



UCAR CARBON COMPANY INC. P.O. BOX 513, COLUMBIA, TENNESSEE 38402-0513

January 31, 1990

Mr. Robert J. Mitrey
Associate Sanitary Engineer
New York State Dept of
Environmental Conservation
600 Delaware Ave.
Buffalo, New York 14202-1073

Dear Mr. Mitrey:

I have enclosed a copy of the seventh quarter's groundwater analysis. Bedrock well, BW-4, remains the only site which indicates some semi-volatile and volatile organic contamination. Bedrock well, BW-6, upgradient shows no contamination.

Three first time parameters for BW-4 are indicated in this report; however, the methylene chloride and acetone are most likely due to analytical contamination. Butybenzylphthalate is a new parameter showing a concentration of 11 parts per billion.

The following will summarize the current ground water data from BW-4:

7/88	Hexachlorobutadine	13
3/89	"	150
6/89	"	22
9/89	"	29
12/89	"	10
11/88	Trichloroethylene	30
3/89	"	570
6/89	"	740
9/89	"	350
12/89	"	320
7/88	1,1,2,2-Tetrachloroethylene	44
11/89	"	1300
3/89	"	1600
6/89	"	1500
9/89	"	510
12/89	"	380
9/89	Vinyl Chloride	34
12/89	"	44
9/89	Chloroform	5.5
12/89	"	5.5

As noted in the Conestoga Rovers and Associates Report of May 16, 1989, this well, BW-4-86, is located upgradient of the bulk of the SWMF fill in regards to the overburden groundwater flow direction; therefore, any contamination in the overburden at this site may be originating off-site to the north.

We do not feel that this contamination at BW-4-86 is related to the Republic SWMF.

If you have further questions concerning this data, please feel free to contact me at 615-380-4215.

Very truly yours,



R.A. Bolton
Manager, HS & EA

RAB:nr

Attachment

cc: Mr. Jim Devald, Sr. Public Health Engineer

Mr. Dave O'Tool- N.Y. Dept. of Environmental Conservation

A.C. Ogg - Niagara



REPUBLIC SOLID WASTE MANAGEMENT FACILITY POST-CLOSURE
MONITORING PROGRAM QUARTERLY REPORT OF GROUNDWATER
ANALYSIS

Report Prepared For

~~UNION CARBIDE CORPORATION~~
~~CARBIDE PRODUCTS DIVISION~~

UCAR Carbon Co. Inc.

A handwritten signature in cursive script, reading "Frank J. Scrivano".

Frank J. Scrivano
Project Manager

A handwritten signature in cursive script, reading "Paul T. McMahon".

Paul T. McMahon
Quality Control Officer

January 12, 1990
AES Report CTC

COMMITMENT
TO
HONESTY - QUALITY - SERVICE

ADVANCED ENVIRONMENTAL SERVICES, INC.

FIELD REPORT

CLIENT: UNION CARBIDE AES JOB CODE: CTC

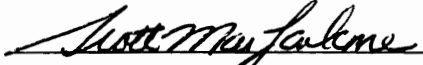
DATE PURGED: 12/19-89 DATE SAMPLED: 12/19/89

WELL IDENTIFICATION	TOP OF PIPE ELEVATION	ELEVATION BEFORE PURGING	AMOUNT PURGED	ELEVATION BEFORE SAMPLING
BW-1✓	610.72	592.87	19.0 gal.	592.80
* MW-1✓	609.43	596.42	1.75 gal.	586.68
** BW-3✓	604.72	590.78	20.0 gal.	590.71
*** MW-3✓	601.61	588.95	3.5 gal.	587.93
BW-2✓	608.43	592.19	14.0 gal.	591.39
* MW-2✓	607.54	584.30	0.50 gal.	583.46
** BW-4✓	607.08	593.68	50.0 gal.	593.68
BW-5✓	603.33	590.13	25.0 gal.	589.48
** BW-6✓	607.04	589.06	11.5 gal.	588.44
OW-1 South	608.81	601.51	N/A	N/A
OW-2 North	607.06	598.39	N/A	N/A

* Well dry - No samples collected.

** Purged on 12/20 - Sampled on 12/20.

*** Purged on 12/19 - Sampled on 12/20.

 12/21/89
SCOTT MAC FARLANE
FIELD TECHNICIAN

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

=====

Type of Analysis: INORGANICS

Client: UNION CARBIDE

A.E.S. JOB CODE CTC

			AES Lab No. -	15249	15250	15251
			Sample ID -	B-W-1	B-W-2	B-W-5
				GRAB	GRAB	GRAB
-----	-----	-----	-----	-----	-----	-----
Analytical Parameter(s)	Method No.	Quant. Limits	Sample Date-	12/19/89	12/19/89	12/19/89
Nitrite (mg/l)	353.2	0.01		BQL *	BQL	BQL
Ammonia (as N) (mg/l)	350.1	0.01		0.32	0.79	0.15
Total Kjeldahl Nitrogen(mg/l)	351.2	0.10		0.56	0.94	0.32

* Below Quantifiable Limits

M. Shauna Pandolfino

M. Shauna Pandolfino
Inorganic Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

=====

Type of Analysis: INORGANICS

Client: UNION CARBIDE

A.E.S. Job Code CTC

(All results are in mg/l)

	AES Lab No. -	15249	15250	15251		
	Sample ID -	B-W-1	B-W-2	B-W-5		
		GRAB	GRAB	GRAB		
Analytical Parameter(s)	Method No.	Quant. Limits	Sample Date-	12/19/89	12/19/89	12/19/89
Total Iron (Fe)	236.1	0.30	14.2	22.0	25.6	
Soluble Iron (Fe)	236.1	0.30	1.97	6.12	3.04	
Total Potassium (K)	258.1	1.00	5.17	56.2	4.38	
Soluble Potassium (K)	258.1	1.00	3.94	30.2	5.00	
Total Zinc (Zn)	289.1	0.05	25.0	34.5	2.85	
Soluble Zinc (Zn)	289.1	0.05	0.83	0.43	0.26	

M. Shauna Pandolfino

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Inorganic Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT
QUALITY CONTROL - PRECISION

=====

Type of Analysis: Duplicate Analysis
Units of Analysis: Milligrams/Liter, or ppm
Client: UNION CARBIDE A.E.S. Job Code:CTC

Analytical Parameters	Sample No.	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference

Nitrite	15250	BQL *	BQL	BQL	N/A **	N/A
Ammonia (as N)	15249	0.33	0.31	0.32	0.02	6.2
Total Kjeldahl Nitrogen	15251	0.34	0.29	0.32	0.05	16
Total Iron	15251	25.8	25.3	25.6	0.5	2.0
Soluble Iron	15251	3.00	3.08	3.04	0.08	2.6
Soluble Potassium	15251	5.05	4.96	5.00	0.09	1.8
Total Zinc	15251	2.90	2.80	2.85	0.10	3.5
Soluble Zinc	15251	0.26	0.26	0.26	0	0

Relative Percent Difference =
Range/Average X 100
* Below Quantifiable Limits

** Not Available

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT
QUALITY CONTROL - ACCURACY

=====

Type of Analysis: Matrix Spikes and E.P.A. Standards
Client: UNION CARBIDE A.E.S. Job Code: CTC

(Units:mg/l or ppm)

Analytical Parameters	Sample No.	Type	Observed Conc.	Original Conc.	Added Conc.	Percent Recovery*
Nitrite	15250	SPK	0.108	BQL **	0.100	108
Ammonia (as N)	15249	SPK	1.28	0.32	0.75	128
Ammonia (as N)	---	STD	2.44	2.00	---	122
Total Kjeldahl Nitrogen	15251	SPK	5.46	0.32	5.00	103
Total Kjeldahl Nitrogen	---	EPA	5.17	5.00	---	103
Total Iron ***	15251	SPK	7.02	2.56	5.00	89
Soluble Iron	15251	SPK	7.64	3.04	5.00	92
EPA (Fe) STD	988	EPA	0.99	1.00	---	99
Soluble Potassium	15251	SPK	24.3	5.00	20.0	96
EPA (K) STD	988	EPA	10.9	10.0	---	109
Total Zinc ***	15251	SPK	1.50	0.57	1.00	93
Soluble Zinc	15251	SPK	1.26	0.26	1.00	100
EPA (Zn) STD	988	EPA	0.50	0.50	---	100

* % Recovery=100 x ((Observed Conc. - "background" Original Conc.)/"Spike" Added Conc.)

** Below Quantifiable Limits

*** Sample diluted prior to spiking.

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

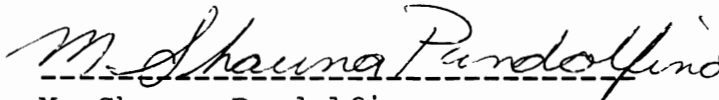
=====
Type of Analysis: INORGANICS

Client: UNION CARBIDE

A.E.S. Job Code CTC

(All results are in mg/l)

			AES Lab No. -	15342	15343	15344	15345
			Sample ID -	BW4	BW3	BW6	BLIND
							DUP
Analytical	Method	Quant.	Sample Date-	GRAB	GRAB	GRAB	GRAB
Parameter(s)	No.	Limits		12/20/89	12/20/89	12/20/89	12/20/89
Total Iron (Fe)	236.1	0.30		4.08	9.35	40.3	44.6
Soluble Iron (Fe)	236.1	0.30		3.10	1.10	13.2	13.5
Total Potassium (K)	258.1	1.00		30.8	9.88	14.2	14.7
Soluble Potassium (K)	258.1	1.00		31.4	9.33	20.3	19.1
Total Zinc (Zn)	289.1	0.05		0.06	3.05	0.19	0.22
Soluble Zinc (Zn)	289.1	0.05		0.06	0.38	0.16	0.17



M. Shauna Pandolfino
Inorganic Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

=====

Type of Analysis: INORGANICS

Client: UNION CARBIDE

A.E.S. Job Code CTC

(All results are in mg/l)

			AES Lab No. -	15346	15347
			Sample ID -	MW3	TRIP
					BLANK
				GRAB	GRAB
			Sample Date-	12/20/89	12/19/89
-----	-----	-----	-----	-----	-----
Analytical Parameter(s)	Method No.	Quant. Limits			
Total Iron (Fe)	236.1	0.30		70.0	BQL *
Soluble Iron (Fe)	236.1	0.30		4.46	N/R **
Total Potassium (K)	258.1	1.00		7.14	BQL
Soluble Potassium (K)	258.1	1.00		2.18	N/R
Total Zinc (Zn)	289.1	0.05		2.70	BQL
Soluble Zinc (Zn)	289.1	0.05		0.32	N/R

* Not Available
** Below Quantifiable Limits

M. Shauna Pandolfino

M. Shauna Pandolfino
Inorganic Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT
QUALITY CONTROL - PRECISION

=====

Type of Analysis: Duplicate Analysis
Units of Analysis: Milligrams/Liter, or ppm
Client: UNION CARBIDE A.E.S. Job Code:CTC

Analytical Parameters	Sample No.	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
Total Iron	15344	40.4	40.2	40.3	0.2	0.5
Soluble Iron	15344	13.2	13.1	13.2	0.1	0.8
Total Potassium	15344	14.2	14.1	14.2	0.1	0.7
Soluble Potassium	15344	20.4	20.2	20.3	0.2	1.0
Total Zinc	15344	0.20	0.18	0.19	0.02	10
Soluble Zinc	15344	0.16	0.16	0.16	0	0

Relative Percent Difference =
Range/Average X 100

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT
QUALITY CONTROL - ACCURACY

=====

Type of Analysis: Matrix Spikes and E.P.A. Standards
Client: UNION CARBIDE A.E.S. Job Code: CTC

(Units:mg/l or ppm)

Analytical Parameters		Sample No.	Type	Observed Conc.	Original Conc.	Added Conc.	Percent Recovery*

Total Iron	**	15344	SPK	6.78	2.02	5.00	95
Soluble Iron	**	15344	SPK	7.14	2.64	5.00	90
EPA (Fe) STD		988	STD	0.99	1.00	---	99
Total Potassium		15344	SPK	35.0	14.2	20.0	104
Soluble Potassium		15344	SPK	40.6	20.3	20.0	102
EPA (K) STD		988	STD	10.9	10.0	---	109
Total Zinc		15344	SPK	1.28	0.19	1.00	109
Soluble Zinc		15344	SPK	1.26	0.16	1.00	110
EPA (Zn) STD		988	STD	0.50	0.50	---	100

* % Recovery=100 x ((Observed Conc. - "background" Original Conc.)/"Spike" Added Conc.)

** Sample diluted prior to spiking

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

=====

Type of Analysis: INORGANICS

Client: UNION CARBIDE

A.E.S. JOB CODE CTC

Analytical Parameter(s)	Method No.	Quant. Limits	AES Lab No. - Sample ID -				
			Sample Date-				
			15342 BW4	15343 BW3	15344 BW6	15345 BLIND DUP	
			GRAB	GRAB	GRAB	GRAB	
			12/20/89	12/20/89	12/20/89	12/20/89	
Nitrite (mg/l)	353.2	0.01	BQL *	BQL	BQL	BQL	
Ammonia (as N) (mg/l)	350.1	0.01	11.6	1.37	0.33	0.31	
Total Kjeldahl Nitrogen(mg/l)	351.2	0.10	5.78	0.71	0.29	0.45	

* Below Quantifiable Limits

M. Shauna Pandolfino

M. Shauna Pandolfino
Inorganic Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

=====

Type of Analysis: INORGANICS

Client: UNION CARBIDE

A.E.S. JOB CODE CTC

			AES Lab No. -	15346	15347
			Sample ID -	MW3	TRIP
					BLANK
				GRAB	GRAB
			Sample Date-	12/20/89	12/19/89

Analytical Parameter(s)	Method No.	Quant. Limits			
Nitrite (mg/l)	353.2	0.01		0.01	BQL *
Ammonia (as N) (mg/l)	350.1	0.01		BQL	BQL
Total Kjeldahl Nitrogen(mg/l)	351.2	0.10		0.18	BQL

* Below Quantifiable Limits

M. Shauna Pandolfino

M. Shauna Pandolfino
Inorganic Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT
QUALITY CONTROL - PRECISION

=====

Type of Analysis: Duplicate Analysis
Units of Analysis: Milligrams/Liter or ppm
Client: UNION CARBIDE A.E.S. Job Code:CTC

Analytical Parameters	Sample No.	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
Total Kjeldahl Nitrogen	15346	0.18	0.18	0.18	0	0
Ammonia (as N)	15344	0.33	0.33	0.33	0	0
Nitrite	15345	BQL *	BQL	BQL	N/A **	N/A

Relative Percent Difference =
Range/Average X 100
* Below Quantifiable Limits

** Not Available

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT
QUALITY CONTROL - ACCURACY

=====

Type of Analysis: Matrix Spikes and E.P.A. Standards
Client: UNION CARBIDE A.E.S. Job Code: CTC

(Units:mg/l or ppm)

Analytical Parameters	Sample No.	Type	Observed Conc.	Original Conc.	Added Conc.	Percent Recovery*
Ammonia (as N)	15344	SPK	1.28	0.33	0.75	127
Ammonia (as N)	---	EPA	2.44	2.00	---	122
Total Kjeldahl Nitrogen	15346	SPK	4.04	0.18	5.00	77
Total Kjeldahl Nitrogen	---	EPA	4.20	5.10	---	82
Nitrite	**					

* % Recovery=100 x ((Observed Conc. - "background" Original Conc.)/"Spike" Added Conc.)

** Spike was not done due to technician error

SAMPLE PREPARATION AND ANALYSIS SUMMARY

[illegible]

SAMPLE PREPARATION AND ANALYSIS SUMMARY

[illegible]

SAMPLE PREPARATION AND ANALYSIS SUMMARY

[illegible]

SAMPLE PREPARATION AND ANALYSIS SUMMARY

[illegible]

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

=====
Type of Analysis: TCL VOLATILES

Units of Measure: Micrograms/ liter or ppb
Client: UNION CARBIDE A.E.S. Job Code CTC

			AES Lab No.- Sample ID -	15342 BW4	15344 BW6	15347 TRIP BLANK
				GRAB	GRAB	GRAB
Analytical Parameter(s)	Method No.	Quant. Limits	Sample Date-	12/20/89	12/20/89	12/19/89
Chloromethane	SW8240	10		BQL *	BQL	BQL
Vinyl Chloride	"	"		44	BQL	BQL
Chloroethane	"	"		BQL	BQL	BQL
Bromomethane	"	"		BQL	BQL	BQL
2-Chloroethylvinylether	"	"		BQL	BQL	BQL
Ethylbenzene	"	5.0		BQL	BQL	BQL
Methylene Chloride	"	10		13 **	12 **	17 **
Chlorobenzene	"	5.0		BQL	BQL	BQL
1,1-Dichloroethylene	"	"		BQL	BQL	BQL
1,1-Dichloroethane	"	"		BQL	BQL	BQL
trans-1,2-Dichloroethylene	"	"		BQL	BQL	BQL
Chloroform	"	"		5.5	BQL	BQL
1,2-Dichloroethane	"	"		BQL	BQL	BQL
1,1,1-Trichloroethane	"	"		BQL	BQL	BQL
Carbon Tetrachloride	"	"		BQL	BQL	BQL
Bromodichloromethane	"	"		BQL	BQL	BQL
1,2-Dichloropropane	"	"		BQL	BQL	BQL
trans-1,3-Dichloropropene	"	"		BQL	BQL	BQL
Trichloroethylene	"	"		320	BQL	BQL
Benzene	"	"		BQL	BQL	BQL
cis-1,3-Dichloropropene	"	"		BQL	BQL	BQL
1,1,2-Trichloroethane	"	"		BQL	BQL	BQL
Dibromochloromethane	"	"		BQL	BQL	BQL
Bromoform	"	"		BQL	BQL	BQL

* Below Quantifiable Limit

** Similar results were also seen in
lab blank.

WTT

Wayne J. Juda
Organics Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

=====

Type of Analysis: TCL VOLATILES

Units of Measure: Micrograms/ liter or ppb
Client: UNION CARBIDE A.E.S. Job Code CTC

			AES Lab No.-	15342	15344	15347
			Sample ID -	BW4	BW6	TRIP
						BLANK
Analytical	Method	Quant.		GRAB	GRAB	GRAB
Parameter(s)	No.	Limits	Sample Date-	12/20/89	12/20/89	12/19/89
1,1,2,2-Tetrachloroethylene	SW8240	5.0		380	BQL *	BQL
1,1,2,2-Tetrachloroethane	"	"		BQL	BQL	BQL
Toluene	"	"		BQL	BQL	BQL
Acetone	"	50		51	BQL	BQL
Carbon Disulfide	"	10		BQL	BQL	BQL
2-Butanone	"	50		BQL	BQL	BQL
Vinyl Acetate	"	10		BQL	BQL	BQL
2-Hexanone	"	50		BQL	BQL	BQL
4-Methyl-2-Pentanone	"	50		BQL	BQL	BQL
Styrene	"	10		BQL	BQL	BQL
o-Xylene	"	5.0		BQL	BQL	BQL
m/p-Xylene	"	5.0		BQL	BQL	BQL

* Below Quantifiable Limits

WJT

Wayne J. Juda
Organics Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

=====
Type of Analysis: TCL SEMI-VOLS

Units of Measure: Micrograms/ Liter or ppb
Client: UNION CARBIDE A.E.S. Job Code CTC

Analytical Parameter(s)	Method No.	Quant. Limits	AES Lab No.- Sample ID -	15342 BW-4	15344 BW-6	15347 TRIP BLANK
			Sample Date-	GRAB 12/20/89	GRAB 12/20/89	GRAB 12/19/89
2-Methlnaphthalene	SW8270	10		BQL *	BQL	BQL
Bis(2-Chloroethyl) Ether	"	"		BQL	BQL	BQL
1,3-Dichlorobenzene	"	"		BQL	BQL	BQL
1,4-Dichlorobenzene	"	"		BQL	BQL	BQL
1,2-Dichlorobenzene	"	"		BQL	BQL	BQL
Bis(2-Chloroisopropyl) Ether	"	"		BQL	BQL	BQL
Hexachloroethane	"	"		BQL	BQL	BQL
N-Nitrosdi-N-Propylamine	"	"		BQL	BQL	BQL
Nitrobenzene	"	"		BQL	BQL	BQL
Isophorone	"	"		BQL	BQL	BQL
Bis(2-Chloroethoxy)Methane	"	"		BQL	BQL	BQL
1,2,4-Trichlorobenzene	"	"		BQL	BQL	BQL
Naphthalene	"	"		BQL	BQL	BQL
Hexachlorobutadiene	"	"		10	BQL	BQL
Hexachlorocyclopentadiene	"	"		BQL	BQL	BQL
2-Chloronaphthalene	"	"		BQL	BQL	BQL
Dimethylphthalate	"	"		BQL	BQL	BQL
Acenaphthylene	"	"		BQL	BQL	BQL
2,6-Dinitrotoluene	"	"		BQL	BQL	BQL
Acenaphthene	"	"		BQL	BQL	BQL
2,4-Dinitrotoluene	"	"		BQL	BQL	BQL
Diethylphthalate	"	"		BQL	BQL	BQL

* Below Quantifiable Limits

15

Wayne J. Juda
Organics Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

=====
Type of Analysis: TCL SEMI-VOLS

Units of Measure: Micrograms/ Liter or ppb
Client: UNION CARBIDE A.E.S. Job Code CTC

			AES Lab No.- Sample ID -	15342 BW-4	15344 BW-6	15347 TRIP BLANK
				GRAB	GRAB	GRAB
Analytical Parameter(s)	Method No.	Quant. Limits	Sample Date-	12/20/89	12/20/89	12/19/89
Fluorene	SW8270	10		BQL *	BQL	BQL
4-Chlorophenylphenylether	"	"		BQL	BQL	BQL
N-Nitrosdiphenylamine	"	"		BQL	BQL	BQL
Benzyl Alcohol	"	20		BQL	BQL	BQL
4-Chloroaniline	"	10		BQL	BQL	BQL
4-Bromophenylphenylether	"	"		BQL	BQL	BQL
Hexachlorobenzene	"	"		BQL	BQL	BQL
Phenanthrene	"	"		BQL	BQL	BQL
Anthracene	"	"		BQL	BQL	BQL
Di-N-Butylphthalate	"	"		BQL	BQL	BQL
Fluoranthene	"	"		BQL	BQL	BQL
2-Nitroaniline	"	15		BQL	BQL	BQL
Pyrene	"	10		BQL	BQL	BQL
Butybenzylphthalate	"	"		11	BQL	BQL
Benzo(a)Anthracene	"	"		BQL	BQL	BQL
3,3'-Dichlorobenzidine	"	20		BQL	BQL	BQL
Chrysene	"	10		BQL	BQL	BQL
Bis(2-Ethylhexyl) Phthalate	"	20		BQL	BQL	BQL
Di-N-Octylphthalate	"	10		BQL	BQL	BQL
Benzo(b) Fluoranthene	"	"		BQL	BQL	BQL
Benzo(k) Fluoranthene	"	"		BQL	BQL	BQL
Benzo(a) Pyrene	"	"		BQL	BQL	BQL
Indeno(1,2,3-C,D) Pyrene	"	15		BQL	BQL	BQL
Dibenzo(a,h) Anthracene	"	15		BQL	BQL	BQL
Benzo(g,h,i) Perylene	"	15		BQL	BQL	BQL

* Below Quantifiable Limits

10

WJT
Wayne J. Juda
Organics Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

=====

Type of Analysis: TCL SEMI-VOLS

Units of Measure: Micrograms/ Liter or ppb
Client: UNION CARBIDE A.E.S. Job Code CTC

Analytical Parameter(s)	Method No.	Quant. Limits	AES Lab No.- Sample ID -	15342 BW-4	15344 BW-6	15347 TRIP BLANK
			Sample Date-	GRAB 12/20/89	GRAB 12/20/89	GRAB 12/19/89
Phenol	SW8270	10		BQL *	BQL	BQL
2-Chlorophenol	"	"		BQL	BQL	BQL
2-Nitrophenol	"	"		BQL	BQL	BQL
2,4-Dimethylphenol	"	"		BQL	BQL	BQL
4-Chloro-3-Methylphenol	"	"		BQL	BQL	BQL
2,4,6-Trichlorophenol	"	"		BQL	BQL	BQL
2,4-Dinitrophenol	"	40		BQL	BQL	BQL
4-Nitrophenol	"	30		BQL	BQL	BQL
4,6-Dinitro-2-Methylphenol	"	30		BQL	BQL	BQL
Pentachlorophenol	"	20		BQL	BQL	BQL
2,4-Dichlorophenol	"	10		BQL	BQL	BQL
4-Methylphenol	"	10		BQL	BQL	BQL
Benzoic Acid	"	30		BQL	BQL	BQL
2,4,5-Trichlorophenol	"	10		BQL	BQL	BQL
3-Nitroaniline	"	15		BQL	BQL	BQL
Dibenzofuran	"	10		BQL	BQL	BQL
4-Nitroaniline	"	15		BQL	BQL	BQL
2-Methylphenol	"	10		BQL	BQL	BQL
Benzidine	"	30		BQL	BQL	BQL
1,2-Diphenylhydrazine	"	10		BQL	BQL	BQL
Aniline	"	10		BQL	BQL	BQL

* Below Quantifiable Limits

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----- WJT -----
Wayne J. Juda
Organics Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT
QUALITY CONTROL - PRECISION

=====

Type of Analysis: Duplicate Analysis
Units of Measure: Micrograms/ Liter or ppb
Client: UNION CARBIDE A.E.S. Job Code:CTC

Analytical Parameters	Sample Code	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
Chloromethane	15344	<10	<10	<10	N/A *	N/A
Vinl Chloride	"	"	"	"	"	"
Chlororethane	"	"	"	"	"	"
Bromomethane	"	"	"	"	"	"
2-Chloroethylvinylether	"	"	"	"	"	"
Ethylbenzene	"	<5.0	<5.0	<5.0	"	"
Methylene Chloride	"	12	12	12	0	0
Chlorobenzene	"	<5.0	<5.0	<5.0	N/A	N/A
1,1-Dichloroethylene	"	"	"	"	"	"
1,1-Dichloroethane	"	"	"	"	"	"
trans-1,2-Dichloroethylene	"	"	"	"	"	"
Chloroform	"	"	"	"	"	"
1,2-Dichloroethane	"	"	"	"	"	"
1,1,1-Trichloroethane	"	"	"	"	"	"
Carbon Tetrachloride	"	"	"	"	"	"
Bromodichloromethane	"	"	"	"	"	"
1,2-Dichloropropane	"	"	"	"	"	"
trans-1,3-Dichloropropene	"	"	"	"	"	"
Trichloroethylene	"	"	"	"	"	"
Benzene	"	"	"	"	"	"
cis-1,3-Dichloropropene	"	"	"	"	"	"
1,1,2-Trichloroethane	"	"	"	"	"	"
Dibromochloromethane	"	"	"	"	"	"
Bromoform	"	"	"	"	"	"

Relative Percent Difference =
Range/Average X 100
* Not Available

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT
QUALITY CONTROL - PRECISION

=====

Type of Analysis: Duplicate Analysis
Units of Measure: Micrograms/ Liter or ppb
Client: UNION CARBIDE A.E.S. Job Code:CTC

Analytical Parameters	Sample Code	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
1,1,2,2-Tetrachloroethylene	15344	<5.0	<5.0	<5.0	N/A *	N/A
1,1,2,2-Tetrachloroethane	"	"	"	"	"	"
Toluene	"	"	"	"	"	"
Acetone	"	<50	<50	<50	"	"
Carbon Disulfide	"	<5.0	<5.0	<5.0	"	"
2-Butanone	"	<50	<50	<50	"	"
Vinyl Acetate	"	<5.0	<5.0	<5.0	"	"
2-Hexanone	"	<50	<50	<50	"	"
4-Methyl-2-Pentanone	"	"	"	"	"	"
Styrene	"	<5.0	<5.0	<5.0	"	"
Xylenes (Total)	"	"	"	"	"	"

Relative Percent Difference =
Range/Average X 100
* Not Available

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT
QUALITY CONTROL - PRECISION

=====

Type of Analysis: Duplicate Analysis
Units of Measure: Micrograms/ Liter or ppb
Client: UNION CARBIDE A.E.S. Job Code:CTC

Analytical Parameters	Sample Code	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
Fluorene	15344	<10	<10	<10	N/A *	N/A
4-Chlorophenylphenylether	"	"	"	"	"	"
N-Nirtosdiphenylamine	"	"	"	"	"	"
Benzyl Alcohol	"	"	"	"	"	"
4-Chloroaniline	"	"	"	"	"	"
4-Bromophenylphenylether	"	"	"	"	"	"
Hexachlorobenzene	"	"	"	"	"	"
Phenanthrene	"	"	"	"	"	"
Acthracene	"	"	"	"	"	"
Di-N-Butyllphthalate	"	"	"	"	"	"
Fluoranthene	"	"	"	"	"	"
2-Nitroaniline	"	"	"	"	"	"
Pyrene	"	"	"	"	"	"
Butylbenzylphthalate	"	"	"	"	"	"
Benzo(a)Anthracene	"	"	"	"	"	"
3,3'-Dichlorobenzidine	"	<20	<20	<20	"	"
Chrysene	"	<10	<10	<10	"	"
Bis(2-Ethylhexyl)Phthalate	"	<20	<20	<20	"	"
Di-N-Octylphthalate	"	<10	<10	<10	"	"
Benzo(b)Fluoranthene	"	"	"	"	"	"
Benzo(k)Fluoranthene	"	"	"	"	"	"
Benao(a)Pyrene	"	"	"	"	"	"

Relative Percent Difference =
Range/Average X 100
* Not Available

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT
QUALITY CONTROL - PRECISION

=====

Type of Analysis: Duplicate Analysis
Units of Measure: Micrograms/ Liter or ppb
Client: UNION CARBIDE A.E.S. Job Code:CTC

Analytical Parameters	Sample Code	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
2-Methynaphthalene	15344	<10	<10	<10	N/A *	N/A
Bis(2-Chloroethyl) Ether	"	"	"	"	"	"
1,3-Dichlorobenzene	"	"	"	"	"	"
1,4-Dichlorobenzene	"	"	"	"	"	"
1,2-Dichlorobenzene	"	"	"	"	"	"
Bis(2-Chloroisopropyl) Ether	"	"	"	"	"	"
Hexachloroethane	"	"	"	"	"	"
N-Nitrosdi-N-Propylamine	"	"	"	"	"	"
Nitrobenzene	"	"	"	"	"	"
Isophorone	"	"	"	"	"	"
Bis(2-Chloroethoxy) Methane	"	"	"	"	"	"
1,2,4-Trichlorobenzene	"	"	"	"	"	"
Naphthalene	"	"	"	"	"	"
Hexachlorobutadiene	"	"	"	"	"	"
Hexachlorocyclopentadiene	"	"	"	"	"	"
2-Chloronaphthalene	"	"	"	"	"	"
Dimethylphthalate	"	"	"	"	"	"
Acenphthalate	"	"	"	"	"	"
2,6-Dinitrotoluene	"	"	"	"	"	"
Acenphthene	"	"	"	"	"	"
2,4-Dinitrotoluene	"	"	"	"	"	"
Diethylphthalate	"	"	"	"	"	"

Relative Percent Difference =
Range/Average X 100
* Not Available

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT
QUALITY CONTROL - PRECISION

=====

Type of Analysis: Duplicate Analysis
Units of Measure: Micrograms/ Liter or ppb
Client: UNION CARBIDE A.E.S. Job Code:CTC

Analytical Parameters	Sample Code	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
Indeno(1,2,3-C,D)Pyrene	15344	<15	<15	<15	N/A *	N/A
Dibenzo(a,h)Anthracene	"	"	"	"	"	"
Benzo(g,h,i)Perylene	"	"	"	"	"	"
Benzidine	"	<30	<30	<30	"	"
4-Nitroaniline	"	<10	<10	<10	"	"
3-Nitroaniline	"	"	"	"	"	"
Dibenzofuran	"	"	"	"	"	"
***** ACIDS *****						
Phenol	15344	<10	<10	<10	N/A	N/A
2-Chlorophenol	"	"	"	"	"	"
2-Nitrophenol	"	"	"	"	"	"
2,4-Dimethylphenol	"	"	"	"	"	"
4-Chloro-3-Methylphenol	"	"	"	"	"	"
2,4,6-Trichlorophenol	"	"	"	"	"	"
2,4-Dinitrophenol	"	<40	<40	<40	"	"
4-Nitrophenol	"	<30	<30	<30	"	"
4,6-Dinitro,2-Methylphenol	"	<30	<30	<30	"	"
Pentachlorophenol	"	<20	<20	<20	"	"
2,4-Dichlorophenol	"	<10	<10	<10	"	"
4-Methylphenol	"	"	"	"	"	"
2,4,5-Trichlorophenol	"	"	"	"	"	"
2-Methylphenol	"	"	"	"	"	"
Benzoic Acid	"	<20	<20	<20	"	"
1,2-Diphenylhydrazine	"	<10	<10	<10	"	"
Aniline	"	"	"	"	"	"

Relative Percent Difference =
Range/Average X 100
* Not Available

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT
QUALITY CONTROL - ACCURACY
=====

Type of Analysis: Matrix Spikes and E.P.A. Standards
Client: UNION CARBIDE A.E.S. Job Code: CTC

(Units: ug/l or ppb)

Analytical Parameters	Sample No.	Type	Observed Conc.	Original Conc.	Added Conc.	Percent Recovery*
1,1-Dichloroethene	15344	SPK	15	<5.0	15	100
trans-1,2-Dichloroethane	"	"	15	"	13	115
1,1-Dichloroethane	"	"	14	"	12	117
Chloroform	"	"	11	"	15	73
Benzene	"	"	26	"	24	108
Trichloroethene	"	"	19	"	18	106
1,3-Dichlorobenzene	"	"	42	<10	50	84
1,2-Dichlorobenzene	"	"	38	"	"	76
Isophorone	"	"	46	"	"	92
1,2,4-Trichlorobenzene	"	"	43	"	"	86
Hexachlorobutadiene	"	"	48	"	"	96
2-Chloronaphthalene	"	"	40	"	"	80

* % Recovery=100 x ((Observed Conc. - "background" Original Conc.)/"Spike" Added Conc.)

SAMPLE PREPARATION AND ANALYSIS SUMMARY

[illegible]

APPENDIX A
CHAIN OF CUSTODY RECORDS

