UNION CARBIDE CORPORATION P.O. BOX 500, LAWRENCEBURG, TENNESSEE 38464
CARBON PRODUCTS DIVISION

August 15, 1988

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 second quarter's groundwater analysis. Nothing of any significance is demonstrated in this set of data.

If you have any questions, please give me a call.

Very truly yours,

UNION CARBIDE CORPORATION
Carbon Products Division

R. A. Bolton

R. A. Bolton, Manager
HS& EA

RAB/bjm
Attachment

CC: Messrs. Jim Devald
Dave O'Tool
A. C. Ogg - Niagara

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

Catherine Mocniak
Catherine Mocniak
Technical Evaluation

August 11, 1988
AES Report CTC

SCOPE OF WORK

This work was performed at the request of Mr. R. A. Bolton, Environmental Manager of Union Carbide Corporation, Carbon Products Division, in compliance with the Republic Waste Management Facility Post-Closure Monitoring Program.

ADVANCED ENVIRONMENTAL SERVICES, INC.

FIELD REPORT

CLIENT: Union Carbide AES JOB CODE: CTC

DATE PURGED: 7/18/88 DATE SAMPLED: 7/19/88

WELL IDENTIFICATION	TOP OF PIPE ELEVATION	ELEVATION BEFORE PURGING	(GALS) AMOUNT PURGED	ELEVATION BEFORE SAMPLING
* BW1	610.72	592.06	40.0	592.01
** BW2	608.43	592.49	12.5	592.58
BW3	604.72	589.63	17.0	589.76
** BW4	607.08	589.17	15.0	592.16
** BW5	603.33	589.65	18.0	589.84
** BW6	607.04	592.94	10.0	592.90
MW1	609.43	595.92	2.0 Dry	591.39
*** MW2	607.54	583.76	.75 Dry [1]	582.96
MW3	601.61	589.06	6.25 Dry[1]	585.94

* Organic odor, possibly acetone.
** Orange paint chips from monitoring well in sample.
*** Course sediment on bailer.
[1] Monitoring wells dry after 3 days recharging.

SCOTT ABEL
SENIOR FIELD TECHNICIAN

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: RESULTS - WET CHEMISTRY

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

Analytical Parameter(s)	Method No.	Quant. Limits	AES Lab No. - / Sample ID - / Sample Date-	21724 BW-1 GRAB 7/19/88	21725 BW-2 GRAB 7/19/88	21726 BW-3 GRAB BLIND DUP[1] 7/19/88	21727 BW-4 GRAB 7/19/88
Ammonia (As N) (mg/l)	350.1	0.01		1.00	0.28	2.30	5.25
Total Kjeldahl Nitrogen(mg/l)	351.2	0.1		1.64	0.84	1.40	20
Nitrite (mg/l)	353.2	0.01		BQL*	BQL	BQL	BQL

Margaret L. Skowron

Margaret L. Skowron
Wet Chemistry Supervisor

* Below quantifiable limits.

[1] Blind Field Dup was determined after the analysis was completed.

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: RESULTS - WET CHEMISTRY

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

Analytical Parameter(s)	Method No.	Quant. Limits	AES Lab No. - / Sample ID - / Sample Date-	21728 BW-5 GRAB 7/19/88	21729 BW-6 GRAB 7/19/88	21730 MW-1 GRAB 7/19/88	21731 DUP GRAB 7/19/88
Ammonia (As N) (mg/l)	350.1	0.01		0.20*	0.50	0.25	0.50
Total Kjeldahl Nitrogen(mg/l)	351.2	0.1		0.35	0.53	6.62	1.52
Nitrite (mg/l)	353.2	0.01		BQL**	BQL	BQL	BQL

* Abnormal peak.
** Below quantifiable limits.

Margaret L. Skowron
Wet Chemistry 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
Ammonia	21725	0.28	0.26	0.27	0.01	3.7
Nitrite	21730	BQL*	BQL	BQL	None	None
Total Kjeldahl Nitrogen	21725	0.84	0.78	0.81	0.03	3.70

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*
Ammonia	21725	SPK	0.44	0.27	0.2	85
Ammonia		EPA	1.96	1.90	---	103
Nitrite	21730	SPK	0.26	BQL**	0.25	104
Total Kjeldahl Nitrogen	21725	SPK	2.8	0.81	2	99
Total Kjeldahl Nitrogen		EPA	4.64	5	---	92

* % 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
M. Skowron	353.2	21724-30,33	7/20/88	1230 - 1400 hrs
M. Skowron	350.1	21724-30,33	7-25-88	9:00 - 1430
M. Skowron	351.2	21724-30,33	8/4/88	1730 - 1400 hrs

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: 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.-	21724	21725	21726
			Sample ID -	BW-1 GRAB	BW-2 GRAB	BW-3 GRAB
			Sample Date-	7/19/88	7/19/88	BLIND DUP[1] 7/19/88
Chloromethane	8240	10		BQL*	BQL	BQL
Vinyl Chloride	"	10		BQL	BQL	BQL
Chloroethane	"	10		BQL	BQL	BQL
Bromomethane	"	10		BQL	BQL	BQL
2-Chloroethyl Vinyl 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

Jim Trigla for
Susan C. Sorocchi
Gas Chromatography Supervisor

* Below quantifiable limits.
[1] Blind Field Dup was determined after the analysis was completed

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: 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.-	21727	21728	21729
			Sample ID -	BW-4 GRAB	BW-5 GRAB	BW-6 GRAB
			Sample Date-	7/19/88	7/19/88	7/19/88
Chloromethane	8240	10		BQL*	BQL	BQL
Vinyl Chloride	"	10		BQL	BQL	BQL
Chloroethane	"	10		BQL	BQL	BQL
Bromomethane	"	10		BQL	BQL	BQL
2-Chloroethyl Vinyl 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

* Below quantifiable limits.

Jim Figi for
Susan C. Scrocchi
Gas Chromatography Supervisor

ADVANCED ENVIRONM..AL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: 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-	21730 MW-1 GRAB 7/19/88	21733 DUP GRAB 7/19/88
Chloromethane	8240	10		BQL*	BQL
Vinyl Chloride	"	10		BQL	BQL
Chloroethane	"	10		BQL	BQL
Bromomethane	"	10		BQL	BQL
2-Chloroethyl Vinyl Ether	"	10		BQL	BQL
Ethylbenzene	"	5.0		BQL	BQL
Methylene Chloride	"	5.0		BQL	BQL
Chlorobenzene	"	5.0		BQL	BQL
1,1-Dichloroethylene	"	5.0		BQL	BQL
1,1-Dichloroethane	"	5.0		BQL	BQL
trans-1,2-Dichloroethylene	"	5.0		BQL	BQL
Chloroform	"	5.0		BQL	BQL
1,2-Dichloroethane	"	5.0		BQL	BQL
1,1,1-Trichloroethane	"	5.0		BQL	BQL
Carbon Tetrachloride	"	5.0		BQL	BQL
Bromodichloromethane	"	5.0		BQL	BQL
1,2-Dichloropropane	"	5.0		BQL	BQL
trans-1,3-Dichloropropene	"	5.0		BQL	BQL
Trichloroethylene	"	5.0		BQL	BQL
Benzene	"	5.0		BQL	BQL
cis-1,3-Dichloropropene	"	5.0		BQL	BQL
1,1,2-Trichloroethane	"	5.0		BQL	BQL
Dibromochloromethane	"	5.0		BQL	BQL
Bromoform	"	5.0		BQL	BQL

* Below quantifiable limits.

Jim [signature] for
Susan C. Scroechi
Gas Chromatography Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: 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.-	21724	21725	21726
			Sample ID -	BW-1 GRAB	BW-2 GRAB	BW-3 GRAB
			Sample Date-	7/19/88	7/19/88	BLIND DUP[1] 7/19/88
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
Trichlorofluoromethane	"	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	"	5.0		BQL	BQL	BQL
2-Hexanone	"	50		BQL	BQL	BQL
4-Methyl-2-Pentanone	"	50		BQL	BQL	BQL
Styrene	"	5.0		BQL	BQL	BQL
Xylenes (Total)	"	5.0		25	BQL	BQL

* Below quantifiable limits.
[1] Blind Field Dup was determined after the analysis was completed.

Jim Tighe for
Susan C. Scrocchi
Gas Chromatography Supervisor

ADVANCED ENVIRON ITAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: 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.-	21727	21728	21729
			Sample ID -	BW-4 GRAB	BW-5 GRAB	BW-6 GRAB
			Sample Date-	7/19/88	7/19/88	7/19/88
1,1,2,2-Tetrachloroethylene	8240	5.0		44	BQL*	BQL
1,1,2,2-Tetrachloroethane	"	5.0		BQL	BQL	BQL
Toluene	"	5.0		BQL	BQL	BQL
Trichlorofluoromethane	"	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	"	5.0		BQL	BQL	BQL
2-Hexanone	"	50		BQL	BQL	BQL
4-Methyl-2-Pentanone	"	50		BQL	BQL	BQL
Styrene	"	5.0		BQL	BQL	BQL
Xylenes (Total)	"	5.0		BQL	BQL	BQL

* Below quantifiable limits.

Jim Tigh for
Susan C. Scrocchi
Gas Chromatography Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.

LABORATORY REPORT

Type of Analysis: 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.-	21730	21733
			Sample ID -	MW-1 GRAB	DUP GRAB
			Sample Date-	7/19/88	7/19/88
1,1,2,2-Tetrachloroethylene	8240	5.0		BQL*	BQL
1,1,2,2-Tetrachloroethane	"	5.0		BQL	BQL
Toluene	"	5.0		BQL	BQL
Trichlorofluoromethane	"	5.0		BQL	BQL
Acetone	"	50		BQL	BQL
Carbon Dislufide	"	5.0		BQL	BQL
2-Butanone	"	50		BQL	BQL
Vinyl Acetate	"	5.0		BQL	BQL
2-Hexanone	"	50		BQL	BQL
4-Methyl-2-Pentanone	"	50		BQL	BQL
Styrene	"	5.0		BQL	BQL
Xylenes (Total)	"	5.0		BQL	BQL

* Below quantifiable limits.

Susan C. Scrocchi
Gas Chromatography Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: 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.-	21724	21725	21726
			Sample ID -	BW-1 GRAB	BW-2 GRAB	BW-3 GRAB BLIND DUP[1]
			Sample Date-	7/19/88	7/19/88	7/19/88
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
Hexachlorocylopentadiene	"	10		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

Jim Tuigl for:
Susan C. Scrgcchi
Gas Chromatography Supervisor

* Below quantifiable limits.
[1] Blind Field Dup was determined after the analysis was completed.

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: 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.-	21727	21728	21729
			Sample ID -	BW-4 GRAB	BW-5 GRAB	BW-6 GRAB
			Sample Date-	7/19/88	7/19/88	7/19/88
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		13	BQL	BQL
Hexachlorocylopentadiene	"	10		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.

Jim Fuigl for
Susan C. Scrocchi
Gas Chromatography Supervisor

ADVANCED ENVIRONME AL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: SEMI-VOLATILES

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

			AES Lab No.-	21730	21733
			Sample ID -	MW-1 GRAB	DUP GRAB
Analytical Parameter(s)	Method No.	Quant. Limits	Sample Date-	7/19/88	7/19/88
2-Methylnaphthalene	8270	10		BQL*	BQL
Bis(2-Chloroethyl)Ether	"	10		BQL	BQL
1,3-Dichlorobenzene	"	10		BQL	BQL
1,4-Dichlorobenzene	"	10		BQL	BQL
1,2-Dichlorobenzene	"	10		BQL	BQL
Bis(2-Chloroisopropyl) Ether	"	10		BQL	BQL
Hexachloroethane	"	10		BQL	BQL
N-Nitrosodi-N-Propylamine	"	10		BQL	BQL
Nitrobenzene	"	10		BQL	BQL
Isophorone	"	10		BQL	BQL
Bis(2-Chloroethoxy)Methane	"	10		BQL	BQL
1,2,4-Trichlorobenzene	"	10		BQL	BQL
Naphthalene	"	10		BQL	BQL
Hexachlorobutadiene	"	10		BQL	BQL
Hexachlorocylopentadiene	"	10		BQL	BQL
2-Chloronaphthalene	"	10		BQL	BQL
Dimethylphthalate	"	10		BQL	BQL
Acenaphthylene	"	10		BQL	BQL
2,6-Dinitrotoluene	"	10		BQL	BQL
Acenaphthene	"	10		BQL	BQL
2,4-Dinitrotoluene	"	10		BQL	BQL
Diethylphthalate	"	10		BQL	BQL

* Below quantifiable limits.

Jim Figh for
Susan C. Scrocchi
Gas Chromatography Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: 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.-	21724	21725	21726
			Sample ID -	BW-1 GRAB	BW-2 GRAB	BW-3 GRAB BLIND DUP[1]
			Sample Date-	7/19/88	7/19/88	7/19/88
Fluorene	8270	10		BQL*	BQL	BQL
4-Chlorophenylphenylether	"	10		BQL	BQL	BQL
Diphenylamine(N-Nitroso)	"	10		BQL	BQL	BQL
1,2-Diphenylhydrazine (Azobenzene)	"	10		BQL	BQL	BQL
4-Bromophenylphenylether	"	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
Benzidine	"	10		BQL	BQL	BQL
Pyrene	"	10		BQL	BQL	BQL
Butylbenzylphthalate	"	10		BQL	BQL	BQL
Benzo(a)Anthracene	"	10		BQL	BQL	BQL
3,3´-Dichlorobenzidine	"	30		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	"	10		BQL	BQL	BQL
Benzo(k)Fluoranthene	"	10		BQL	BQL	BQL
Benzo(a)Pyrene	"	10		BQL	BQL	BQL
Indeno(1,2,3-C,D)Pyrene	"	10		BQL	BQL	BQL
Dibenzo(a,h)Anthracene	"	10		BQL	BQL	BQL
Benzo(g,h,i)Perylene	"	10		BQL	BQL	BQL

Jim Fogel for
Susan C. Scrocchi
Gas Chromatography Supervisor

* Below quantifiable limits.
[1] Blind Field Dup was determined after the analysis was completed.

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: 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.-	21727	21728	21729
			Sample ID -	BW-4 GRAB	BW-5 GRAB	BW-6 GRAB
			Sample Date-	7/19/88	7/19/88	7/19/88
Fluorene	8270	10		BQL*	BQL	BQL
4-Chlorophenylphenylether	"	10		BQL	BQL	BQL
Diphenylamine(N-Nitroso)	"	10		BQL	BQL	BQL
1,2-Diphenylhydrazine (Azobenzene)	"	10		BQL	BQL	BQL
4-Bromophenylphenylether	"	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
Benzidine	"	10		BQL	BQL	BQL
Pyrene	"	10		BQL	BQL	BQL
Butylbenzylphthalate	"	10		BQL	BQL	27
Benzo(a)Anthracene	"	10		BQL	BQL	BQL
3,3´-Dichlorobenzidine	"	30		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	"	10		BQL	BQL	BQL
Benzo(k)Fluoranthene	"	10		BQL	BQL	BQL
Benzo(a)Pyrene	"	10		BQL	BQL	BQL
Indeno(1,2,3-C,D)Pyrene	"	10		BQL	BQL	BQL
Dibenzo(a,h)Anthracene	"	10		BQL	BQL	BQL
Benzo(g,h,i)Perylene	"	10		BQL	BQL	BQL

* Below quantifiable limits.

Jim Tuigl for
Susan C. Scrocchi
Gas Chromatography Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.

LABORATORY REPORT

Type of Analysis: 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.-	21730	21733
			Sample ID -	MW-1 GRAB	DUP GRAB
			Sample Date-	7/19/88	7/19/88
Fluorene	8270	10		BQL*	BQL
4-Chlorophenylphenylether	"	10		BQL	BQL
Diphenylamine(N-Nitroso)	"	10		BQL	BQL
1,2-Diphenylhydrazine (Azobenzene)	"	10		BQL	BQL
4-Bromophenylphenylether	"	10		BQL	BQL
Hexachlorobenzene	"	10		BQL	BQL
Phenanthrene	"	10		BQL	BQL
Anthracene	"	10		BQL	BQL
Di-N-Butylphthalate	"	10		BQL	BQL
Fluoranthene	"	10		BQL	BQL
Benzidine	"	10		BQL	BQL
Pyrene	"	10		BQL	BQL
Butylbenzylphthalate	"	10		BQL	BQL
Benzo(a)Anthracene	"	10		BQL	BQL
3,3´-Dichlorobenzidine	"	30		BQL	BQL
Chrysene	"	10		BQL	BQL
Bis(2-Ethylhexyl)Phthalate	"	10		BQL	BQL
Di-N-Octylphthalate	"	10		BQL	BQL
Benzo(b)Fluoranthene	"	10		BQL	BQL
Benzo(k)Fluoranthene	"	10		BQL	BQL
Benzo(a)Pyrene	"	10		BQL	BQL
Indeno(1,2,3-C,D)Pyrene	"	10		BQL	BQL
Dibenzo(a,h)Anthracene	"	10		BQL	BQL
Benzo(g,h,i)Perylene	"	10		BQL	BQL

* Below quantifiable limits.

Jim Tigh for

Susan C. Scrocchi

Gas Chromatography Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.

LABORATORY REPORT

Type of Analysis: 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.-	21724	21725	21726
			Sample ID -	BW-1 GRAB	BW-2 GRAB	BW-3 GRAB BLIND DUP[1]
			Sample Date-	7/19/88	7/19/88	7/19/88
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-Chesol	"	10		BQL	BQL	BQL
2,4,6-Trichlorophenol	"	10		BQL	BQL	BQL
2,4-Dinitrophenol	"	20		BQL	BQL	BQL
4-Nitrophenol	"	20		BQL	BQL	BQL
4,6-Dinitro-O-Cresol	"	20		BQL	BQL	BQL
Pentachlorophenol	"	20		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	"	10		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	"	50		BQL	BQL	BQL
1,2-Diphenylhydrazine	"	10		BQL	BQL	BQL
Aniline	"	10		BQL	BQL	BQL

Jim Fright for

Susan C. Scrocchi
Gas Chromatography Supervisor

* Below quantifiable limits.

[1] Blind Field Dup was determined after the analysis was completed.

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: 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.-	21727	21728	21729
			Sample ID -	BW-4 GRAB	BW-5 GRAB	BW-6 GRAB
			Sample Date-	7/19/88	7/19/88	7/19/88
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-Chesol	"	10		BQL	BQL	BQL
2,4,6-Trichlorophenol	"	10		BQL	BQL	BQL
2,4-Dinitrophenol	"	20		BQL	BQL	BQL
4-Nitrophenol	"	20		BQL	BQL	BQL
4,6-Dinitro-O-Cresol	"	20		BQL	BQL	BQL
Pentachlorophenol	"	20		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	"	10		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	"	50		BQL	BQL	BQL
1,2-Diphenylhydrazine	"	10		BQL	BQL	BQL
Aniline	"	10		BQL	BQL	BQL

* Below quantifiable limits.

Jim Tigles for
Susan C. Scrocchi
Gas Chromatography Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.

LABORATORY REPORT

Type of Analysis: 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.-	21730	21733
			Sample ID -	MW-1 GRAB	DUP GRAB
			Sample Date-	7/19/88	7/19/88
Phenol	8270	10		BQL*	BQL
2-Chlorophenol	"	10		BQL	BQL
2-Nitrophenol	"	10		BQL	BQL
2,4-Dimethylphenol	"	10		BQL	BQL
p-Chloro-m-Chesol	"	10		BQL	BQL
2,4,6-Trichlorophenol	"	10		BQL	BQL
2,4-Dinitrophenol	"	20		BQL	BQL
4-Nitrophenol	"	20		BQL	BQL
4,6-Dinitro-O-Cresol	"	20		BQL	BQL
Pentachlorophenol	"	20		BQL	BQL
2,4-Dichlorophenol	"	10		BQL	BQL
4-Methylphenol	"	10		BQL	BQL
Benzoic Acid	"	20		BQL	BQL
2,4,5-Trichlorophenol	"	10		BQL	BQL
3-Nitroaniline	"	10		BQL	BQL
Dibenzofuran	"	10		BQL	BQL
4-Nitroaniline	"	10		BQL	BQL
2-Methylphenol	"	10		BQL	BQL
Benzidine	"	50		BQL	BQL
1,2-Diphenylhydrazine	"	10		BQL	BQL
Aniline	"	10		BQL	BQL

* Below quantifiable limits.

Jim Taylor for
Susan C. Scrocchi
Gas Chromatography 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	21725	<10	<10	<10	None	None
Vinyl Chloride	21725	<10	<10	<10	None	None
Chloroethane	21725	<10	<10	<10	None	None
Bromomethane	21725	<10	<10	<10	None	None
2-Chloroethylvinylether	21725	<10	<10	<10	None	None
Ethylbenzene	21725	<5.0	<5.0	<5.0	None	None
Methylene Chloride	21725	<5.0	<5.0	<5.0	None	None
Chlorobenzene	21725	<5.0	<5.0	<5.0	None	None
1,1-Dichloroethylene	21725	<5.0	<5.0	<5.0	None	None
1,1-Dichloroethane	21725	<5.0	<5.0	<5.0	None	None
trans-1,2-Dichloroethylene	21725	<5.0	<5.0	<5.0	None	None
Chloroform	21725	<5.0	<5.0	<5.0	None	None
1,2-Dichloroethane	21725	<5.0	<5.0	<5.0	None	None
1,1,1-Trichloroethane	21725	<5.0	<5.0	<5.0	None	None
Carbon Tetrachloride	21725	<5.0	<5.0	<5.0	None	None
Bromodichloromethane	21725	<5.0	<5.0	<5.0	None	None
1,2-Dichloropropane	21725	<5.0	<5.0	<5.0	None	None
trans-1,3-Dichloropropene	21725	<5.0	<5.0	<5.0	None	None
Trichloroethylene	21725	<5.0	<5.0	<5.0	None	None
Benzene	21725	<5.0	<5.0	<5.0	None	None
cis-1,3-Dichloropropene	21725	<5.0	<5.0	<5.0	None	None
1,1,2-Trichloroethane	21725	<5.0	<5.0	<5.0	None	None
Dibromochloromethane	21725	<5.0	<5.0	<5.0	None	None
Bromoform	21725	<5.0	<5.0	<5.0	None	None
1,1,2,2-Tetrachloroethylene	21725	<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	Sample Code	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
1,1,2,2-Tetrachloroethane	21725	<5.0	<5.0	<5.0	None	None
Toluene	21725	<5.0	<5.0	<5.0	None	None
Trichlorofluoromethane	21725	<5.0	<5.0	<5.0	None	None
Acetone	21725	<50	<50	<50	None	None
Carbon Dislufide	21725	<5.0	<5.0	<5.0	None	None
2-Butanone	21725	<50	<50	<50	None	None
Vinyl Acetate	21725	<5.0	<5.0	<5.0	None	None
2-Hexanone	21725	<50	<50	<50	None	None
4-Methyl-2-Pentanone	21725	<50	<50	<50	None	None
Styrene	21725	<5.0	<5.0	<5.0	None	None
Xylenes (Total)	21725	<5.0	<5.0	<5.0	None	None
2-Methylnaphthalene	21725	<10	<10	<10	None	None
Bis(2-Chloroethyl)Ether	21725	<10	<10	<10	None	None
1,3-Dichlorobenzene	21725	<10	<10	<10	None	None
1,4-Dichlorobenzene	21725	<10	<10	<10	None	None
1,2-Dichlorobenzene	21725	<10	<10	<10	None	None
Bis(2-Chloroisopropyl)Ether	21725	<10	<10	<10	None	None
Hexachloroethane	21725	<10	<10	<10	None	None
N-Nitrosdi-N-Propylamine	21725	<10	<10	<10	None	None
Nitrobenzene	21725	<10	<10	<10	None	None
Isophorone	21725	<10	<10	<10	None	None
Bis(2-Chloroethoxy)Methane	21725	<10	<10	<10	None	None
1,2,4-Trichlorobenzene	21725	<10	<10	<10	None	None
Naphthalene	21725	<10	<10	<10	None	None
Hexachlorobutadiene	21725	<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	Sample Code	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
Hexachlorocyclopentadiene	21725	<10	<10	<10	None	None
2-Chloronaphthalene	21725	<10	<10	<10	None	None
Dimethylphthalate	21725	<10	<10	<10	None	None
Acenaphthylene	21725	<10	<10	<10	None	None
2,6-Dinitrotoluene	21725	<10	<10	<10	None	None
Acenaphthene	21725	<10	<10	<10	None	None
2,4-Dinitrotoluene	21725	<10	<10	<10	None	None
Diethylphthalate	21725	<10	<10	<10	None	None
Fluorene	21725	<10	<10	<10	None	None
4-Chlorophenylphenylether	21725	<10	<10	<10	None	None
N-Nitrosdiphenylamine	21725	<10	<10	<10	None	None
Benzyl Alcohol	21725	<10	<10	<10	None	None
4-Chloroaniline	21725	<10	<10	<10	None	None
4-Bromophenylphenylether	21725	<10	<10	<10	None	None
Hexachlorobenzene	21725	<10	<10	<10	None	None
Phenanthrene	21725	<10	<10	<10	None	None
Anthracene	21725	<10	<10	<10	None	None
Di-N-Butylphthalate	21725	<10	<10	<10	None	None
Fluoranthene	21725	<10	<10	<10	None	None
2-Nitroaniline	21725	<10	<10	<10	None	None
Pyrene	21725	<10	<10	<10	None	None
Butylbenzylphthalate	21725	<10	<10	<10	None	None
Benzo(a)Anthracene	21725	<10	<10	<10	None	None
3,3´-Dichlorobenzidine	21725	<30	<30	<30	None	None
Chrysene	21725	<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	Sample Code	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
Bis(2-Ethylhexyl)Phthalate	21725	<10	<10	<10	None	None
Di-N-Octylphthalate	21725	<10	<10	<10	None	None
Benzo(b)Fluoranthene	21725	<10	<10	<10	None	None
Benzo(k)Fluoranthene	21725	<10	<10	<10	None	None
Benzo(a)Pyrene	21725	<10	<10	<10	None	None
Indeno(1,2,3-c,d)Pyrene	21725	<10	<10	<10	None	None
Dibenzo(a,h)Anthracene	21725	<10	<10	<10	None	None
Benzo(g,h,i)Perylene	21725	<10	<10	<10	None	None
Benzidine	21725	<50	<50	<50	None	None
4-Nitroaniline	21725	<10	<10	<10	None	None
3-Nitroaniline	21725	<10	<10	<10	None	None
Dibenzofuran	21725	<10	<10	<10	None	None
Phenol	21725	<10	<10	<10	None	None
2-Chlorophenol	21725	<10	<10	<10	None	None
2-Nitrophenol	21725	<10	<10	<10	None	None
2,4-Dimethylphenol	21725	<10	<10	<10	None	None
4-Chloro-3-Methylphenol	21725	<10	<10	<10	None	None
2,4,6-Trichlorophenol	21725	<10	<10	<10	None	None
2,4-Dinitrophenol	21725	<20	<20	<20	None	None
4-Nitrophenol	21725	<20	<20	<20	None	None
4,6-Dinitro-2-Methylphenol	21725	<20	<20	<20	None	None
Pentachlorophenol	21725	<20	<20	<20	None	None
2,4-Dichlorophenol	21725	<10	<10	<10	None	None
4-Methylphenol	21725	<10	<10	<10	None	None
2,4,5-Trichlorophenol	21725	<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	Sample Code	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
2-Methylphenol	21725	<10	<10	<10	None	None
Benzoic Acid	21725	<20	<20	<20	None	None
1,2-Diphenylhydrazine	21725	<10	<10	<10	None	None
Aniline	21725	<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	Sample No.	Type	Observed Conc.	Original Conc.	Added Conc.	Percent Recovery*
trans-1,2-Dichloroethylene	21725	SPK	18	<5.0	24	75
Chloroform	21725	SPK	15	<5.0	22	68
Trichloroethylene	21725	SPK	26	<5.0	26	100
Tetrachloroethylene	21725	SPK	29	<5.0	26	112
1,1,2-Trichloroethane	21725	SPK	23	<5.0	32	72
Ethylbenzene	21725	SPK	68	<5.0	67	101
Toluene	21725	SPK	79	<5.0	79	100
Benzene	21725	SPK	73	<5.0	69	106
1,3-Dichlorobenzene	21725	SPK	52	<10	50	104
2-Chlorophenol	21725	SPK	86	<10	100	86
N-Nitrosdipropylamine	21725	SPK	72	<10	100	72
Di-N-Butylphthalate	21725	SPK	63	<10	50	126
Fluoranthene	21725	SPK	59	<10	50	118
4-Chloro-3-Methylphenol	21725	SPK	66	<10	100	66

* % 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
Jim Tigl	8240	21724-730,21733	7/29/88	8:00 - 13:00
Jim Tigl	8270	21724-730,21733	8/3/88	9:00 - 15:00

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: METALS

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-	21724 BW-1 GRAB 7/19/88	21725 BW-2 GRAB 7/19/88	21726 BW-3 GRAB BLIND DUP[1] 7/19/88	21727 BW-4 GRAB 7/19/88
Total Iron (Fe)	236.1	0.30		5.01	11.6	4.06	28.7
Soluble Iron (Fe)	236.1	0.30		1.15	5.18	1.15	10.1
Total Potassium (K)	258.1	1.00		26.4	4.52	9.15	34.2
Soluble Potassium (K)	258.1	1.00		26.0	4.19	8.45	33.9
Total Zinc (Zn)	289.1	0.05		34.0	10.0	2.20	2.80
Soluble Zinc (Zn)	289.1	0.05		22.0	2.20	0.46	BQL*

Paul McMahon
Atomic Spectroscopy Supervisor

* Below quantifiable limits.
[1] Blind Field Dup was determined after the analysis was completed.

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: METALS

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. -	21728	21729	21730	21731
			Sample ID -	BW-5 GRAB	BW-6 GRAB	MW-1 GRAB	DUP GRAB
			Sample Date-	7/19/88	7/19/88	7/19/88	7/19/88
Total Iron (Fe)	236.1	0.30		29.8	21.9	12.1	2.40
Soluble Iron (Fe)	236.1	0.30		3.59	3.50	3.50	1.57
Total Potassium (K)	258.1	1.00		3.39	4.58	42.8	8.45
Soluble Potassium (K)	258.1	1.00		3.34	4.06	35.2	7.08
Total Zinc (Zn)	289.1	0.05		1.54	BQL*	0.43	1.02
Soluble Zinc (Zn)	289.1	0.05		BQL	BQL	BQL	0.29

* Below quantifiable limits.

Paul McMahon
Atomic Spectroscopy 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 (Fe)	21725	11.5	11.7	11.6	0.2	2
Soluble Iron (Fe)	21725	5.15	5.20	5.18	0.05	1
Total Potassium (K)	21725	4.57	4.46	4.52	0.11	2
Soluble Potassium (K)	21725	4.24	4.14	4.19	0.10	2
Total Zinc (Zn)	21725	10.0	10.0	10.0	None	None
Soluble Zinc (Zn)	21725	2.20	2.20	2.20	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:mg/l or ppm)

Analytical Parameters	Sample No.	Type	Observed Conc.	Original Conc.	Added Conc.	Percent Recovery*
Total Iron (Fe)	21725	**SPK	7.42	2.32	5.00	102
Soluble Iron (Fe)	21725	SPK	10.38	5.18	5.00	104
EPA (Fe) std.	287	EPA	0.98	0.99	---	99
Total Potassium (K)	21725	SPK	25.22	4.52	20.00	104
Soluble Potassium (K)	21725	SPK	24.10	4.19	20.00	99
Independent (K) std.		STD	9.61	10.00	---	96
Total Zinc (Zn)	21725	***SPK	2.00	1.00	1.00	100
Soluble Zinc (Zn)	21725	SPK	1.36	0.44	1.00	92
EPA (Zn) std.	287	EPA	0.55	0.50	---	110

* % Recovery=100 x ((Observed Conc. - "background" Original Conc.)/"Spike" Added Conc.)
** Spike on sample dilution factor of 5.
*** Spike on sample dilution factor of 10.

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
F. Scrivano	236.1	21724-30,33	7-26-88	1145-1215
↓	258.1	21724-30,33	7-26-88	815-850
	289.1	21724-30,33	7-26-88	1100-1135

APPENDIX A

CHAIN OF CUSTODY RECORDS

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	7-19-88	2:09 p.m.	BW 1	X		WATER	7	
	2	"	2:14 p.m.	MW 1	X			7	
	3	"	2:30 pm	BW 6	X			7	
	4	"	2:45 pm	BW 2	X			9	
	5	"	2:59 pm	MW 2	X			0	
	6	"	3:05 pm	BW 3	X			7	
	7	"	3:20 pm	BW 4	X			7	
	8	"	3:30 pm	BW 5	X			7	
	9	"	3:45 pm	MW 3	X			0	
	5	"	3:05 pm	DUP	X			7	
							TOTAL CONTAINERS	58	

RELINQUISHED BY (Sign)	DATE	TIME	RECEIVED BY (Sign)
1 Scott MacFarlane	7/20/88	2:00 p.m.	2 Judy Ostrowski
RELINQUISHED BY (Sign)	DATE	TIME	RECEIVED BY (Sign)
2			3
RELINQUISHED BY (Sign)	DATE	TIME	RECEIVED BY (Sign)
3			4
RELINQUISHED BY (Sign)	DATE	TIME	RECEIVED BY (Sign)
			5

REMARKS: