By:



Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 4-86 Top	Chloromethane	NE	<50
	Bromomethane	NE	<50
	Vinyl chloride	NE	<50
	Chloroethane	NE	<50
	Methylene chloride	28	10,040
	Trichlorofluoromethane	NE	<50
	1,1-Dichloroethene	28	<50
	1,1-Dichloroethane	47	2,180
	trans-1,2-Dichloroethene	16	<16
	Chloroform	16	390
	1,2-Dichloroethane	28	2,360
	1,1,1-Trichloroethane	38	1,640
	Carbon tetrachloride	28	<28
	Bromodichloromethane	22	<22
	1,2-Dichloropropane	60	<60

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Dr. Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP # 10797

ANALAYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample I.D.</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 4-86 Top	1,3-Dichlorobenzene	19	<19
	1,4-Dichlorobenzene	44	<44
	Hexachloroethane	16	<16
	Bis(2-chloroethyl) ether	57	<57
	1,2-Dichlorobenzene	19	<19
	Bis(2-chloroisopropyl) ether	57	<57
	N-Nitrosodi-n-propyl amine	NE	ND
	Nitrobenzene	19	<19
	Hexachlorobutadiene	9	<9
	1,2,4-Trichlorobenzene	19	<19
	Isophorone	22	<22
	Naphthalene	16	<16
	Bis(2-chloroethoxy) methane	53	<53
	Hexachlorocyclopentadiene	NE	<60
	2-Chloronaphthalene	19	<19
	Acenaphthylene	35	<35
	Acenaphthene	19	<19
	Dimethyl phthalate	16	<16
	2,6-Dinitrotoluene	19	<19
	Fluorene	19	<19
	4-Chlorophenyl phenyl ether	42	<42
	2,4-Dinitrotoluene	57	<57

METHOD REFERENCE: EPA SW-846 (8250)
Extraction Procedure: EPA SW-846 (3550)
NE: Not Established
ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 4-86 Top	Endosulfan sulfate	56	<56
	Endrin aldehyde	NE	ND
	Butyl benzyl phthalate	25	120
	Bis(2-ethylhexyl)phthalate	25	160
	Chrysene	25	<25
	Benzo(a)anthracene	78	<78
	3,3'-Dichlorobenzidine	165	<165
	Di-n-octylphthalate	25	140
	Benzo(b)fluoranthene	48	<48
	Benzo(k)fluoranthene	25	<25
	Benzo(a)pyrene	25	<25
	Indeno(1,2,3-c,d)pyrene	37	<37
	Dibenzo(a,h)anthracene	25	<25
	Benzo(ghi)perylene	41	<41
	N-Nitrosodimethyl amine	NE	ND
	Chlordane	NE	ND
	Toxaphene	NE	ND
	PCB 1016	NE	ND
	PCB 1221	300	<300
	PCB 1232	NE	ND
	PCB 1242	NE	ND
	PCB 1248	NE	ND
	PCB 1254	360	<360
	PCB 1260	NE	ND

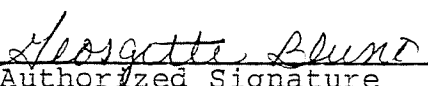
METHOD REFERENCE: EPA SW-846 (8250)

Extraction Method: EPA SW-846 (3550)

NE: Not Established

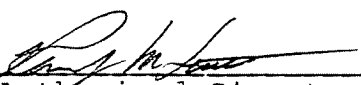
ND: None Detected

QA/QC



Authorized Signature
Georgette Bluno

Released By:



Authorized Signature
Dr. Randy von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 4-86 Top	Diethylphthalate	220	<220
	N-Nitrosodiphenylamine	19	<19
	Hexachlorobenzene	19	<19
	alpha-BHC	NE	ND
	4-Bromophenyl phenyl ether	19	<19
	gamma-BHC	NE	ND
	Phenanthrene	54	<54
	Anthracene	19	<19
	beta-BHC	42	<42
	Heptachlor	19	<19
	delta-BHC	31	<31
	Aldrin	19	<19
	Dibutyl phthalate	25	100
	Heptachlor epoxide	22	<22
	Endosulfan I	NE	ND
	Fluoranthene	22	<22
	Dieldrin	25	<25
	4,4'-DDE	56	<56
	Pyrene	19	<19
	Endrin	NE	ND
	Endosulfan II	NE	ND
	4,4'-DDD	28	<28
	Benzidine	440	<440
	4,4'-DDT	47	<47

METHOD REFERENCE: EPA SW-846 (8250)
Extraction Procedure: EPA SW-846 (3550)
NE: Not Established
ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Dr. Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Test</u>	<u>Test Method</u>	<u>Detection limit</u>	<u>Results</u>
HA 4-86 Top	Total Phenol	SM14 (510A	0.1ppm	5.8 ppm
	Total Cyanide	SM16 (412B)	1.0 ppm	<1.0 ppm

SM: Standard Method 14th and 16th Edition

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 4-86	Benzene	44	<44
Bottom	Trichloroethene	19	510
	Dibromochloromethane	31	<31
	1,1,2-Trichloroethane	50	<50
	cis-1,3-Dichloropropene	NE	<50
	Bromoform	47	<47
	1,1,2,2-Tetrachloroethane	69	120
	Tetrachloroethene	41	120
	Toluene	60	<60
	Chlorobenzene	60	<60
	Ethyl benzene	72	<72
	1,3-Dichlorobenzene	NE	ND
	1,2-Dichlorobenzene	NE	ND
	1,4-Dichlorobenzene	NE	ND
	trans-1,3-Dichloropropene	50	<50

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 4-86	Chloromethane	NE	<50
Bottom	Bromomethane	NE	<50
	Vinyl chloride	NE	<50
	Chloroethane	NE	<50
	Methylene chloride	28	1,880
	Trichlorofluoromethane	NE	<50
	1,1-Dichloroethene	28	<50
	1,1-Dichloroethane	47	740
trans-1,2-Dichloroethene		16	<16
	Chloroform	16	<16
	1,2-Dichloroethane	28	<28
	1,1,1-Trichloroethane	38	<38
	Carbon tetrachloride	28	<28
	Bromodichloromethane	22	<22
	1,2-Dichloropropane	60	<60

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP # 10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample I.D.</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 4-86 Bottom	1,3-Dichlorobenzene	19	<19
	1,4-Dichlorobenzene	44	<44
	Hexachloroethane	16	<16
	Bis(2-chloroethyl) ether	57	<57
	1,2-Dichlorobenzene	19	<19
	Bis(2-chloroisopropyl) ether	57	<57
	N-Nitrosodi-n-propyl amine	NE	ND
	Nitrobenzene	19	<19
	Hexachlorobutadiene	9	<9
	1,2,4-Trichlorobenzene	19	<19
	Isophorone	22	<22
	Naphthalene	16	<16
	Bis(2-chloroethoxy) methane	53	<53
	Hexachlorocyclopentadiene	NE	<60
	2-Chloronaphthalene	19	<19
	Acenaphthylene	35	<35
	Acenaphthene	19	<19
	Dimethyl phthalate	16	<16
	2,6-Dinitrotoluene	19	<19
	Fluorene	19	<19
	4-Chlorophenyl phenyl ether	42	<42
	2,4-Dinitrotoluene	57	<57

METHOD REFERENCE: EPA SW-846 (8250)

Extraction Procedure: EPA SW-846 (3550)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Dr. Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 4-86	Endosulfan sulfate	56	<56
Bottom	Endrin aldehyde	NE	ND
	Butyl benzyl phthalate	25	<25
	Bis(2-ethylhexyl)phthalate	25	<25
	Chrysene	25	<25
	Benzo(a)anthracene	78	<78
	3,3'-Dichlorobenzidine	165	<165
	Di-n-octylphthalate	25	<25
	Benzo(b)fluoranthene	48	<48
	Benzo(k)fluoranthene	25	<25
	Benzo(a)pyrene	25	<25
	Indeno(1,2,3-c,d)pyrene	37	<37
	Dibenzo(a,h)anthracene	25	<25
	Benzo(ghi)perylene	41	<41
	N-Nitrosodimethyl amine	NE	ND
	Chlordane	NE	ND
	Toxaphene	NE	ND
	PCE 1016	NE	ND
	PCB 1221	300	<300
	PCB 1232	NE	ND
	PCB 1242	NE	ND
	PCB 1248	NE	ND
	PCB 1254	360	<360
	PCB 1260	NE	ND

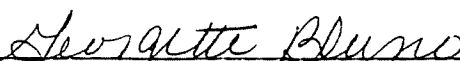
METHOD REFERENCE: EPA SW-846 (8250)

Extraction Method: EPA SW-846 (3550)

NE: Not Established

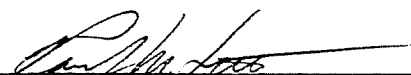
ND: None Detected

QA/QC



Authorized Signature
Georgette Bluno

Released By:



Authorized Signature
Dr. Randy von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 4-86 Bottom	Diethylphthalate	220	<220
	N-Nitrosodiphenylamine	19	<19
	Hexachlorobenzene	19	<19
	alpha-BHC	NE	ND
	4-Bromophenyl phenyl ether	19	<19
	gamma-BHC	NE	ND
	Phenanthrene	54	<54
	Anthracene	19	<19
	beta-BHC	42	<42
	Heptachlor	19	<19
	delta-BHC	31	<31
	Aldrin	19	<19
	Dibutyl phthalate	25	80
	Heptachlor epoxide	22	<22
	Endosulfan I	NE	ND
	Fluoranthene	22	<22
	Dieldrin	25	<25
	4,4'-DDE	56	<56
	Pyrene	19	<19
	Endrin	NE	ND
	Endosulfan II	NE	ND
	4,4'-DDD	28	<28
	Benzidine	440	<440
	4,4'-DDT	47	<47

METHOD REFERENCE: EPA SW-846 (8250)

Extraction Procedure: EPA SW-846 (3550)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

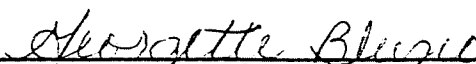
ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Test</u>	<u>Test Method</u>	<u>Detection limit</u>	<u>Results</u>
HA 4-86 Bottom	Total Phenol	SM14 (510A)	0.1ppm	47 ppm
	Total Cyanide	SM16 (412B)	1.0 ppm	1.5 ppm

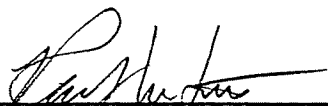
SM: Standard Method 14th and 16th Edition

QA/QC



Quality Control Officer
Georgette Bluno

Released By:



Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 5-86 Top	Benzene	44	130
	Trichloroethene	19	14,600
	Dibromochloromethane	31	<31
	1,1,2-Trichloroethane	50	<50
	cis-1,3-Dichloropropene	NE	<50
	Bromoform	47	<47
	1,1,2,2-Tetrachloroethane	60	10,300
	Tetrachloroethene	41	13,200
	Toluene	60	7,400
	Chlorobenzene	60	130
	Ethyl benzene	72	1,960
	1,3-Dichlorobenzene	NE	ND
	1,2-Dichlorobenzene	NE	ND
	1,4-Dichlorobenzene	NE	ND
	trans-1,3-Dichloropropene	50	<50

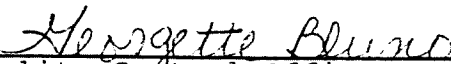
METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

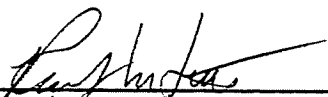
ND: None Detected

QA/QC



Quality Control Officer
Georgette Bluno

Released By:



Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 5-86 Top	Chloromethane	NE	<50
	Bromomethane	NE	<50
	Vinyl chloride	NE	<50
	Chloroethane	NE	<50
	Methylene chloride	28	2,840
	Trichlorofluoromethane	NE	<50
	1,1-Dichloroethene	28	<50
	1,1-Dichloroethane	47	1,230
	trans-1,2-Dichloroethene	16	<16
	Chloroform	16	340
	1,2-Dichloroethane	28	2,840
	1,1,1-Trichloroethane	38	4,800
	Carbon tetrachloride	28	<28
	Bromodichloromethane	22	<22
	1,2-Dichloropropane	60	<60

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Dr. Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP # 10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample I.D.</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 5-86 Top	1,3-Dichlorobenzene	19	<19
	1,4-Dichlorobenzene	44	<44
	Hexachloroethane	16	<16
	Bis(2-chloroethyl) ether	57	<57
	1,2-Dichlorobenzene	19	<19
	Bis(2-chloroisopropyl) ether	57	<57
	N-Nitrosodi-n-propyl amine	NE	ND
	Nitrobenzene	19	<19
	Hexachlorobutadiene	9	<9
	1,2,4-Trichlorobenzene	19	<19
	Isophorone	22	<22
	Naphthalene	16	<16
	Bis(2-chloroethoxy) methane	53	<53
	Hexachlorocyclopentadiene	NE	<60
	2-Chloronaphthalene	19	<19
	Acenaphthylene	35	<35
	Acenaphthene	19	<19
	Dimethyl phthalate	16	<16
	2,6-Dinitrotoluene	19	<19
	Fluorene	19	<19
	4-Chlorophenyl phenyl ether	42	<42
	2,4-Dinitrotoluene	57	<57

METHOD REFERENCE: EPA SW-846 (8250)
Extraction Procedure: EPA SW-846 (3550)
NE: Not Established
ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 5-86 Top	Endosulfan sulfate	56	<56
	Endrin aldehyde	NE	ND
	Butyl benzyl phthalate	25	60
	Bis(2-ethylhexyl)phthalate	25	80
	Chrysene	25	<25
	Benzo(a)anthracene	78	<78
	3,3'-Dichlorobenzidine	165	<165
	Di-n-octylphthalate	25	60
	Benzo(b)fluoranthene	48	<48
	Benzo(k)fluoranthene	25	<25
	Benzo(a)pyrene	25	<25
	Indeno(1,2,3-c,d)pyrene	37	<37
	Dibenzo(a,h)anthracene	25	<25
	Benzo(ghi)perylene	41	<41
	N-Nitrosodimethyl amine	NE	ND
	Chlordane	NE	ND
	Toxaphene	NE	ND
	PCB 1016	NE	ND
	PCB 1221	300	<300
	PCB 1232	NE	ND
	PCB 1242	NE	ND
	PCB 1248	NE	ND
	PCB 1254	360	<360
	PCB 1260	NE	ND

METHOD REFERENCE: EPA SW-846 (8250)

Extraction Method: EPA SW-846 (3550)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Authorized Signature
Georgette Bluno

Released By:

Dr. Randy von Smith
Authorized Signature
Dr. Randy von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 5-86 Top	Diethylphthalate	220	<220
	N-Nitrosodiphenylamine	19	<19
	Hexachlorobenzene	19	<19
	alpha-BHC	NE	ND
	4-Bromophenyl phenyl ether	19	<19
	gamma-BHC	NE	ND
	Phenanthrene	54	<54
	Anthracene	19	<19
	beta-BHC	42	<42
	Heptachlor	19	<19
	delta-BHC	31	<31
	Aldrin	19	<19
	Dibutyl phthalate	25	120
	Heptachlor epoxide	22	<22
	Endosulfan I	NE	ND
	Fluoranthene	22	<22
	Dieldrin	25	<25
	4,4'-DDE	56	<56
	Pyrene	19	<19
	Endrin	NE	ND
	Endosulfan II	NE	ND
	4,4'-DDD	28	<28
	Benzidine	440	<440
	4,4'-DDT	47	<47

METHOD REFERENCE: EPA SW-846 (8250)

Extraction Procedure: EPA SW-846 (3550)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Dr. Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Test</u>	<u>Test Method</u>	<u>Detection limit</u>	<u>Results</u>
HA 5-86 Top	Total Phenol	SM14 (510A)	0.1ppm	4.7ppm
	Total Cyanide	SM16 (412B)	1.0 ppm	<1.0ppm

SM: Standard Method 14th and 16th Edition

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

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Laboratory Director
Dr. Randy Von Smith



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Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 5-86	Benzene	44	250
Bottom	Trichloroethene	19	11,100
	Dibromochloromethane	31	<31
	1,1,2-Trichloroethane	50	<50
	cis-1,3-Dichloropropene	NE	<50
	Bromoform	47	<47
	1,1,2,2-Tetrachloroethane	69	7,440
	Tetrachloroethene	41	10,500
	Toluene	60	8,940
	Chlorobenzene	60	400
	Ethyl benzene	72	3,630
	1,3-Dichlorobenzene	NE	ND
	1,2-Dichlorobenzene	NE	ND
	1,4-Dichlorobenzene	NE	ND
	trans-1,3-Dichloropropene	50	<50

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 5-86	Chloromethane	NE	<50
Bottom	Bromomethane	NE	<50
	Vinyl chloride	NE	<50
	Chloroethane	NE	<50
	Methylene chloride	28	4,020
	Trichlorofluoromethane	NE	<50
	1,1-Dichloroethene	28	140
	1,1-Dichloroethane	47	3,300
trans-1,2-Dichloroethene		16	<16
	Chloroform	16	400
	1,2-Dichloroethane	28	<28
	1,1,1-Trichloroethane	38	9,830
	Carbon tetrachloride	28	<28
	Bromodichloromethane	22	<22
	1,2-Dichloropropane	60	<60

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

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Date: February 17, 1987

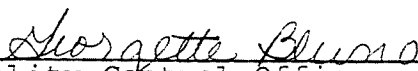
ELAP # 10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample I.D.</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 5-86 Bottom	1,3-Dichlorobenzene	19	<19
	1,4-Dichlorobenzene	44	<44
	Hexachloroethane	16	<16
	Bis(2-chloroethyl) ether	57	<57
	1,2-Dichlorobenzene	19	<19
	Bis(2-chloroisopropyl) ether	57	<57
	N-Nitrosodi-n-propyl amine	NE	ND
	Nitrobenzene	19	<19
	Hexachlorobutadiene	9	<9
	1,2,4-Trichlorobenzene	19	<19
	Isophorone	22	<22
	Naphthalene	16	<16
	Bis(2-chloroethoxy) methane	53	<53
	Hexachlorocyclopentadiene	NE	<60
	2-Chloronaphthalene	19	<19
	Acenaphthylene	35	<35
	Acenaphthene	19	<19
	Dimethyl phthalate	16	<16
	2,6-Dinitrotoluene	19	<19
	Fluorene	19	<19
	4-Chlorophenyl phenyl ether	42	<42
	2,4-Dinitrotoluene	57	<57

METHOD REFERENCE: EPA SW-846 (8250)
Extraction Procedure: EPA SW-846 (3550)
NE: Not Established
ND: None Detected

QA/QC



Quality Control Officer
Georgette Bluno

Released By:



Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 5-86	Endosulfan sulfate	56	<56
Bottom	Endrin aldehyde	NE	ND
	Butyl benzyl phthalate	25	460
	Bis(2-ethylhexyl)phthalate	25	280
	Chrysene	25	<25
	Benzo(a)anthracene	78	<78
	3,3'-Dichlorobenzidine	165	<165
	Di-n-octylphthalate	25	260
	Benzo(b)fluoranthene	48	<48
	Benzo(k)fluoranthene	25	<25
	Benzo(a)pyrene	25	<25
	Indeno(1,2,3-c,d)pyrene	37	<37
	Dibenzo(a,h)anthracene	25	<25
	Benzo(ghi)perylene	41	<41
	N-Nitrosodimethyl amine	NE	ND
	Chlordane	NE	ND
	Toxaphene	NE	ND
	PCB 1016	NE	ND
	PCB 1221	300	<300
	PCB 1232	NE	ND
	PCB 1242	NE	ND
	PCB 1248	NE	ND
	PCB 1254	360	<360
	PCB 1260	NE	ND

METHOD REFERENCE: EPA SW-846 (8250)

Extraction Method: EPA SW-846 (3550)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Authorized Signature
Georgette Bluno

Released By:

Randy von Smith
Authorized Signature
Dr. Randy von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 5-86	Diethylphthalate	220	<220
Bottom	N-Nitrosodiphenylamine	19	<19
	Hexachlorobenzene	19	<19
	alpha-BHC	NE	ND
	4-Bromophenyl phenyl ether	19	<19
	gamma-BHC	NE	ND
	Phenanthrene	54	<54
	Anthracene	19	<19
	beta-BHC	42	<42
	Heptachlor	19	<19
	delta-BHC	31	<31
	Aldrin	19	<19
	Dibutyl phthalate	25	220
	Heptachlor epoxide	22	<22
	Endosulfan I	NE	ND
	Fluoranthene	22	<22
	Dieldrin	25	<25
	4,4'-DDE	56	<56
	Pyrene	19	<19
	Endrin	NE	ND
	Endosulfan II	NE	ND
	4,4'-DDD	28	<28
	Benzidine	440	<440
	4,4'-DDT	47	<47

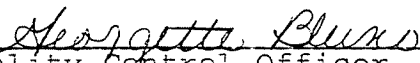
METHOD REFERENCE: EPA SW-846 (8250)

Extraction Procedure: EPA SW-846 (3550)

NE: Not Established

ND: None Detected

QA/QC



Quality Control Officer
Georgette Bluno

Released By:



Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Test</u>	<u>Test Method</u>	<u>Detection limit</u>	<u>Results</u>
HA 5-86 Bottom	Total Phenol	SM14 (510A)	0.1ppm	112ppm
	Total Cyanide	SM16 (412B)	1.0ppm	1.6ppm

SM: Standard Method 14th and 16th Edition

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

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Dr. Randy Von Smith



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Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 6-86 Top	Benzene	44	220
	Trichloroethene	19	4,180
	Dibromochloromethane	31	<31
	1,1,2-Trichloroethane	50	<50
	cis-1,3-Dichloropropene	NE	<50
	Bromoform	47	<47
	1,1,2,2-Tetrachloroethane	69	7,410
	Tetrachloroethene	41	9,120
	Toluene	60	1,830
	Chlorobenzene	60	<60
	Ethyl benzene	72	960
	1,3-Dichlorobenzene	NE	ND
	1,2-Dichlorobenzene	NE	ND
	1,4-Dichlorobenzene	NE	ND
	trans-1,3-Dichloropropene	50	<50

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

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Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 6-86 Top	Chloromethane	NE	<50
	Bromomethane	NE	<50
	Vinyl chloride	NE	<50
	Chloroethane	NE	<50
	Methylene chloride	28	1,420
	Trichlorofluoromethane	NE	<50
	1,1-Dichloroethene	28	<50
	1,1-Dichloroethane	47	370
	trans-1,2-Dichloroethene	16	<16
	Chloroform	16	<16
	1,2-Dichloroethane	28	<28
	1,1,1-Trichloroethane	38	150
	Carbon tetrachloride	28	<28
	Bromodichloromethane	22	<22
	1,2-Dichloropropane	60	<60

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

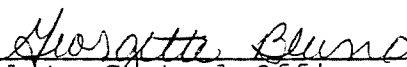
ELAP # 10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample I.D.</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 6-86 Top	1,3-Dichlorobenzene	19	<19
	1,4-Dichlorobenzene	44	<44
	Hexachloroethane	16	<16
	Bis(2-chloroethyl) ether	57	<57
	1,2-Dichlorobenzene	19	<19
	Bis(2-chloroisopropyl) ether	57	<57
	N-Nitrosodi-n-propyl amine	NE	ND
	Nitrobenzene	19	<19
	Hexachlorobutadiene	9	<9
	1,2,4-Trichlorobenzene	19	<19
	Isophorone	22	<22
	Naphthalene	16	<16
	Bis(2-chloroethoxy) methane	53	<53
	Hexachlorocyclopentadiene	NE	<60
	2-Chloronaphthalene	19	<19
	Acenaphthylene	35	<35
	Acenaphthene	19	<19
	Dimethyl phthalate	16	<16
	2,6-Dinitrotoluene	19	<19
	Fluorene	19	<19
	4-Chlorophenyl phenyl ether	42	<42
	2,4-Dinitrotoluene	57	<57

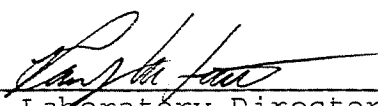
METHOD REFERENCE: EPA SW-846 (8250)
Extraction Procedure: EPA SW-846 (3550)
NE: Not Established
ND: None Detected

QA/QC



Quality Control Officer
Georgette Bluno

Released By:



Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 6-86 Top	Endosulfan sulfate	56	<56
	Endrin aldehyde	NE	ND
	Butyl benzyl phthalate	25	140
	Bis(2-ethylhexyl)phthalate	25	80
	Chrysene	25	<25
	Benzo(a)anthracene	78	<78
	3,3'-Dichlorobenzidine	165	<165
	Di-n-octylphthalate	25	60
	Benzo(b)fluoranthene	48	<48
	Benzo(k)fluoranthene	25	<25
	Benzo(a)pyrene	25	<25
	Indeno(1,2,3-c,d)pyrene	37	<37
	Dibenzo(a,h)anthracene	25	<25
	Benzo(ghi)perylene	41	<41
	N-Nitrosodimethyl amine	NE	ND
	Chlordane	NE	ND
	Toxaphene	NE	ND
	PCB 1016	NE	ND
	PCB 1221	300	<300
	PCB 1232	NE	ND
	PCB 1242	NE	ND
	PCB 1248	NE	ND
	PCB 1254	360	<360
	PCB 1260	NE	ND

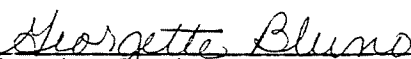
METHOD REFERENCE: EPA SW-846 (8250)

Extraction Method: EPA SW-846 (3550)

NE: Not Established

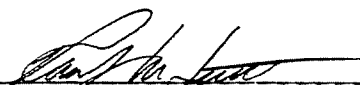
ND: None Detected

QA/QC



Authorized Signature
Georgette Bluno

Released By:



Authorized Signature
Dr. Randy von Smith



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Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 6-86 Top	Diethylphthalate	220	<220
	N-Nitrosodiphenylamine	19	<19
	Hexachlorobenzene	19	<19
	alpha-BHC	NE	ND
	4-Bromophenyl phenyl ether	19	<19
	gamma-BHC	NE	ND
	Phenanthrene	54	<54
	Anthracene	19	<19
	beta-BHC	42	<42
	Heptachlor	19	<19
	delta-BHC	31	<31
	Aldrin	19	<19
	Dibutyl phthalate	25	80
	Heptachlor epoxide	22	<22
	Endosulfan I	NE	ND
	Fluoranthene	22	<22
	Dieldrin	25	<25
	4,4'-DDE	56	<56
	Pyrene	19	<19
	Endrin	NE	ND
	Endosulfan II	NE	ND
	4,4'-DDD	28	<28
	Benzidine	440	<440
	4,4'-DDT	47	<47

METHOD REFERENCE: EPA SW-846 (8250)
Extraction Procedure: EPA SW-846 (3550)
NE: Not Established
ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Dr. Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Test</u>	<u>Test Method</u>	<u>Detection limit</u>	<u>Results</u>
HA 6-86 Top	Total Phenol	SM14 (510A)	0.1ppm	1.2ppm
	Total Cyanide	SM16 (412B)	1.0 ppm	<1.0ppm

SM: Standard Method 14th and 16th Edition

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

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Laboratory Director
Dr. Randy Von Smith



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Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 6-86	Benzene	44	80
Bottom	Trichloroethene	19	11,700
	Dibromochloromethane	31	<31
	1,1,2-Trichloroethane	50	<50
	cis-1,3-Dichloropropene	NE	<50
	Bromoform	47	<47
	1,1,2,2-Tetrachloroethane	69	7,760
	Tetrachloroethene	41	11,500
	Toluene	60	5,650
	Chlorobenzene	60	<60
	Ethyl benzene	72	1,890
	1,3-Dichlorobenzene	NE	ND
	1,2-Dichlorobenzene	NE	ND
	1,4-Dichlorobenzene	NE	ND
	trans-1,3-Dichloropropene	50	<50

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 6-86	Chloromethane	NE	<50
Bottom	Bromomethane	NE	<50
	Vinyl chloride	NE	<50
	Chloroethane	NE	<50
	Methylene chloride	28	4,890
	Trichlorofluoromethane	NE	<50
	1,1-Dichloroethene	28	150
	1,1-Dichloroethane	47	1,420
trans-1,2-Dichloroethene		16	<16
	Chloroform	16	340
	1,2-Dichloroethane	28	<28
	1,1,1-Trichloroethane	38	9,650
	Carbon tetrachloride	28	<28
	Bromodichloromethane	22	<22
	1,2-Dichloropropane	60	<60

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

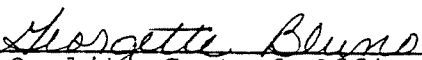
ELAP # 10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample I.D.</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 6-86 Bottom	1,3-Dichlorobenzene	19	<19
	1,4-Dichlorobenzene	44	<44
	Hexachloroethane	16	<16
	Bis(2-chloroethyl)ether	57	<57
	1,2-Dichlorobenzene	19	<19
	Bis(2-chloroisopropyl)ether	57	<57
	N-Nitrosodi-n-propyl amine	NE	ND
	Nitrobenzene	19	<19
	Hexachlorobutadiene	9	<9
	1,2,4-Trichlorobenzene	19	<19
	Isophorone	22	<22
	Naphthalene	16	<16
	Bis(2-chloroethoxy)methane	53	<53
	Hexachlorocyclopentadiene	NE	<60
	2-Chloronaphthalene	19	<19
	Acenaphthylene	35	<35
	Acenaphthene	19	<19
	Dimethyl phthalate	16	<16
	2,6-Dinitrotoluene	19	<19
	Fluorene	19	<19
	4-Chlorophenyl phenyl ether	42	<42
	2,4-Dinitrotoluene	57	<57

METHOD REFERENCE: EPA SW-846 (8250)
Extraction Procedure: EPA SW-846 (3550)
NE: Not Established
ND: None Detected

QA/QC



Quality Control Officer
Georgette Bluno

Released By:



Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 6-86	Endosulfan sulfate	56	<56
Bottom	Endrin aldehyde	NE	ND
	Butyl benzyl phthalate	25	440
	Bis(2-ethylhexyl)phthalate	25	60
	Chrysene	25	<25
	Benzo(a)anthracene	78	<78
	3,3'-Dichlorobenzidine	165	<165
	Di-n-octylphthalate	25	80
	Benzo(b)fluoranthene	48	<48
	Benzo(k)fluoranthene	25	<25
	Benzo(a)pyrene	25	<25
	Indeno(1,2,3-c,d)pyrene	37	<37
	Dibenzo(a,h)anthracene	25	<25
	Benzo(ghi)perylene	41	<41
	N-Nitrosodimethyl amine	NE	ND
	Chlordane	NE	ND
	Toxaphene	NE	ND
	PCB 1016	NE	ND
	PCB 1221	300	<300
	PCB 1232	NE	ND
	PCB 1242	NE	ND
	PCB 1248	NE	ND
	PCB 1254	360	<360
	PCB 1260	NE	ND

METHOD REFERENCE: EPA SW-846 (8250)
Extraction Method: EPA SW-846 (3550)
NE: Not Established
ND: None Detected

QA/QC

Georgette Bluno
Authorized Signature
Georgette Bluno

Released By:

Randy von Smith
Authorized Signature
Dr. Randy von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 6-86 Bottom	Diethylphthalate	220	<220
	N-Nitrosodiphenylamine	19	<19
	Hexachlorobenzene	19	<19
	alpha-BHC	NE	ND
	4-Bromophenyl phenyl ether	19	<19
	gamma-BHC	NE	ND
	Phenanthrene	54	<54
	Anthracene	19	<19
	beta-BHC	42	<42
	Heptachlor	19	<19
	delta-BHC	31	<31
	Aldrin	19	<19
	Dibutyl phthalate	25	<25
	Heptachlor epoxide	22	<22
	Endosulfan I	NE	ND
	Fluoranthene	22	<22
	Dieldrin	25	<25
	4,4'-DDE	56	<56
	Pyrene	19	<19
	Endrin	NE	ND
	Endosulfan II	NE	ND
	4,4'-DDD	28	<28
	Benzidine	440	<440
	4,4'-DDT	47	<47

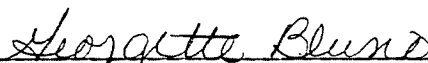
METHOD REFERENCE: EPA SW-846 (8250)

Extraction Procedure: EPA SW-846 (3550)

NE: Not Established

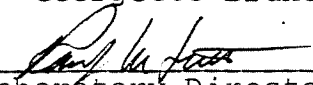
ND: None Detected

QA/QC



Quality Control Officer
Georgette Bluno

Released By:



Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Test</u>	<u>Test Method</u>	<u>Detection limit</u>	<u>Results</u>
HA 6-86 Bottom	Total Phenol	SM14 (510A)	0.1ppm	227ppm
	Total Cyanide	SM16 (412B)	1.0 ppm	4.9 ppm

SM: Standard Method 14th and 16th Edition

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 7-86 Top	Benzene	44	<44
	Trichloroethene	19	2,540
	Dibromochloromethane	31	<31
	1,1,2-Trichloroethane	50	<50
	cis-1,3-Dichloropropene	NE	<50
	Bromoform	47	<47
	1,1,2,2-Tetrachloroethane	69	4,350
	Tetrachloroethene	41	4,890
	Toluene	60	1,140
	Chlorobenzene	60	80
	Ethyl benzene	72	380
	1,3-Dichlorobenzene	NE	ND
	1,2-Dichlorobenzene	NE	ND
	1,4-Dichlorobenzene	NE	ND
	trans-1,3-Dichloropropene	50	<50

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Bandy Von Smith
Laboratory Director
Dr. Bandy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 7-86 Top	Chloromethane	NE	<50
	Bromomethane	NE	<50
	Vinyl chloride	NE	<50
	Chloroethane	NE	<50
	Methylene chloride	28	3,750
	Trichlorofluoromethane	NE	<50
	1,1-Dichloroethene	28	<50
	1,1-Dichloroethane	47	<47
	trans-1,2-Dichloroethene	16	<16
	Chloroform	16	110
	1,2-Dichloroethane	28	640
	1,1,1-Trichloroethane	38	190
	Carbon tetrachloride	28	<28
	Bromodichloromethane	22	<22
	1,2-Dichloropropane	60	<60

METHOD REFERENCE: EPA SW-846 (8240)
Extraction Method: EPA SW-846 (5030)
NE: Not Established
ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP # 10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample I.D.</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 7-86 Top	1,3-Dichlorobenzene	19	<19
	1,4-Dichlorobenzene	44	<44
	Hexachloroethane	16	<16
	Bis(2-chloroethyl) ether	57	<57
	1,2-Dichlorobenzene	19	<19
	Bis(2-chloroisopropyl) ether	57	<57
	N-Nitrosodi-n-propyl amine	NE	ND
	Nitrobenzene	19	<19
	Hexachlorobutadiene	9	<9
	1,2,4-Trichlorobenzene	19	<19
	Isophorone	22	<22
	Naphthalene	16	<16
	Bis(2-chloroethoxy) methane	53	<53
	Hexachlorocyclopentadiene	NE	<60
	2-Chloronaphthalene	19	<19
	Acenaphthylene	35	<35
	Acenaphthene	19	<19
	Dimethyl phthalate	16	<16
	2,6-Dinitrotoluene	19	<19
	Fluorene	19	<19
	4-Chlorophenyl phenyl ether	42	<42
	2,4-Dinitrotoluene	57	<57

METHOD REFERENCE: EPA SW-846 (8250)

Extraction Procedure: EPA SW-846 (3550)

NE: Not Established

ND: None Detected

QA/QC



Quality Control Officer
Georgette Bluno

Released By:



Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 7-86 Top	Endosulfan sulfate	56	<56
	Endrin aldehyde	NE	ND
	Butyl benzyl phthalate	25	440
	Bis(2-ethylhexyl)phthalate	25	120
	Chrysene	25	<25
	Benzo(a)anthracene	78	<78
	3,3'-Dichlorobenzidine	165	<165
	Di-n-octylphthalate	25	80
	Benzo(b)fluoranthene	48	<48
	Benzo(k)fluoranthene	25	<25
	Benzo(a)pyrene	25	<25
	Indeno(1,2,3-c,d)pyrene	37	<37
	Dibenzo(a,h)anthracene	25	<25
	Benzo(ghi)perylene	41	<41
	N-Nitrosodimethyl amine	NE	ND
	Chlordane	NE	ND
	Toxaphene	NE	ND
	PCB 1016	NE	ND
	PCB 1221	300	<300
	PCB 1232	NE	ND
	PCB 1242	NE	ND
	PCB 1248	NE	ND
	PCB 1254	360	<360
	PCB 1260	NE	ND

METHOD REFERENCE: EPA SW-846 (8250)

Extraction Method: EPA SW-846 (3550)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Authorized Signature
Georgette Bluno

Released By:

Randy von Smith
Authorized Signature
Dr. Randy von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 7-86 Top	Diethylphthalate	220	<220
	N-Nitrosodiphenylamine	19	<19
	Hexachlorobenzene	19	<19
	alpha-BHC	NE	ND
	4-Bromophenyl phenyl ether	19	<19
	gamma-BHC	NE	ND
	Phenanthrene	54	<54
	Anthracene	19	<19
	beta-BHC	42	<42
	Heptachlor	19	<19
	delta-BHC	31	<31
	Aldrin	19	<19
	Dibutyl phthalate	25	<25
	Heptachlor epoxide	22	<22
	Endosulfan I	NE	ND
	Fluoranthene	22	<22
	Dieldrin	25	<25
	4,4'-DDE	56	<56
	Pyrene	19	<19
	Endrin	NE	ND
	Endosulfan II	NE	ND
	4,4'-DDD	28	<28
	Benzidine	440	<440
	4,4'-DDT	47	<47

METHOD REFERENCE: EPA SW-846 (8250)

Extraction Procedure: EPA SW-846 (3550)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Test</u>	<u>Test Method</u>	<u>Detection limit</u>	<u>Results</u>
HA 7-86 Top	Total Phenol	SM14 (510A)	0.1ppm	4.9ppm
	Total Cyanide	SM16 (412B)	1.0 ppm	<1.0 ppm

SM: Standard Method 14th and 16th Edition

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 7-86	Benzene	44	<44
Bottom	Trichloroethene	19	10,800
	Dibromochloromethane	31	<31
	1,1,2-Trichloroethane	50	<50
	cis-1,3-Dichloropropene	NE	ND
	Bromoform	47	<47
	1,1,2,2-Tetrachloroethane	69	7,060
	Tetrachloroethene	41	8,460
	Toluene	60	5,150
	Chlorobenzene	60	70
	Ethyl benzene	72	580
	1,3-Dichlorobenzene	NE	ND
	1,2-Dichlorobenzene	NE	ND
	1,4-Dichlorobenzene	NE	ND
	trans-1,3-Dichloropropene	50	<50

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 7-86	Chloromethane	NE	<50
Bottom	Bromomethane	NE	<50
	Vinyl chloride	NE	<50
	Chlcroethane	NE	<50
	Methylene chloride	28	4,060
	Trichlorofluoromethane	NE	<50
	1,1-Dichloroethene	28	70
	1,1-Dichloroethane	47	920
trans-1,2-Dichloroethene		16	<16
	Chloroform	16	<16
	1,2-Dichloroethane	28	<28
	1,1,1-Trichloroethane	38	5,050
	Carbon tetrachloride	28	<28
	Bromodichloromethane	22	<22
	1,2-Dichloropropane	60	<60

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP # 10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample I.D.</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 7-86 Bottom	1,3-Dichlorobenzene	19	<19
	1,4-Dichlorobenzene	44	<44
	Hexachloroethane	16	<16
	Bis(2-chloroethyl) ether	57	<57
	1,2-Dichlorobenzene	19	<19
	Bis(2-chloroisopropyl) ether	57	<57
	N-Nitrosodi-n-propyl amine	NE	ND
	Nitrobenzene	19	<19
	Hexachlorobutadiene	9	<9
	1,2,4-Trichlorobenzene	19	<19
	Isophorone	22	<22
	Naphthalene	16	<16
	Bis(2-chloroethoxy) methane	53	<53
	Hexachlorocyclopentadiene	NE	<60
	2-Chloronaphthalene	19	<19
	Acenaphthylene	35	<35
	Acenaphthene	19	<19
	Dimethyl phthalate	16	<16
	2,6-Dinitrotoluene	19	<19
	Fluorene	19	<19
	4-Chlorophenyl phenyl ether	42	<42
	2,4-Dinitrotoluene	57	<57

METHOD REFERENCE: EPA SW-846 (8250)
Extraction Procedure: EPA SW-846 (3550)
NE: Not Established
ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 7-86	Endosulfan sulfate	56	<56
Bottom	Endrin aldehyde	NE	ND
	Butyl benzyl phthalate	25	100
	Bis(2-ethylhexyl)phthalate	25	<25
	Chrysene	25	<25
	Benzo(a)anthracene	78	<78
	3,3'-Dichlorobenzidine	165	<165
	Di-n-octylphthalate	25	<25
	Benzo(b)fluoranthene	48	<48
	Benzo(k)fluoranthene	25	<25
	Benzo(a)pyrene	25	<25
	Indeno(1,2,3-c,d)pyrene	37	<37
	Dibenzo(a,h)anthracene	25	<25
	Benzo(ghi)perylene	41	<41
	N-Nitrosodimethyl amine	NE	ND
	Chlordane	NE	ND
	Toxaphene	NE	ND
	PCB 1016	NE	ND
	PCB 1221	300	<300
	PCB 1232	NE	ND
	PCB 1242	NE	ND
	PCB 1248	NE	ND
	PCB 1254	360	<360
	PCB 1260	NE	ND

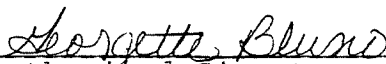
METHOD REFERENCE: EPA SW-846 (8250)

Extraction Method: EPA SW-846 (3550)

NE: Not Established

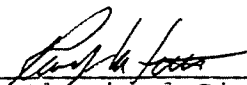
ND: None Detected

QA/QC



Authorized Signature
Georgette Bluno

Released By:



Authorized Signature
Dr. Randy von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 7-86	Diethylphthalate	220	<220
Bottom	N-Nitrosodiphenylamine	19	<19
	Hexachlorobenzene	19	<19
	alpha-BHC	NE	ND
	4-Bromophenyl phenyl ether	19	<19
	gamma-BHC	NE	ND
	Phenanthrene	54	<54
	Anthracene	19	<19
	beta-BHC	42	<42
	Heptachlor	19	<19
	delta-BHC	31	<31
	Aldrin	19	<19
	Dibutyl phthalate	25	<25
	Heptachlor epoxide	22	<22
	Endosulfan I	NE	ND
	Fluoranthene	22	<22
	Dieldrin	25	<25
	4,4'-DDE	56	<56
	Pyrene	19	<19
	Endrin	NE	ND
	Endosulfan II	NE	ND
	4,4'-DDD	28	<28
	Benzidine	440	<440
	4,4'-DDT	47	<47

METHOD REFERENCE: EPA SW-846 (8250)

Extraction Procedure: EPA SW-846 (3550)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Dr. Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Test</u>	<u>Test Method</u>	<u>Detection limit</u>	<u>Results</u>
HA 7-86	Total Phenol	SM14 (510A)	0.1ppm	128ppm
Bottom	Total Cyanide	SM16 (412B)	1.0 ppm	9.2 ppm

SM: Standard Method 14th and 16th Edition

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 8-86	Benzene	44	<44
Top	Trichloroethene	19	1,090
	Dibromochloromethane	31	<31
	1,1,2-Trichloroethane	50	<50
	cis-1,3-Dichloropropene	NE	<50
	Bromoform	47	<47
	1,1,2,2-Tetrachloroethane	69	6,820
	Tetrachloroethene	41	7,620
	Toluene	60	540
	Chlorobenzene	60	<60
	Ethyl benzene	72	440
	1,3-Dichlorobenzene	NE	ND
	1,2-Dichlorobenzene	NE	ND
	1,4-Dichlorobenzene	NE	ND
	trans-1,3-Dichloropropene	50	<50

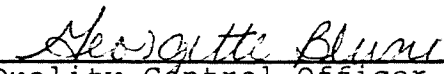
METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

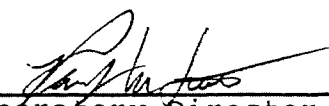
ND: None Detected

QA/QC



Quality Control Officer
Georgette Bluno

Released By:



Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 8-86 Top	Chloromethane	NE	<50
	Bromomethane	NE	<50
	Vinyl chloride	NE	<50
	Chloroethane	NE	<50
	Methylene chloride	28	1,520
	Trichlorofluoromethane	NE	<50
	1,1-Dichloroethene	28	<50
	1,1-Dichloroethane	47	<47
	trans-1,2-Dichloroethene	16	<16
	Chloroform	16	<16
	1,2-Dichloroethane	28	<28
	1,1,1-Trichloroethane	38	180
	Carbon tetrachloride	28	<28
	Bromodichloromethane	22	<22
	1,2-Dichloropropane	60	<60

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Blum
Quality Control Officer
Georgette Blum

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP # 10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample I.D.</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 8-86 Top	1,3-Dichlorobenzene	19	<19
	1,4-Dichlorobenzene	44	<44
	Hexachloroethane	16	<16
	Bis(2-chloroethyl) ether	57	<57
	1,2-Dichlorobenzene	19	<19
	Bis(2-chloroisopropyl) ether	57	<57
	N-Nitrosodi-n-propyl amine	NE	ND
	Nitrobenzene	19	<19
	Hexachlorobutadiene	9	<9
	1,2,4-Trichlorobenzene	19	<19
	Isophorone	22	<22
	Naphthalene	16	<16
	Bis(2-chloroethoxy) methane	53	<53
	Hexachlorocyclopentadiene	NE	<60
	2-Chloronaphthalene	19	<19
	Acenaphthylene	35	<35
	Acenaphthene	19	<19
	Dimethyl phthalate	16	<16
	2,6-Dinitrotoluene	19	<19
	Fluorene	19	<19
	4-Chlorophenyl phenyl ether	42	<42
	2,4-Dinitrotoluene	57	<57

METHOD REFERENCE: EPA SW-846 (8250)
Extraction Procedure: EPA SW-846 (3550)
NE: Not Established
ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 8-86 Top	Endosulfan sulfate	56	<56
	Endrin aldehyde	NE	ND
	Butyl benzyl phthalate	25	100
	Bis(2-ethylhexyl)phthalate	25	<25
	Chrysene	25	<25
	Benzo(a)anthracene	78	<78
	3,3'-Dichlorobenzidine	165	<165
	Di-n-octylphthalate	25	<25
	Benzo(b)fluoranthene	48	<48
	Benzo(k)fluoranthene	25	<25
	Benzo(a)pyrene	25	<25
	Indeno(1,2,3-c,d)pyrene	37	<37
	Dibenzo(a,b)anthracene	25	<25
	Benzo(ghi)perylene	41	<41
	N-Nitrosodimethyl amine	NE	ND
	Chlordane	NE	ND
	Toxaphene	NE	ND
	PCB 1016	NE	ND
	PCB 1221	300	<300
	PCB 1232	NE	ND
	PCB 1242	NE	ND
	PCB 1248	NE	ND
	PCB 1254	360	<360
	PCB 1260	NE	ND

METHOD REFERENCE: EPA SW-846 (8250)

Extraction Method: EPA SW-846 (3550)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Authorized Signature
Georgette Bluno

Released By:

Randy von Smith
Authorized Signature
Dr. Randy von Smith



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Date: February 17, 1987

FLAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 8-86 Top	Diethylphthalate	220	<220
	N-Nitrosodiphenylamine	19	<19
	Hexachlorobenzene	19	<19
	alpha-BHC	NE	ND
	4-Bromophenyl phenyl ether	19	<19
	gamma-BHC	NE	ND
	Phenanthrene	54	<54
	Anthracene	19	<19
	beta-BHC	42	<42
	Heptachlor	19	<19
	delta-DHC	31	<31
	Aldrin	19	<19
	Dibutyl phthalate	25	<25
	Heptachlor epoxide	22	<22
	Endosulfan I	NE	ND
	Fluoranthene	22	<22
	Dieldrin	25	<25
	4,4'-DDE	56	<56
	Pyrene	19	<19
	Endrin	NE	ND
	Endosulfan II	NE	ND
	4,4'-DDD	28	<28
	Benzidine	440	<440
	4,4'-DDT	47	<47

METHOD REFERENCE: EPA SW-846 (8250)
Extraction Procedure: EPA SW-846 (3550)
NE: Not Established
ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



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Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Test</u>	<u>Test Method</u>	<u>Detection limit</u>	<u>Results</u>
HA 8-86 Top	Total Phenol	SM14 (510A)	0.1ppm	1.2 ppm
	Total Cyanide	SM16 (412B)	1.0 ppm	1.7 ppm

SM: Standard Method 14th and 16th Edition

QA/QC

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Quality Control Officer
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<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 8-86	Benzene	44	<44
Bottom	Trichloroethene	19	1,740
	Dibromochloromethane	31	<31
	1,1,2-Trichloroethane	50	<50
	cis-1,3-Dichloropropene	NE	<50
	Bromoform	47	<47
	1,1,2,2-Tetrachloroethane	69	649
	Tetrachloroethene	41	7,990
	Toluene	60	2,050
	Chlorobenzene	60	<60
	Ethyl benzene	72	670
	1,3-Dichlorobenzene	NE	ND
	1,2-Dichlorobenzene	NE	ND
	1,4-Dichlorobenzene	NE	ND
	trans-1,3-Dichloropropene	50	<50

METHOD REFERENCE: EPA SW-846 (8240)

Extraction Method: EPA SW-846 (5030)

NE: Not Established

ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

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Laboratory Director
Dr. Randy Von Smith



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Date: February 17, 1987

ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 8-86	Chloromethane	NE	<50
Bottom	Bromomethane	NE	<50
	Vinyl chloride	NE	<50
	Chloroethane	NE	<50
	Methylene chloride	28	1,740
	Trichlorofluoromethane	NE	<50
	1,1-Dichloroethene	28	<50
	1,1-Dichloroethane	47	<47
	trans-1,2-Dichloroethene	16	<16
	Chloroform	16	<16
	1,2-Dichloroethane	28	<28
	1,1,1-Trichloroethane	38	<38
	Carbon tetrachloride	28	<28
	Bromodichloromethane	22	<22
	1,2-Dichloropropane	60	<60

METHOD REFERENCE: EPA SW-846 (8240)
Extraction Method: EPA SW-846 (5030)
NE: Not Established
ND: None Detected

QA/QC

Georgette Blum
Quality Control Officer
Georgette Blum

Released By:

Randy Von Smith
Laboratory Director
Dr. Randy Von Smith



TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: February 17, 1987

ELAP # 10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample I.D.</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 8-86	1,3-Dichlorobenzene	19	<19
Bottom	1,4-Dichlorobenzene	44	<44
	Hexachloroethane	16	<16
	Bis(2-chloroethyl) ether	57	<57
	1,2-Dichlorobenzene	19	<19
	Bis(2-chloroisopropyl) ether	57	<57
	N-Nitrosodi-n-propyl amine	NE	ND
	Nitrobenzene	19	<19
	Hexachlorobutadiene	9	<9
	1,2,4-Trichlorobenzene	19	<19
	Isophorone	22	<22
	Naphthalene	16	<16
	Bis(2-chloroethoxy) methane	53	<53
	Hexachlorocyclopentadiene	NE	<60
	2-Chloronaphthalene	19	<19
	Acenaphthylene	35	<35
	Acenaphthene	19	<19
	Dimethyl phthalate	16	<16
	2,6-Dinitrotoluene	19	<19
	Fluorene	19	<19
	4-Chlorophenyl phenyl ether	42	<42
	2,4-Dinitrotoluene	57	<57

METHOD REFERENCE: EPA SW-846 (8250)
Extraction Procedure: EPA SW-846 (3550)
NE: Not Established
ND: None Detected

QA/QC

Georgette Bluno
Quality Control Officer
Georgette Bluno

Released By:

Randy Von Smith
Laboratory Director
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Date: February 17, 1987

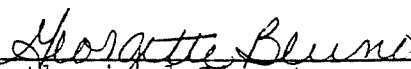
ELAP #10797

ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 8-86 Bottom	Endosulfan sulfate	56	<56
	Endrin aldehyde	NE	ND
	Butyl benzyl phthalate	25	120
	Bis(2-ethylhexyl)phthalate	25	<25
	Chrysene	25	<25
	Benzo(a)anthracene	78	<78
	3,3'-Dichlorobenzidine	165	<165
	Di-n-octylphthalate	25	<25
	Benzo(b)fluoranthene	48	<48
	Benzo(k)fluoranthene	25	<25
	Benzo(a)pyrene	25	<25
	Indeno(1,2,3-c,d)pyrene	37	<37
	Dibenzo(a,h)anthracene	25	<25
	Benzo(ghi)perylene	41	<41
	N-Nitrosodimethyl amine	NE	ND
	Chlordane	NE	ND
	Toxaphene	NE	ND
	PCB 1016	NE	ND
	PCB 1221	300	<300
	PCB 1232	NE	ND
	PCB 1242	NE	ND
	PCB 1248	NE	ND
	PCB 1254	360	<360
	PCB 1260	NE	ND

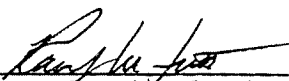
METHOD REFERENCE: EPA SW-846 (8250)
Extraction Method: EPA SW-846 (3550)
NE: Not Established
ND: None Detected

QA/QC



Authorized Signature
Georgette Bluno

Released By:



Authorized Signature
Dr. Randy von Smith



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ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Parameter</u>	<u>Detection Limit ppb</u>	<u>Quantity Detected ppb</u>
HA 8-86 Bottom	Diethylphthalate	220	<220
	N-Nitrosodiphenylamine	19	<19
	Hexachlorobenzene	19	<19
	alpha-BHC	NE	ND
	4-Bromophenyl phenyl ether	19	<19
	gamma-BHC	NE	ND
	Phenanthrene	54	<54
	Anthracene	19	<19
	beta-BHC	42	<42
	Heptachlor	19	<19
	delta-BHC	31	<31
	Aldrin	19	<19
	Dibutyl phthalate	25	<25
	Heptachlor epoxide	22	<22
	Endosulfan I	NE	ND
	Fluoranthene	22	<22
	Dieldrin	25	<25
	4,4'-DDE	56	<56
	Pyrene	19	<19
	Endrin	NE	ND
	Endosulfan II	NE	ND
	4,4'-DDD	28	<28
	Benzidine	440	<440
	4,4'-DDT	47	<47

METHOD REFERENCE: EPA SW-846 (8250)
Extraction Procedure: EPA SW-846 (3550)
NE: Not Established
ND: None Detected

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ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

<u>Sample ID</u>	<u>Test</u>	<u>Test Method</u>	<u>Detection limit</u>	<u>Results</u>
HA 8-86 Bottom	Total Phenol	SM14 (510A)	0.1ppm	80 ppm
	Total Cyanide	SM16 (412B)	1.0 ppm	6.3 ppm

SM: Standard Method 14th and 16th Edition

QA/QC

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ANALYSIS FOR: Frontier Chemical Waste Process, Inc.

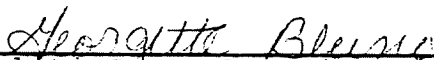
<u>Sample ID</u>	<u>Test</u>	<u>Test Method</u>	<u>Detection limit</u>	<u>Results</u>
Soil Sample Composite; HA 1-86 To HA 8-86 Top and Bottom	Arsenic	EP TOX SW-846	0.050ppm	<0.01ppm
	Barium	EP TOX SW-846	1.00ppm	31.0ppm
	Cadmium	EP TOX SW-846	0.025ppm	<0.25ppm
	Chromium	EP TOX SW-846	0.20ppm	<0.20ppm
	Lead	EP TOX SW-846	0.25ppm	<0.25ppm
	Mercury	EP TOX SW-846	0.005ppm	<0.005ppm
	Selenium	EP TOX SW-846	0.005ppm	<0.005ppm
	Silver	EP TOX SW-846	0.05ppm	<0.05ppm

SM: Standard Method 16th Edition

EPA: EPA SW-846

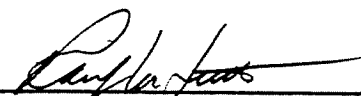
ASTM: American Society of Testing and Materials

QA/QC



Quality Control Officer
Georgette Bluno

Released By:



Laboratory Director
Dr. Randy Von Smith

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TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

METHOD REFERENCE KEY

1. SW-846, 1982
"Test Methods for Evaluating Solid Waste: Physical/Chemical Methods,"
SW-846, 2nd Edition, U.S. Environmental Protection Agency, July, 1982.
2. SM 14
"Standard Method for Examination of Water and Wastewater," 14th edition
Copyrighted 1981
3. SM 16
"Standard Method for Examination of Water and Wastewater," 16th edition
Copyrighted 1985