UNION CARBIDE CORPORATION P.O. BOX 513, COLUMBIA, TENNESSEE 38402-0513
Carbon Products Division

April 4, 1989

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

Re: Quarterly Report of Groundwater Analysis Republic SWMF - Post Closure Monitoring Program

Dear Mr. Mitrey:

As outlined in our Final Landfill Closure Report for the Republic SWMF submitted to you on November 10, 1987, quarterly groundwater samples will be collected and analyzed for the agreed parameters listed on page 27 of this report.

We have attached the fourth quarter's groundwater analysis. Nothing of any significance is demonstrated in this set of data.

The post-closure monitoring program for this facility calls for an approval process by the NYDEC prior to revising either the monitored parameters and/or the frequency. We would like to initiate this process to 1) revise the monitored parameters, and 2) decrease the frequency of the groundwater samples.

Since nothing of any environmental concern has been demonstrated over the past four quarters of monitoring data, we request to reduce the monitored parameters from the Hazardous Substance List Volatiles and Semi-Volatiles to only analyze for: Nitrite Nitrogen, Ammonia Nitrogen, Total Kjedahl Nitrogen, Iron (total and soluble), Potassium, and Zinc (total and soluble). Furthermore, we propose to collect these samples once a year through 1989 and reevaluate the groundwater monitoring program at that time.

Our request for this groundwater monitoring program revision is based on the lack of any identified environmental concern and the expense and administration of the currently extensive program.

Please let me know the status of our request.

Very truly yours,

UNION CARBIDE CORPORATION
UCAR Carbon Company, Inc.

Rick Bolton

R. A. Bolton, Manager
HS&EA

RABolton:gwa
cc: Messrs. Jim Devald/Dave O'Tool/A. C. Ogg

ADVANCED
ENVIRONMENTAL SERVICES INC.

REPUBLIC SOLID WASTE MANAGEMENT FACILITY
POST-CLOSURE MONITORING PROGRAM

QUARTERLY REPORT OF GROUNDWATER ANALYSIS

Report Prepared For

UNION CARBIDE CORPORATION
CARBON PRODUCTS DIVISION

Bonnie J. Simpson
Bonnie J. Simpson
Project Manager

Paul T. McMahon
Paul T. McMahon
Technical Evaluation

March 29, 1989
AES Report CTC

COMMITMENT
TO
HONESTY - QUALITY - SERVICE

ADVANCED ENVIRONMENTAL SERVICES, INC.

FIELD REPORT

CLIENT: Union Carbide Corporation AES JOB CODE: CTC

DATE PURGED: --- DATE SAMPLED: ---

WELL IDENTIFICATION	TOP OF PIPE ELEVATION	ELEVATION BEFORE PURGING	(GALS) AMOUNT PURGED	ELEVATION BEFORE SAMPLING
* BW-1	610.72	17.30 593.42	13.0	17.59 593.13
** BW-2	608.43	14.62 593.81	14.0	24.81 583.62
* BW-3	604.72	12.35 592.37	22.0	12.67 592.05
* BW-4	607.08	12.37 594.71	17.0	13.19 593.89
** BW-5	603.33	10.61 592.72	15.0	11.38 591.95
** BW-6	607.04	16.16 590.88	17.5	16.44 590.6
*** MW-1	609.43	14.20 595.23	4.5	13.83 595.6
**** MW-2	607.54	24.64 582.9	500 mls	24.76 582.78
**** MW-3	601.61	10.18 591.43	5.5	14.62 586.99
***** OW-1 (south)	N/A	7.81	7.0	7.97 (after purge)
***** OW-2 (north)	N/A	7.52	10.0	7.70 (after purge)

* Purged and sampled 3/8/89.
** Purged and sampled 3/7/89.
*** Purged 3/8/89 sampled 3/9/89.
**** Purged 3/7/89-well dry no sample collected.
***** Purged 3/9/89.

Scott Mayfarlane

SCOTT ABEL
SENIOR FIELD TECHNICIAN

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. -	5669	5670	5671	5672
			Sample ID -	BW-2 GRAB	BW-5 GRAB	BW-6 GRAB	BLIND DUP BW 2 GRAB
			Sample Date-	03/07/89	03/07/89	03/07/89	03/07/89
Ammonia (as N) (mg/l)	350.1	0.01		0.10	0.16	0.31	0.15
Nitrite (mg/l)	353.2	0.01		BQL*	BQL	BQL	BQL
Total Kjeldahl Nitrogen(mg/l)	351.2	0.1		0.2	0.2	0.3	0.2

* Below quantifiable limits.

Margaret L. Skowron

Margaret L. Skowron
Inorganic Supervisor

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. -	5695	5696	5697
			Sample ID -	BW-1 GRAB	BW-3 GRAB	BW-4 GRAB
			Sample Date-	3/8/89	3/8/89	3/8/89
Ammonia (As N) (mg/l)	350.1	0.01		0.50	1.2	5.3
Nitrite (mg/l)	353.2	0.01		BQL*	BQL	BQL
Total Kjeldahl Nitrogen(mg/l)	351.2	0.1		0.7	1.3	6.1

* Below quantifiable limits.

Margaret L. Skowron
Inorganic Supervisor

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. -	5725	5726
			Sample ID -	MW-1 GRAB	TRIP BLANK
			Sample Date-	03/09/89	03/07/89
Ammonia (as N) (mg/l)	350.1	0.01		7.03	BQL*
Nitrite (mg/l)	353.2	0.01		BQL	BQL
Total Kjeldahl Nitrogen(mg/l)	351.2	0.1		7.2	BQL

* Below quantifiable limits.

Margaret L. Skowron

Margaret L. Skowron
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	5697	BQL*	BQL	BQL	None	None
Ammonia	5669	0.10	0.10	0.10	None	None
Total Kjeldahl Nitrogen	5669	0.2	0.2	0.2	None	None

Relative Percent Difference =
Range/Average X 100

* Below quantifiable limits.

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	5697	SPK	0.26	BQL**	0.25	104
Ammonia	5669	SPK	0.33	0.10	0.25	92
Ammonia		EPA	1.93	2.00	---	96
TKN	5669	SPK	2.8	0.2	3.0	87
TKN		EPA	4.7	5.0	---	94

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

** Below quantifiable limits

ADVANCED ENVIRONMENTAL SERVICES, INC.
PARAMETER TRACEABILITY REPORT
WET CHEMISTRY DEPARTMENT

AES JOB CODE CTC

ANALYST	ANALYTICAL METHOD	SAMPLE CODE	DATE OF ANALYSIS	TIME OF ANALYSIS
T. Skowron (ms)	353.2	5669-72	3/8/89	1800 - 2100
A. Fratella (ms)	351.2	5669-72	3/10/89	1400 - 1700
A. Fratello (ms)	350.1	5669-72	3/15/89	0300 - 0830

ADVANCED ENVIRONMENTAL SERVICES, INC.
PARAMETER TRACEABILITY REPORT
WET CHEMISTRY DEPARTMENT

AES JOB CODE CTC

ANALYST	ANALYTICAL METHOD	SAMPLE CODE	DATE OF ANALYSIS	TIME OF ANALYSIS
A. FRATELLO	351.2	5695-97	3/10/89	1400-1700
A. FRATELLO	350.1	5695-97	3/15/89	0300-0830
J. Skowron (MS)	353.2	3695	3/9/89	1700-1839
A FRATELLO	351.2	5697	3/21/89	0000-0230

ADVANCED ENVIRONMENTAL SERVICES, INC.
PARAMETER TRACEABILITY REPORT
WET CHEMISTRY DEPARTMENT

AES JOB CODE CTC

ANALYST	ANALYTICAL METHOD	SAMPLE CODE	DATE OF ANALYSIS	TIME OF ANALYSIS
A. FRATELLO	353.2	5725-26	3/10/89	1000-1200
A. FRATELLO	351.2	5725-26	3/10/89	1400-1700
A. FRATELLO	350.1	5725-26	3/15/89	0300-0830

ADVANCED ENVIRON. .NTAL 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*
Iron	5672	SPK	7.90	3.07	5.00	97
EPA (Fe) std.		EPA	1.05	1.00	---	105
Potassium	5671	SPK	23.7	2.65	20.0	105
EPA (K) std.		EPA	9.89	10.0	---	99
Zinc	5671	SPK	1.12	0.14	1.00	98
EPA (Zn) std.		EPA	0.49	0.50	---	98

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

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: HSL VOLATILES

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.-	5669	5670	5671
			Sample ID -	BW-2 GRAB	BW-5 GRAB	BW-6 GRAB
			Sample Date-	3/7/89	3/7/89	3/7/89
Chloromethane	8240	10		BQL*	BQL	BQL
Vinyl Chloride	"	10		BQL	BQL	BQL
Chloroethane	"	10		BQL	BQL	BQL
Bromomethane	"	10		BQL	BQL	BQL
2-Chloroethylvinyl Ether	"	10		BQL	BQL	BQL
Ethylbenzene	"	5.0		BQL	BQL	BQL
Methylene Chloride	"	5.0		BQL	BQL	BQL
Chlorobenzene	"	5.0		BQL	BQL	BQL
1,1-Dichloroethylene	"	5.0		BQL	BQL	BQL
1,1-Dichloroethane	"	5.0		BQL	BQL	BQL
trans-1,2-Dichloroethylene	"	5.0		BQL	BQL	BQL
Chloroform	"	5.0		BQL	BQL	BQL
1,2-Dichloroethane	"	5.0		BQL	BQL	BQL
1,1,1-Trichloroethane	"	5.0		BQL	BQL	BQL
Carbon Tetrachloride	"	5.0		BQL	BQL	BQL
Bromodichloromethane	"	5.0		BQL	BQL	BQL
1,2-Dichloropropane	"	5.0		BQL	BQL	BQL
trans-1,3-Dichloropropene	"	5.0		BQL	BQL	BQL
Trichloroethylene	"	5.0		BQL	BQL	BQL
Benzene	"	5.0		BQL	BQL	BQL
cis-1,3-Dichloropropene	"	5.0		BQL	BQL	BQL
1,1,2-Trichloroethane	"	5.0		BQL	BQL	BQL
Dibromochloromethane	"	5.0		BQL	BQL	BQL
Bromoform	"	5.0		BQL	BQL	BQL

Susan C. Scrocchi

Susan C. Scrocchi
Organic Supervisor

* Below quantifiable limits.

ADVANCED ENVIRONMENTAL SERVICES, INC.

LABORATORY REPORT

Type of Analysis: HSL VOLATILES

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 - / Sample Date-	5672 BLIND BW 2 DUP GRAB 3/7/89	5695 BW-1 GRAB 3/8/89	5696 BW-3 GRAB 3/8/89
Chloromethane	8240	10		BQL*	BQL	BQL
Vinyl Chloride	"	10		BQL	BQL	BQL
Chloroethane	"	10		BQL	BQL	BQL
Bromomethane	"	10		BQL	BQL	BQL
2-Chloroethylvinyl Ether	"	10		BQL	BQL	BQL
Ethylbenzene	"	5.0		BQL	BQL	BQL
Methylene Chloride	"	5.0		BQL	BQL	BQL
Chlorobenzene	"	5.0		BQL	BQL	BQL
1,1-Dichloroethylene	"	5.0		BQL	BQL	BQL
1,1-Dichloroethane	"	5.0		BQL	BQL	BQL
trans-1,2-Dichloroethylene	"	5.0		BQL	BQL	BQL
Chloroform	"	5.0		BQL	BQL	BQL
1,2-Dichloroethane	"	5.0		BQL	BQL	BQL
1,1,1-Trichloroethane	"	5.0		BQL	BQL	BQL
Carbon Tetrachloride	"	5.0		BQL	BQL	BQL
Bromodichloromethane	"	5.0		BQL	BQL	BQL
1,2-Dichloropropane	"	5.0		BQL	BQL	BQL
trans-1,3-Dichloropropene	"	5.0		BQL	BQL	BQL
Trichloroethylene	"	5.0		BQL	BQL	BQL
Benzene	"	5.0		BQL	BQL	BQL
cis-1,3-Dichloropropene	"	5.0		BQL	BQL	BQL
1,1,2-Trichloroethane	"	5.0		BQL	BQL	BQL
Dibromochloromethane	"	5.0		BQL	BQL	BQL
Bromoform	"	5.0		BQL	BQL	BQL

Susan C. Scrocchi

Susan C. Scrocchi
Organic Supervisor

* Below quantifiable limits.

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: HSL VOLATILES

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 - / Sample Date-	5697 BW-4 GRAB 3/8/89	5725 MW-1 GRAB 3/9/89	5726 TRIP BLANK 3/7/89
Chloromethane	8240	10		BQL*	BQL	BQL
Vinyl Chloride	"	10		BQL	BQL	BQL
Chloroethane	"	10		BQL	BQL	BQL
Bromomethane	"	10		BQL	BQL	BQL
2-Chloroethylvinyl Ether	"	10		BQL	BQL	BQL
Ethylbenzene	"	5.0		BQL	BQL	BQL
Methylene Chloride	"	5.0		BQL	BQL	BQL
Chlorobenzene	"	5.0		BQL	BQL	BQL
1,1-Dichloroethylene	"	5.0		BQL	BQL	BQL
1,1-Dichloroethane	"	5.0		BQL	BQL	BQL
trans-1,2-Dichloroethylene	"	5.0		BQL	BQL	BQL
Chloroform	"	5.0		BQL	BQL	BQL
1,2-Dichloroethane	"	5.0		BQL	BQL	BQL
1,1,1-Trichloroethane	"	5.0		BQL	BQL	BQL
Carbon Tetrachloride	"	5.0		BQL	BQL	BQL
Bromodichloromethane	"	5.0		BQL	BQL	BQL
1,2-Dichloropropane	"	5.0		BQL	BQL	BQL
trans-1,3-Dichloropropene	"	5.0		BQL	BQL	BQL
Trichloroethylene	"	5.0		570	BQL	BQL
Benzene	"	5.0		BQL	BQL	BQL
cis-1,3-Dichloropropene	"	5.0		BQL	BQL	BQL
1,1,2-Trichloroethane	"	5.0		BQL	BQL	BQL
Dibromochloromethane	"	5.0		BQL	BQL	BQL
Bromoform	"	5.0		BQL	BQL	BQL

Susan C. Scrocchi

Susan C. Scrocchi
Organic Supervisor

* Below quantifiable limits.

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: HSL VOLATILES

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.-	5669	5670	5671
			Sample ID -	BW-2 GRAB	BW-5 GRAB	BW-6 GRAB
			Sample Date-	3/7/89	3/7/89	3/7/89
1,1,2,2-Tetrachloroethylene	8240	5.0		BQL*	BQL	BQL
1,1,2,2-Tetrachloroethane	"	5.0		BQL	BQL	BQL
Toluene	"	5.0		BQL	BQL	BQL
Acetone	"	50		BQL	BQL	BQL
Carbon Dislufide	"	5.0		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	"	5.0		BQL	BQL	BQL
o-Xylene	"	5.0		BQL	BQL	BQL
m/p-Xylene	"	5.0		BQL	BQL	BQL
Trichlorofluoromethane	"	5.0		BQL	BQL	BQL

* Below quantifiable limits.

Susan C. Scrocchi
Organic Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: HSL VOLATILES

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 - / Sample Date-	5672 BLIND BW 2 DUP GRAB 3/7/89	5695 BW-1 GRAB 3/8/89	5696 BW-3 GRAB 3/8/89
1,1,2,2-Tetrachloroethylene	8240	5.0		BQL*	BQL	BQL
1,1,2,2-Tetrachloroethane	"	5.0		BQL	BQL	BQL
Toluene	"	5.0		BQL	BQL	BQL
Acetone	"	50		BQL	BQL	BQL
Carbon Dislufide	"	5.0		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	"	5.0		BQL	BQL	BQL
o-Xylene	"	5.0		BQL	BQL	BQL
m/p-Xylene	"	5.0		BQL	BQL	BQL
Trichlorofluoromethane	"	5.0		BQL	BQL	BQL

* Below quantifiable limits.

Susan C. Scrocchi
Organic Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.

LABORATORY REPORT

Type of Analysis: HSL VOLATILES

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 - / Sample Date-	5697 BW-4 GRAB 3/8/89	5725 MW-1 GRAB 3/9/89	5726 TRIP BLANK 3/7/89
1,1,2,2-Tetrachloroethylene	8240	5.0		1,600	BQL*	BQL
1,1,2,2-Tetrachloroethane	"	5.0		BQL	BQL	BQL
Toluene	"	5.0		BQL	BQL	BQL
Acetone	"	50		BQL	BQL	BQL
Carbon Dislufide	"	5.0		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	"	5.0		BQL	BQL	BQL
o-Xylene	"	5.0		BQL	BQL	BQL
m/p-Xylene	"	5.0		BQL	BQL	BQL
Trichlorofluoromethane	"	5.0		BQL	BQL	BQL

* Below quantifiable limits.

Susan C. Scrocchi

Susan C. Scrocchi
Organic Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: HSL SEMI-VOLATILES

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.-	5669	5670	5671
			Sample ID -	BW-2 GRAB	BW-5 GRAB	BW-6 GRAB
			Sample Date-	3/7/89	3/7/89	3/7/89
2-Methylnaphthalene	8270	10		BQL*	BQL	BQL
Bis(2-chloroethyl)Ether	"	10		BQL	BQL	BQL
1,3-Dichlorobenzene	"	10		BQL	BQL	BQL
1,4-Dichlorobenzene	"	10		BQL	BQL	BQL
1,2-Dichlorobenzene	"	10		BQL	BQL	BQL
Bis(2-Chloroisopropyl) Ether	"	10		BQL	BQL	BQL
Hexachloroethane	"	10		BQL	BQL	BQL
N-Nitrosodi-N-Propylamine	"	10		BQL	BQL	BQL
Nitrobenzene	"	10		BQL	BQL	BQL
Isophorone	"	10		BQL	BQL	BQL
Bis(2-chloroethoxy)Methane	"	10		BQL	BQL	BQL
1,2,4-Trichlorobenzene	"	10		BQL	BQL	BQL
Naphthalene	"	10		BQL	BQL	BQL
Hexachlorobutadiene	"	10		BQL	BQL	BQL
Hexachlorocyclopentadiene	"	30		BQL	BQL	BQL
2-Chloronaphthalene	"	10		BQL	BQL	BQL
Dimethylphthalate	"	10		BQL	BQL	BQL
Acenaphthylene	"	10		BQL	BQL	BQL
2,6-Dinitrotoluene	"	10		BQL	BQL	BQL
Acenaphthene	"	10		BQL	BQL	BQL
2,4-Dinitrotoluene	"	10		BQL	BQL	BQL
Diethylphthalate	"	10		BQL	BQL	BQL

* Below quantifiable limits.

Susan C. Scrocchi
Organic Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: HSL SEMI-VOLATILES

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 - / Sample Date-	5672 BLIND BW 2 DUP GRAB 3/7/89	5695 BW-1 GRAB 3/8/89	5696 BW-3 GRAB 3/8/89
2-Methylnaphthalene	8270	10		BQL*	BQL	BQL
Bis(2-chloroethyl)Ether	"	10		BQL	BQL	BQL
1,3-Dichlorobenzene	"	10		BQL	BQL	BQL
1,4-Dichlorobenzene	"	10		BQL	BQL	BQL
1,2-Dichlorobenzene	"	10		BQL	BQL	BQL
Bis(2-Chloroisopropyl) Ether	"	10		BQL	BQL	BQL
Hexachloroethane	"	10		BQL	BQL	BQL
N-Nitrosodi-N-Propylamine	"	10		BQL	BQL	BQL
Nitrobenzene	"	10		BQL	BQL	BQL
Isophorone	"	10		BQL	BQL	BQL
Bis(2-chloroethoxy)Methane	"	10		BQL	BQL	BQL
1,2,4-Trichlorobenzene	"	10		BQL	BQL	BQL
Naphthalene	"	10		BQL	BQL	BQL
Hexachlorobutadiene	"	10		BQL	BQL	BQL
Hexachlorocyclopentadiene	"	30		BQL	BQL	BQL
2-Chloronaphthalene	"	10		BQL	BQL	BQL
Dimethylphthalate	"	10		BQL	BQL	BQL
Acenaphthylene	"	10		BQL	BQL	BQL
2,6-Dinitrotoluene	"	10		BQL	BQL	BQL
Acenaphthene	"	10		BQL	BQL	BQL
2,4-Dinitrotoluene	"	10		BQL	BQL	BQL
Diethylphthalate	"	10		BQL	BQL	BQL

Susan C. Scrocchi

Susan C. Scrocchi
Organic Supervisor

* Below quantifiable limits.

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: HSL SEMI-VOLATILES

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 - / Sample Date-	5697 BW-4 GRAB 3/8/89	5725 MW-1 GRAB 3/9/89	5726 TRIP BLANK 3/7/89
2-Methylnaphthalene	8270	10		BQL*	BQL	BQL
Bis(2-chloroethyl)Ether	"	10		BQL	BQL	BQL
1,3-Dichlorobenzene	"	10		BQL	BQL	BQL
1,4-Dichlorobenzene	"	10		BQL	BQL	BQL
1,2-Dichlorobenzene	"	10		BQL	BQL	BQL
Bis(2-Chloroisopropyl) Ether	"	10		BQL	BQL	BQL
Hexachloroethane	"	10		BQL	BQL	BQL
N-Nitrosodi-N-Propylamine	"	10		BQL	BQL	BQL
Nitrobenzene	"	10		BQL	BQL	BQL
Isophorone	"	10		BQL	BQL	BQL
Bis(2-chloroethoxy)Methane	"	10		BQL	BQL	BQL
1,2,4-Trichlorobenzene	"	10		BQL	BQL	BQL
Naphthalene	"	10		BQL	BQL	BQL
Hexachlorobutadiene	"	10		150	BQL	BQL
Hexachlorocyclopentadiene	"	30		BQL	BQL	BQL
2-Chloronaphthalene	"	10		BQL	BQL	BQL
Dimethylphthalate	"	10		BQL	BQL	BQL
Acenaphthylene	"	10		BQL	BQL	BQL
2,6-Dinitrotoluene	"	10		BQL	BQL	BQL
Acenaphthene	"	10		BQL	BQL	BQL
2,4-Dinitrotoluene	"	10		BQL	BQL	BQL
Diethylphthalate	"	10		BQL	BQL	BQL

Susan C. Scrocchi

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Organic Supervisor

* Below quantifiable limits.

ADVANCED ENVIRONME..AL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: HSL SEMI-VOLATILES

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 - / Sample Date-	5669 BW-2 GRAB 3/7/89	5670 BW-5 GRAB 3/7/89	5671 BW-6 GRAB 3/7/89
Fluorene	8270	10		BQL*	BQL	BQL
4-Chlorophenylphenyl Ether	"	10		BQL	BQL	BQL
Diphenylamine(N-Nitroso)	"	10		BQL	BQL	BQL
Benzyl Alcohol	"	20		BQL	BQL	BQL
4-Chloroaniline	"	10		BQL	BQL	BQL
4-Bromophenylphenyl Ether	"	10		BQL	BQL	BQL
Hexachlorobenzene	"	10		BQL	BQL	BQL
Phenanthrene	"	10		BQL	BQL	BQL
Anthracene	"	10		BQL	BQL	BQL
Di-N-Butylphthalate	"	10		BQL	BQL	BQL
Fluoranthene	"	10		BQL	BQL	BQL
2-Nitroaniline	"	10		BQL	BQL	BQL
Pyrene	"	10		BQL	BQL	BQL
Butylbenzylphthalate	"	10		BQL	BQL	BQL
Benzo(a)Anthracene	"	10		BQL	BQL	BQL
3,3'-Dichlorobenzidine	"	10		BQL	BQL	BQL
Chrysene	"	10		BQL	BQL	BQL
Bis(2-ethylhexyl)Phthalate	"	10		BQL	BQL	BQL
Di-N-Octylphthalate	"	10		BQL	BQL	BQL
Benzo(b)Fluoranthene	"	20		BQL	BQL	BQL
Benzo(k)Fluoranthene	"	20		BQL	BQL	BQL
Benzo(a)Pyrene	"	20		BQL	BQL	BQL
Indeno(1,2,3-c,d)Pyrene	"	30		BQL	BQL	BQL
Dibenzo(a,h)Anthracene	"	30		BQL	BQL	BQL
Benzo(g,h,i)Perylene	"	30		BQL	BQL	BQL

* Below quantifiable limits.

Susan C. Scrocchi
Organic Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: HSL SEMI-VOLATILES

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 - / Sample Date-	5672 BLIND BW 2 DUP GRAB 3/7/89	5695 BW-1 GRAB 3/8/89	5696 BW-3 GRAB 3/8/89
Fluorene	8270	10		BQL*	BQL	BQL
4-Chlorophenylphenyl Ether	"	10		BQL	BQL	BQL
Diphenylamine(N-Nitroso)	"	10		BQL	BQL	BQL
Benzyl Alcohol	"	20		BQL	BQL	BQL
4-Chloroaniline	"	10		BQL	BQL	BQL
4-Bromophenylphenyl Ether	"	10		BQL	BQL	BQL
Hexachlorobenzene	"	10		BQL	BQL	BQL
Phenanthrene	"	10		BQL	BQL	BQL
Anthracene	"	10		BQL	BQL	BQL
Di-N-Butylphthalate	"	10		BQL	BQL	BQL
Fluoranthene	"	10		BQL	BQL	BQL
2-Nitroaniline	"	10		BQL	BQL	BQL
Pyrene	"	10		BQL	BQL	BQL
Butylbenzylphthalate	"	10		BQL	BQL	BQL
Benzo(a)Anthracene	"	10		BQL	BQL	BQL
3,3'-Dichlorobenzidine	"	10		BQL	BQL	BQL
Chrysene	"	10		BQL	BQL	BQL
Bis(2-ethylhexyl)Phthalate	"	10		BQL	BQL	BQL
Di-N-Octylphthalate	"	10		BQL	BQL	BQL
Benzo(b)Fluoranthene	"	20		BQL	BQL	BQL
Benzo(k)Fluoranthene	"	20		BQL	BQL	BQL
Benzo(a)Pyrene	"	20		BQL	BQL	BQL
Indeno(1,2,3-c,d)Pyrene	"	30		BQL	BQL	BQL
Dibenzo(a,h)Anthracene	"	30		BQL	BQL	BQL
Benzo(g,h,i)Perylene	"	30		BQL	BQL	BQL

* Below quantifiable limits.

Susan C. Scrocchi
Organic Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: HSL SEMI-VOLATILES

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 - / Sample Date-	5697 BW-4 GRAB 3/8/89	5725 MW-1 GRAB 3/9/89	5726 TRIP BLANK 3/7/89
Fluorene	8270	10		BQL*	BQL	BQL
4-Chlorophenylphenyl Ether	"	10		BQL	BQL	BQL
Diphenylamine(N-Nitroso)	"	10		BQL	BQL	BQL
Benzyl Alcohol	"	20		BQL	BQL	BQL
4-Chloroaniline	"	10		BQL	BQL	BQL
4-Bromophenylphenyl Ether	"	10		BQL	BQL	BQL
Hexachlorobenzene	"	10		BQL	BQL	BQL
Phenanthrene	"	10		BQL	BQL	BQL
Anthracene	"	10		BQL	BQL	BQL
Di-N-Butylphthalate	"	10		BQL	BQL	BQL
Fluoranthene	"	10		BQL	BQL	BQL
2-Nitroaniline	"	10		BQL	BQL	BQL
Pyrene	"	10		BQL	BQL	BQL
Butylbenzylphthalate	"	10		BQL	BQL	BQL
Benzo(a)Anthracene	"	10		BQL	BQL	BQL
3,3'-Dichlorobenzidine	"	10		BQL	BQL	BQL
Chrysene	"	10		BQL	BQL	BQL
Bis(2-ethylhexyl)Phthalate	"	10		BQL	BQL	BQL
Di-N-Octylphthalate	"	10		BQL	BQL	BQL
Benzo(b)Fluoranthene	"	20		BQL	BQL	BQL
Benzo(k)Fluoranthene	"	20		BQL	BQL	BQL
Benzo(a)Pyrene	"	20		BQL	BQL	BQL
Indeno(1,2,3-c,d)Pyrene	"	30		BQL	BQL	BQL
Dibenzo(a,h)Anthracene	"	30		BQL	BQL	BQL
Benzo(g,h,i)Perylene	"	30		BQL	BQL	BQL

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ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: HSL SEMI-VOLATILES

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.-	5669	5670	5671
			Sample ID -	BW-2 GRAB	BW-5 GRAB	BW-6 GRAB
			Sample Date-	3/7/89	3/7/89	3/7/89
Phenol	8270	10		BQL*	BQL	BQL
2-Chlorophenol	"	10		BQL	BQL	BQL
2-Nitrophenol	"	10		BQL	BQL	BQL
2,4-Dimethylphenol	"	10		BQL	BQL	BQL
p-Chloro-m-Cresol	"	10		BQL	BQL	BQL
2,4,6-Trichlorophenol	"	15		BQL	BQL	BQL
2,4-Dinitrophenol	"	50		BQL	BQL	BQL
4-Nitrophenol	"	50		BQL	BQL	BQL
4,6-Dinitro-o-Cresol	"	50		BQL	BQL	BQL
Pentachlorophenol	"	50		BQL	BQL	BQL
2,4-Dichlorophenol	"	10		BQL	BQL	BQL
4-Methylphenol	"	10		BQL	BQL	BQL
Benzoic Acid	"	20		BQL	BQL	BQL
2,4,5-Trichlorophenol	"	15		BQL	BQL	BQL
3-Nitroaniline	"	10		BQL	BQL	BQL
Dibenzofuran	"	10		BQL	BQL	BQL
4-Nitroaniline	"	10		BQL	BQL	BQL
2-Methylphenol	"	10		BQL	BQL	BQL
Benzidine	"	20		BQL	BQL	BQL
1,2-Diphenylhydrazine	"	10		BQL	BQL	BQL
Aniline	"	10		BQL	BQL	BQL

Susan C. Scrocchi

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ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: HSL SEMI-VOLATILES

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 - / Sample Date-	5672 BLIND BW 2 DUP GRAB 3/7/89	5695 BW-1 GRAB 3/8/89	5696 BW-3 GRAB 3/8/89
Phenol	8270	10		BQL*	BQL	BQL
2-Chlorophenol	"	10		BQL	BQL	BQL
2-Nitrophenol	"	10		BQL	BQL	BQL
2,4-Dimethylphenol	"	10		BQL	BQL	BQL
p-Chloro-m-Cresol	"	10		BQL	BQL	BQL
2,4,6-Trichlorophenol	"	15		BQL	BQL	BQL
2,4-Dinitrophenol	"	50		BQL	BQL	BQL
4-Nitrophenol	"	50		BQL	BQL	BQL
4,6-Dinitro-o-Cresol	"	50		BQL	BQL	BQL
Pentachlorophenol	"	50		BQL	BQL	BQL
2,4-Dichlorophenol	"	10		BQL	BQL	BQL
4-Methylphenol	"	10		BQL	BQL	BQL
Benzoic Acid	"	20		BQL	BQL	BQL
2,4,5-Trichlorophenol	"	15		BQL	BQL	BQL
3-Nitroaniline	"	10		BQL	BQL	BQL
Dibenzofuran	"	10		BQL	BQL	BQL
4-Nitroaniline	"	10		BQL	BQL	BQL
2-Methylphenol	"	10		BQL	BQL	BQL
Benzidine	"	20		BQL	BQL	BQL
1,2-Diphenylhydrazine	"	10		BQL	BQL	BQL
Aniline	"	10		BQL	BQL	BQL

* Below quantifiable limits.

Susan C. Scrocchi
Organic Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: HSL SEMI-VOLATILES

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 - / Sample Date-	5697 BW-4 GRAB 3/8/89	5725 MW-1 GRAB 3/9/89	5726 TRIP BLANK 3/7/89
Phenol	8270	10		BQL*	BQL	BQL
2-Chlorophenol	"	10		BQL	BQL	BQL
2-Nitrophenol	"	10		BQL	BQL	BQL
2,4-Dimethylphenol	"	10		BQL	BQL	BQL
p-Chloro-m-Cresol	"	10		BQL	BQL	BQL
2,4,6-Trichlorophenol	"	15		BQL	BQL	BQL
2,4-Dinitrophenol	"	50		BQL	BQL	BQL
4-Nitrophenol	"	50		BQL	BQL	BQL
4,6-Dinitro-o-Cresol	"	50		BQL	BQL	BQL
Pentachlorophenol	"	50		BQL	BQL	BQL
2,4-Dichlorophenol	"	10		BQL	BQL	BQL
4-Methylphenol	"	10		BQL	BQL	BQL
Benzoic Acid	"	20		BQL	BQL	BQL
2,4,5-Trichlorophenol	"	15		BQL	BQL	BQL
3-Nitroaniline	"	10		BQL	BQL	BQL
Dibenzofuran	"	10		BQL	BQL	BQL
4-Nitroaniline	"	10		BQL	BQL	BQL
2-Methylphenol	"	10		BQL	BQL	BQL
Benzidine	"	20		BQL	BQL	BQL
1,2-Diphenylhydrazine	"	10		BQL	BQL	BQL
Aniline	"	10		BQL	BQL	BQL

Susan C. Scrocchi

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Organic Supervisor

* Below quantifiable limits.

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	Method	Sample No.	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
Chloromethane	8240	5669	<10	<10	<10	None	None
Vinyl Chloride	"	5669	<10	<10	<10	None	None
Chloroethane	"	5669	<10	<10	<10	None	None
Bromomethane	"	5669	<10	<10	<10	None	None
2-Chloroethylvinyl Ether	"	5669	<10	<10	<10	None	None
Ethylbenzene	"	5669	<5.0	<5.0	<5.0	None	None
Methylene Chloride	"	5669	<5.0	<5.0	<5.0	None	None
Chlorobenzene	"	5669	<5.0	<5.0	<5.0	None	None
1,1-Dichloroethylene	"	5669	<5.0	<5.0	<5.0	None	None
1,1-Dichloroethane	"	5669	<5.0	<5.0	<5.0	None	None
trans-1,2-Dichloroethylene	"	5669	<5.0	<5.0	<5.0	None	None
Chloroform	"	5669	<5.0	<5.0	<5.0	None	None
1,2-Dichloroethane	"	5669	<5.0	<5.0	<5.0	None	None
1,1,1-Trichloroethane	"	5669	<5.0	<5.0	<5.0	None	None
Carbon Tetrachloride	"	5669	<5.0	<5.0	<5.0	None	None
Bromodichloromethane	"	5669	<5.0	<5.0	<5.0	None	None
1,2-Dichloropropane	"	5669	<5.0	<5.0	<5.0	None	None
trans-1,3-Dichloropropene	"	5669	<5.0	<5.0	<5.0	None	None
Trichloroethylene	"	5669	<5.0	<5.0	<5.0	None	None
Benzene	"	5669	<5.0	<5.0	<5.0	None	None
cis-1,3-Dichloropropene	"	5669	<5.0	<5.0	<5.0	None	None
1,1,2-Trichloroethane	"	5669	<5.0	<5.0	<5.0	None	None
Dibromochloromethane	"	5669	<5.0	<5.0	<5.0	None	None
Bromoform	"	5669	<5.0	<5.0	<5.0	None	None
1,1,2,2-Tetrachloroethylene	"	5669	<5.0	<5.0	<5.0	None	None

Relative Percent Difference =
Range/Average X 100

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	Method	Sample No.	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
1,1,2,2-Tetrachloroethane	8240	5669	<5.0	<5.0	<5.0	None	None
Toluene	"	5669	<5.0	<5.0	<5.0	None	None
Acetone	"	5669	<50	<50	<50	None	None
Carbon Disulfide	"	5669	<5.0	<5.0	<5.0	None	None
2-Butanone	"	5669	<50	<50	<50	None	None
Vinyl Acetate	"	5669	<5.0	<5.0	<5.0	None	None
2-Hexanone	"	5669	<50	<50	<50	None	None
4-Methyl-2-Pentanone	"	5669	<50	<50	<50	None	None
Styrene	"	5669	<5.0	<5.0	<5.0	None	None
Xylenes (Total)	"	5669	<5.0	<5.0	<5.0	None	None
2-Methylnaphthalene	8270	5696	<10	<10	<10	None	None
Bis(2-chloroethyl)Ether	"	5696	<10	<10	<10	None	None
1,3-Dichlorobenzene	"	5696	<10	<10	<10	None	None
1,4-Dichlorobenzene	"	5696	<10	<10	<10	None	None
1,2-Dichlorobenzene	"	5696	<10	<10	<10	None	None
Bis(2-chloroisopropyl)Ether	"	5696	<10	<10	<10	None	None
Hexachloroethane	"	5696	<10	<10	<10	None	None
N-Nitrosdi-N-Propylamine	"	5696	<10	<10	<10	None	None
Nitrobenzene	"	5696	<10	<10	<10	None	None
Isophorone	"	5696	<10	<10	<10	None	None
Bis(2-chloroethoxy)Methane	"	5696	<10	<10	<10	None	None
1,2,4-Trichlorobenzene	"	5696	<10	<10	<10	None	None
Naphthalene	"	5696	<10	<10	<10	None	None
Hexachlorobutadiene	"	5696	<10	<10	<10	None	None
Hexachlorocyclopentadiene	"	5696	<30	<30	<30	None	None

Relative Percent Difference =
Range/Average X 100

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	Method	Sample No.	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
2-Chloronaphthalene	8270	5696	<10	<10	<10	None	None
Dimethylphthalate	"	5696	<10	<10	<10	None	None
Acenaphthylene	"	5696	<10	<10	<10	None	None
2,6-Dinitrotoluene	"	5696	<10	<10	<10	None	None
Acenaphthene	"	5696	<10	<10	<10	None	None
2,4-Dinitrotoluene	"	5696	<10	<10	<10	None	None
Diethylphthalate	"	5696	<10	<10	<10	None	None
Fluorene	"	5696	<10	<10	<10	None	None
4-Chlorophenylphenyl Ether	"	5696	<10	<10	<10	None	None
N-Nitrosdiphenylamine	"	5696	<10	<10	<10	None	None
Benzyl Alcohol	"	5696	<20	<20	<20	None	None
4-Chloroaniline	"	5696	<10	<10	<10	None	None
4-Bromophenylphenyl Ether	"	5696	<10	<10	<10	None	None
Hexachlorobenzene	"	5696	<10	<10	<10	None	None
Phenanthrene	"	5696	<10	<10	<10	None	None
Anthracene	"	5696	<10	<10	<10	None	None
Di-N-Butylphthalate	"	5696	<10	<10	<10	None	None
Fluoranthene	"	5696	<10	<10	<10	None	None
2-Nitroaniline	"	5696	<10	<10	<10	None	None
Pyrene	"	5696	<10	<10	<10	None	None
Butylbenzylphthalate	"	5696	<10	<10	<10	None	None
Benzo(a)Anthracene	"	5696	<10	<10	<10	None	None
3,3'-Dichlorobenzidine	"	5696	<10	<10	<10	None	None
Chrysene	"	5696	<10	<10	<10	None	None
Bis(2-ethylhexyl)Phthalate	"	5696	<10	<10	<10	None	None

Relative Percent Difference =
Range/Average X 100

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	Method	Sample No.	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
Di-N-Octylphthalate	8270	5696	<10	<10	<10	None	None
Benzo(b)Fluoranthene	"	5696	<20	<20	<20	None	None
Benzo(k)Fluoranthene	"	5696	<20	<20	<20	None	None
Benzo(a)Pyrene	"	5696	<20	<20	<20	None	None
Indeno(1,2,3-c,d)Pyrene	"	5696	<30	<30	<30	None	None
Dibenzo(a,h)Anthracene	"	5696	<30	<30	<30	None	None
Benzo(g,h,i)Perylene	"	5696	<30	<30	<30	None	None
Benzidine	"	5696	<20	<20	<20	None	None
4-Nitroaniline	"	5696	<10	<10	<10	None	None
3-Nitroaniline	"	5696	<10	<10	<10	None	None
Dibenzofuran	"	5696	<10	<10	<10	None	None
Phenol	"	5696	<10	<10	<10	None	None
2-Chlorophenol	"	5696	<10	<10	<10	None	None
2-Nitrophenol	"	5696	<10	<10	<10	None	None
2,4-Dimethylphenol	"	5696	<10	<10	<10	None	None
4-Chloro-3-Methylphenol	"	5696	<10	<10	<10	None	None
2,4,6-Trichlorophenol	"	5696	<15	<15	<15	None	None
2,4-Dinitrophenol	"	5696	<50	<50	<50	None	None
4-Ninitrophenol	"	5696	<50	<50	<50	None	None
4,6-Dinitro-2-Methylphenol	"	5696	<50	<50	<50	None	None
Pentachlorophenol	"	5696	<50	<50	<50	None	None
2,4-Dichlorophenol	"	5696	<10	<10	<10	None	None
4-Methylphenol	"	5696	<10	<10	<10	None	None
2,4,5-Trichlorophenol	"	5696	<15	<15	<15	None	None
2-Methylphenol	"	5696	<10	<10	<10	None	None

Relative Percent Difference =
Range/Average X 100

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	Method	Sample No.	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
Benzoic Acid	8270	5696	<20	<20	<20	None	None
1,2-Diphenylhydrazine	"	5696	<10	<10	<10	None	None
Aniline	"	5696	<10	<10	<10	None	None

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: ug/l, or ppb)

Analytical Parameters	Method	Sample No.	Type	Observed Conc.	Original Conc.	Added Conc.	Percent Recovery*
Bis(2-chloroethyl)Ether	8270	5697	SPK	40	<10	50	80
1,3-Dichlorobenzene	"	5697	SPK	42	<10	50	84
1,4-Dichlorobenzene	"	5697	SPK	43	<10	50	86
1,2-Dichlorobenzene	"	5697	SPK	44	<10	50	88
N-Nitrosdipropylamine	"	5697	SPK	40	<10	50	80
N-Nitrosodiphenylamine	"	5697	SPK	52	<10	50	104
trans-1,2-Dichloroethylene	8240	5670	SPK	36	<5.0	40	90
1,1-Dichloroethane	"	5670	SPK	36	<5.0	40	90
Chloroform	"	5670	SPK	33	<5.0	40	83
Carbon Tetrachloride	"	5670	SPK	39	<5.0	40	98

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

ADVANCED ENVIRONMENTAL SERVICES, INC.
PARAMETER TRACEABILITY REPORT
GAS CHROMATOGRAPHY DEPARTMENT

AES JOB CODE CTC.

ANALYST	ANALYTICAL METHOD	SAMPLE CODE	DATE OF ANALYSIS	TIME OF ANALYSIS
[illegible]	8270	5725, 5726, 5695-5697	3/27/89	1100-1430
[illegible]	8270	5669-5672	3/28/89	1000-1500
Patricia Zarra	8240	5669-5672, 5695-5697 5725, 5726	3/20/89	1600-2100

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: INORGRANICS

Client: UNION CARBIDE A.E.S. Job Code CTC

(All results are in mg/l)

Analytical Parameter(s)	Method No.	Quant. Limits	AES Lab No. - / Sample ID - / Sample Date-	5669 BW-2 GRAB 3/7/89	5670 BW-5 GRAB 3/7/89	5671 BW-6 GRAB 3/7/89	5672 BLIND DUP BW 2 GRAB 3/7/89
Soluble Iron (Fe)	236.1	0.3		2.75	2.53	8.82	1.53
Total Iron (Fe)	236.1	0.3		5.00	38.4	14.2	3.07
Soluble Potassium (K)	258.1	1.00		232	3.55	2.65	295
Total Potassium (K)	258.1	1.00		244	3.80	3.02	336
Soluble Zinc (Zn)	289.1	0.05		1.70	0.10	0.07	0.36
Total Zinc (Zn)	289.1	0.05		5.80	1.24	0.14	6.30

Margaret L. Skowron

Margaret L. Skowron
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)

Analytical Parameter(s)	Method No.	Quant. Limits				
			AES Lab No. -	5695	5696	5697
			Sample ID -	BW-1 GRAB	BW-3 GRAB	BW-4 GRAB
			Sample Date-	3/8/89	3/8/89	3/8/89
Soluble Iron (Fe)	236.1	0.30		1.93	1.55	3.31
Total Iron (Fe)	236.1	0.30		3.08	1.94	3.96
Soluble Potassium (K)	258.1	1.00		4.43	9.08	27.9
Total Potassium (K)	258.1	1.00		4.74	9.36	29.4
Soluble Zinc (Zn)	289.1	0.05		0.26	BQL*	BQL
Total Zinc (Zn)	289.1	0.05		1.34	0.07	0.18

* Below quantifiable limits.

Margaret L. Skowron
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)

Analytical Parameter(s)	Method No.	Quant. Limits		AES Lab No. - 5725 Sample ID - MW-1 GRAB Sample Date- 3/9/89	AES Lab No. - 5726 Sample ID - TRIP BLANK Sample Date- 3/7/89
Soluble Iron (Fe)	236.1	0.30		0.17	BQL*
Total Iron (Fe)	236.1	0.30		0.84	BQL
Soluble Potassium (K)	258.1	1.00		44.5	BQL
Total Potassium (K)	258.1	1.00		44.8	BQL
Soluble Zinc (Zn)	289.1	0.05		BQL	BQL
Total Zinc (Zn)	289.1	0.05		BQL	BQL

* Below quantifiable limits.

Margaret L. Skowron

Margaret L. Skowron
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	5672	3.06	3.07	3.07	0.01	0.3
Soluble Potassium	5671	2.71	2.59	2.65	0.12	4.5
Total Zinc	5671	0.14	0.13	0.14	0.01	7.1

Relative Percent Difference =
Range/Average X 100

ADVANCED ENVIRONMENTAL SERVICES, INC.
PARAMETER TRACEABILITY REPORT
ATOMIC SPECTROSCOPY DEPARTMENT

AES JOB CODE CTC

ANALYST	ANALYTICAL METHOD	SAMPLE CODE	DATE OF ANALYSIS	TIME OF ANALYSIS
L. Erickson	236.1	5669-72	3-14-89	19:54 - 21:15
L. Erickson	258.1	5669-72	3-13-89	21:31 - 22:17
L. Erickson	289.1	5669-72	3-13-89	17:36 - 18:13

ADVANCED ENVIRONMENTAL SERVICES, INC.
PARAMETER TRACEABILITY REPORT
ATOMIC SPECTROSCOPY DEPARTMENT

AES JOB CODE CTC

ANALYST	ANALYTICAL METHOD	SAMPLE CODE	DATE OF ANALYSIS	TIME OF ANALYSIS
L. Crickson	236.1	5695	3-14-89	19:54-21:15
L. Crickson	258.1	5695	3-13-89	21:31-22:17
L. Crickson	289.1	5695	3-13-89	17:36-18:30

ADVANCED ENVIRONMENTAL SERVICES, INC.
PARAMETER TRACEABILITY REPORT
ATOMIC SPECTROSCOPY DEPARTMENT

AES JOB CODE CTC

ANALYST	ANALYTICAL METHOD	SAMPLE CODE	DATE OF ANALYSIS	TIME OF ANALYSIS
L. Erickson	236.1	5725-26	3-14-89	19:54 - 21:15
L. Erickson	258.1	5725-26	3-13-89	21:31 - 22:17
L. Erickson	289.1	5725-26	3-13-89	17:36 - 18:30

ADVANCED ENVIRONMENTAL SERVICES INC.

2186 LIBERTY DRIVE
NIAGARA FALLS, NY 14304
(716) 283-3120

CHAIN OF CUSTODY RECORD

JOB CODE	PROJECT NAME
CTC	UNION CARBIDE

SAMPLER'S SIGNATURE: Scott MacFarlane, Frank A. Detroit

SAMPLE NO.	SEQ. NO.	DATE	TIME	SAMPLE LOCATION	GRAB	COMP	SAMPLE TYPE	NO. OF CONTAINERS	REMARKS
	1	3-7-89	2:08 pm	B-W-5	✓		well water	7	1 ~~000~~ mls, 3 ~~500~~, 1-125, -2-VOA's
	2	〃	3:15 pm	B-W-2	✓		〃	7	〃
	3	〃	—	BLIND DUP	✓		〃	7	〃
	4	〃	3:30 pm	B-W-6	✓		〃	7	〃
							TOTAL CONTAINERS	28	

	DATE	TIME	
RELINQUISHED BY (Sign) 1 Scott MacFarlane	3/8/89	8:45 am	RECEIVED BY (Sign) 2 Judy Detroitski
RELINQUISHED BY (Sign) 2	DATE	TIME	RECEIVED BY (Sign) 3
RELINQUISHED BY (Sign) 3	DATE	TIME	RECEIVED BY (Sign) 4
R. NQUISHED BY (Sign) 4	DATE	TIME	RECEIVED BY (Sign) 5

REMARKS:

ADVANCED ENVIRONMENTAL SERVICES INC.
2186 LIBERTY DRIVE
NIAGARA FALLS, NY 14304
(716) 283-3120

CHAIN OF CUSTODY RECORD	JOB CODE	PROJECT NAME
	CTC	UNION CARBIDE

SAMPLER'S SIGNATURE: Scott MacFarlane

SAMPLE NO.	SEQ. NO.	DATE	TIME	SAMPLE LOCATION	GRAB	COMP	SAMPLE TYPE	NO. OF CONTAINERS	REMARKS
	1	3/8/89	10:20 am	B-W-1	✓		Well Water	7	
	2	"	12:45 pm	B-W-3	✓		"	7	
	3	"	2:30 pm	B-W-4	✓		"	7	
							TOTAL CONTAINERS	21	

	DATE	TIME	
RELINQUISHED BY (Sign) 1 Scott MacFarlane	3/8/89	4:00 pm	RECEIVED BY (Sign) 2 Andy Ostroushko
RELINQUISHED BY (Sign) 2	DATE	TIME	RECEIVED BY (Sign) 3
RELINQUISHED BY (Sign) 3	DATE	TIME	RECEIVED BY (Sign) 4
RELINQUISHED BY (Sign) 4	DATE	TIME	RECEIVED BY (Sign) 5

REMARKS:

ADVANCED ENVIRONMENTAL SERVICES INC.
2186 LIBERTY DRIVE
NIAGARA FALLS, NY 14304
(716) 283-3120

CHAIN OF CUSTODY RECORD

JOB CODE	PROJECT NAME
CTC	UNION CARBIDE

SAMPLER'S SIGNATURE: Scott Mayfarlane

SAMPLE NO.	SEQ. NO.	DATE	TIME	SAMPLE LOCATION	GRAB	COMP	SAMPLE TYPE	NO. OF CONTAINERS	REMARKS
	1	3-7-89	—	TRIP BLANK	✓		well water	5	—
	2	3-9-89	2:30 pm	M-W-1	✓		"	7	—
							TOTAL CONTAINERS	12	

	DATE	TIME	
RELINQUISHED BY (Sign) 1 Scott Mayfarlane	3-9-89	3:45 pm	RECEIVED BY (Sign) 2 Cindy Ostrowski
RELINQUISHED BY (Sign) 2	DATE	TIME	RECEIVED BY (Sign) 3
RELINQUISHED BY (Sign) 3	DATE	TIME	RECEIVED BY (Sign) 4
R. NQUISHED BY (Sign) 4	DATE	TIME	RECEIVED BY (Sign) 5

REMARKS: