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

April 26, 1991

Mr. Robert J. Mitrey
Associate Sanitary Engineer
New York State Department of Environmental Conservation
600 Delware St.
Buffalo, New York 14202-1073

Re: Quarterly Report of Groundwater Analysis
Republic Solid Waste Management Facility
Post-Closure Monitoring Program

Dear Mr. Mitrey:

I am enclosing a copy of the twelth quarter's groundwater sampling analysis from the closed Republic Solid Waste Management Facility. Bedrock well, BW-4, continues to demonstrate some slight semi-volatile and volatile organic contamination in the less than one part per million range.

The following will summarize the positive organic parameters:

Contaminate	12th Qtr. ppb	Mean Conc. ppb	Range ppb
Hexachlorobutadiene	38	43	10-150
Trichloroethylene	280	338	30-740
Vinyl Chloride	300	108	29-300
Tetrachloroethylene	260	260	72-380
Acetone	150	100	51-150 *
1,1-Dichloroethene	6.9	6.9	6.9
Trans-1,2-Dichlorethene	7.6	7.6	7.6

* See Narrative in report.

We do not feel that this contamination at BW-4-86 is related to the Republic Solid Waste Management Facility.

If you have further questions or concerns about this data, please contact me at 615/380-4215.

Very truly yours,

R.A. Bolton

R.A. Bolton, Manager
HS&EP

cc: Mr. Jim Devald, Sr. Public Health Engineer
Niagara County Health Department
Mr. Dave O'Tool, New York Department of Environmental Conservation
Mr. A.C. Ogg

ADVANCED
ENVIRONMENTAL SERVICES INC.

QUARTERLY REPUBLIC WASTE MANAGEMENT FACILITY
POST CLOSURE MONITORING PROGRAM

Report Prepared For

UNION CARBIDE CORP.

Maura S. Cattarin
Customer Service Representative

Paul T. McMahon
Quality Control Officer

April 22, 1991
AES Report CTC

COMMITMENT
TO
HONESTY - QUALITY - SERVICE

REPORT NARRATIVE:

CLIENT: UNION CARBIDE
PROJECT: POST CLOSURE MONITORING PROGRAM - REPUBLIC WASTE MANAGEMENT FACILITY
AES PROJECT CODE: CTC
AES SAMPLE NUMBERS: 2706, 2708, 2713-14
REPORT DATE: APRIL 22, 1991

Sampling of organic compounds for wells BW-4, BW-6, and the blind duplicate (BW-6) at the above facility was conducted by AES field service personnel on March 27-28, 1991. During the analysis of the target compound list volatile compounds, a high level of acetone was discovered in the trip blank. Acetone was also present in the samples for wells BW-4 and BW-6. After a laboratory investigation, it was discovered that the acetone contamination evident in the samples was due to contamination of the hydrochloric acid used as a preservative in the sampling. The problem was promptly corrected, and procedures have been instituted to avoid a reoccurrence of the contamination.

Unfortunately, the acetone contamination present in the samples collected March 27-28, 1991 invalidates the resulting acetone data. Mary McIntosh of the NYSDEC was contacted by telephone on March 9, 1991, and the matter was discussed. It was decided that the acetone data would be reported as analyzed, with the contamination problem noted. The wells will be resampled for acetone content by AES on April 29, 1991. A supplemental report containing valid acetone results for BW-4 and BW-6 will be forwarded to Union Carbide shortly thereafter.

Paul T. McMahon
Quality Control Director

Advanced Environmental Services, Inc.

Quarterly Monitoring Field Information
Union Carbide Company
Niagara Falls, New York

AES Code: CTC

Monitoring Well I.D.	Date	Sampling Time	Water Level (ft.)	Filter Time	Comments
BW-1	3/27/91	11:25 AM	13.60	1:30 PM	Clear w/ strong sulfur odor.
BW-2	3/28/91	11:10 AM	10.81	4:50 PM	Slightly cloudy w/ strong sulfur odor
BW-3	3/27/91	4:00 PM	4.42	5:15 PM	Clear to rust colored w/ no odor
BW-4	3/27/91	2:30 PM	6.62	5:22 PM	Clear,orange particuli,sheen,volatile odor
BW-5	3/27/91	4:00 PM	3.63	5:30 PM	Cloudy, suspended solids, no odor
BW-6	3/28/91	3:30 PM	15.95	4:25 PM	Slightly cloudy w/ strong sulfur odor
MW-1	3/28/91	2:20 PM	9.90	4:45 PM	Clear with solids, odor present
MW-2	3/28/91	11:50 AM	22.66	4:35 PM	Brownish/black with a carbon odor
MW-3	3/28/91	2:55 PM	3.25	4:40 PM	Clear with solids, coke oven odor
OW-1 SOUTH	N/A	N/A	N/A	N/A	N/A
OW-2 NORTH	N/A	N/A	N/A	N/A	N/A
BLIND DUP*	3/28/91	3:30 PM	15.95	4:30 PM	Cloudy with a carbon odor

Mike Champ 4-2-91
Technician

*Blind Duplicate of BW-6

Advanced Environmental Services, Inc.

Quarterly Monitoring Well Information
Union Carbide Company
Niagara Falls, New York

AES Code: CTC

Monitoring Well I.D.	Evacuation Date	Top of Inner Casing Elevation (ft.)	Monitoring Well Diameter	Water Level (ft.)	Water Elevation (ft.)	Bottom of Well (ft.)	Volume of Standing Water (gallons)	Volume of Evacuated Water (gallons)	Recharge Rate
BW-1	3/27/91	610.72	4	13.50	597.22	28.60	9.86	28.5	C
BW-2	3/28/91	608.43	4	10.65	597.78	26.10	10.09	31.0	C
BW-3	3/27/91	604.72	4	4.41	600.31	24.70	13.25	40.0	C
BW-4*	3/27/91	607.08	4	6.52	600.56	22.50	10.43	32.0	C
BW-5	3/27/91	603.33	4	3.63	599.70	25.70	14.41	44.0	C
BW-6	3/28/91	607.04	4	13.31	593.73	24.65	7.40	25.0	R
MW-1	3/27/91	609.43	2	10.06	599.37	21.10	1.80	2.0(DRY)	S
MW-2	3/28/91	607.54	2	16.19	591.35	24.40	1.34	4.0(DRY)	R
MW-3	3/27/91	601.61	2	3.26	598.35	16.20	2.11	1.5(DRY)	S
OW-1 SOUTH	3/28/91	608.81	4	4.99	603.82	N/A	N/A	N/A	N/A
OW-2 NORTH	3/28/91	607.06	4	4.90	602.16	N/A	N/A	N/A	N/A

* Monitoring well top was open, elevation may have been affected.

Abbreviations:

VS = Very Slow ----- Recharge Rate longer than 24 hr period.
S = Slow ---------- Recharge Rate within 24 hr period.
R = Rapid --------- Recharge Rate within 1 hr period.
C = Continuous ---- Recharge Rate immediate.

Mike Champ — Technician

4-4-91 — Date

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: INORGANICS

Client: UNION CARBIDE CORP. A.E.S. JOB CODE CTC

Analytical Parameter(s)	Method No.	Quant. Limits	AES Lab No. -	2704	2705	2706
			Sample ID -	BW-1 GRAB	BW-3 GRAB	BW-4 GRAB
			Sample Date-	3/27/91	3/27/91	3/27/91
Ammonia (mg/l)	350.1	0.02		0.61	0.11	4.37
Nitrite (mg/l)	353.2	0.01		BQL *	BQL	BQL
Total Kjeldahl Nitrogen(mg/l)	351.2	0.1		0.8	0.3	4.0

* Below Quantifiable Limits

Gary L. Amato
Technical Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: INORGANICS

Client: UNION CARBIDE CORP. A.E.S. JOB CODE CTC

Analytical Parameter(s)	Method No.	Quant. Limits		AES Lab No. - 2707 Sample ID - BW-5 GRAB	AES Lab No. - 2708 Sample ID - TRIP BLANK GRAB
			Sample Date-	3/27/91	3/27/91
Ammonia (mg/l)	350.1	0.02		0.12	BQL *
Nitrite (mg/l)	353.2	0.01		BQL	BQL
Total Kjeldahl Nitrogen(mg/l)	351.2	0.1		0.4	BQL

* Below Quantifiable Limits

Gary L. Amato
Technical 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 CORP. A.E.S. Job Code:CTC

Analytical Parameters	Sample No.	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
Total Kjeldahl Nitrogen	2706	4.0	4.1	4.0	0.1	2.5
Ammonia	2706	4.37	4.37	4.37	0	0
Nitrite	2706	BQL *	BQL	BQL	NA **	NA

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 CORP. 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 Kjeldahl Nitrogen	2706	SPK	8.4	4.0	5.0	88
Total Kjeldahl Nitrogen	---	EPA	5.0	5.0	---	100
Ammonia	2706	SPK	10.2	4.37	5.00	117
Ammonia	---	INDSTD	52	50	---	104
Nitrite	2706	SPK	0.28	BQL **	0.25	112

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

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: INORGANICS

Client: UNION CARBIDE CORP. A.E.S. JOB CODE CTC

Analytical Parameter(s)	Method No.	Quant. Limits		AES Lab No. - 2709 Sample ID - MW-1 GRAB	AES Lab No. - 2710 Sample ID - MW-2 GRAB	AES Lab No. - 2711 Sample ID - MW-3 GRAB
			Sample Date-	3/28/91	3/28/91	3/28/91
Ammonia (mg/l)	350.1	0.02		8.10	0.46	0.06
Nitrite (mg/l)	353.2	0.01		BQL *	BQL	BQL
Total Kjeldahl Nitrogen(mg/l)	351.2	0.1		8.4	1.1	0.3

* Below Quantifiable Limits

Gary L. Amato
Technical Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: INORGANICS

Client: UNION CARBIDE CORP. A.E.S. JOB CODE CTC

Analytical Parameter(s)	Method No.	Quant. Limits				
AES Lab No. -			2712	2713	2714	
Sample ID -			BW-2 GRAB	BW-6 GRAB	BLIND DUP GRAB (BW-6)	
Sample Date-			3/28/91	3/28/91	3/28/91	
Ammonia (mg/l)	350.1	0.02	1.35	0.37	0.28	
Nitrite (mg/l)	353.2	0.01	BQL *	BQL	BQL	
Total Kjeldahl Nitrogen(mg/l)	351.2	0.1	1.4	0.5	0.4	

* Below Quantifiable Limits

Gary L. Amato
Technical Supervisor

AES INORGANICS DEPARTMENT TRACEABILITY
JOB CODE: CTC

Technician Signature	AES Sample #	Method	Date of Analysis
Robert Clayton	2704-08	351.2	4/3/91
T. Abbott	2704-08	350.1	4-8-91
Robert Clayton	2704-08	353.2	4/9/91
T. Abbott	2706	350.1 (REANALYSIS)	4-8-91
David L Crowder	2708	351.2 (REANALYSIS)	4-10-91

AES INORGANICS DEPARTMENT TRACEABILITY
JOB CODE: CTC

Technician Signature	AES Sample #	Method	Date of Analysis
Richard Clyde	2709-14	351.2	4/3/91
T. Kloss	2709-14	350.1	4-3-91
Richard Clyde	2709-14	353.2	4/9/91
T. Kloss	2709-14	350.1 (REANALYZED)	4-8-91

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: INORGANICS

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

(All results are in mg/l)

Analytical Parameter(s)	Method No.	Quant. Limits		AES Lab No. - 2704 Sample ID - BW-1	2705 BW-3	2706 BW-4
			Sample Date-	GRAB 03/27/91	GRAB 03/27/91	GRAB 03/27/91
Total Iron	236.1	0.30		1.05	5.42	4.94
Soluble Iron	236.1	0.30		1.03	4.78	1.16
Total Potassium	258.1	1.00		4.80	1.46	17.9
Soluble Potassium	258.1	1.00		4.79	1.42	17.6
Total Zinc	289.1	0.05		0.15	1.04	0.78
Soluble Zinc	289.1	0.05		0.08	1.10	0.26

Gary L. Amato
Technical Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: INORGANICS

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

(All results are in mg/l)

Analytical Parameter(s)	Method No.	Quant. Limits	AES Lab No. -	2707	2708
			Sample ID -	BW-5	TRIP BLANK
			Sample Date-	GRAB 03/27/91	GRAB 03/27/91
Total Iron	236.1	0.30		3.42	BQL *
Soluble Iron	236.1	0.30		1.14	NR **
Total Potassium	258.1	1.00		2.39	BQL
Soluble Potassium	258.1	1.00		2.17	NR
Total Zinc	289.1	0.05		0.12	BQL
Soluble Zinc	289.1	0.05		0.10	NR

* Below Quantifiable Limit.
** None Requested.

Gary L. Amato
Technical 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 CORP. A.E.S. Job Code:CTC

Analytical Parameters	Sample No.	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
Total Potassium	2706	18.0	17.8	17.9	0.2	1.1
Total Iron	2706	5.02	4.87	4.94	0.15	3.0
Total Zinc	2706	0.79	0.77	0.78	0.02	2.6
Soluble Potassium	2706	17.5	17.8	17.6	0.3	1.7
Soluble Iron	2706	1.18	1.13	1.16	0.05	4.3
Soluble Zinc	2706	0.26	0.25	0.26	0.01	3.8

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 Potassium	2706	SPK	37.8	17.9	20.0	100
IND (K) Std.	---	STD	9.55	10.0	---	96
Total Iron	2706	SPK	8.90	4.94	4.00	99
IND (Fe) Std.	---	STD	4.02	4.00	---	100
Total Zinc	2706	SPK	1.74	0.78	1.00	96
IND (Zn) Std.	---	STD	0.47	0.50	---	94
Soluble Potassium	2706	SPK	37.2	17.6	20.0	98
IND (K) Std.	---	STD	9.55	10.0	---	96
Soluble Iron	2706	SPK	5.12	1.16	4.00	99
IND (Fe) Std.	---	STD	4.02	4.00	---	100
Soluble Zinc	2706	SPK	1.26	0.26	1.00	100
IND (Zn) Std.	---	STD	0.47	0.50	---	94

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

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: INORGANICS

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

(All results are in mg/l)

Analytical Parameter(s)	Method No.	Quant. Limits		AES Lab No. - 2709 Sample ID - MW-1	AES Lab No. - 2710 Sample ID - MW-2	AES Lab No. - 2711 Sample ID - MW-3
			Sample Date-	GRAB 3/28/91	GRAB 3/28/91	GRAB 3/28/91
Total Iron	236.1	0.30		1.14	48.4	1.44
Soluble Iron	236.1	0.30		BQL *	30.0	BQL
Total Potassium	258.1	1.00		53.2	8.31	1.64
Soluble Potassium	258.1	1.00		51.5	7.94	1.60
Total Zinc	289.1	0.05		0.24	0.81	0.17
Soluble Zinc	289.1	0.05		0.07	0.56	0.05

* Below Quantifiable Limit.

Gary L. Amato
Technical Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: INORGANICS

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

(All results are in mg/l)

Analytical Parameter(s)	Method No.	Quant. Limits		AES Lab No. - 2712 Sample ID - BW-2	AES Lab No. - 2713 Sample ID - BW-6
			Sample Date-	GRAB 03/28/91	GRAB 03/28/91
Total Iron	236.1	0.30		3.33	5.90
Soluble Iron	236.1	0.30		1.02	3.13
Total Potassium	258.1	1.00		12.4	2.77
Soluble Potassium	258.1	1.00		12.3	2.66
Total Zinc	289.1	0.05		5.60	BQL *
Soluble Zinc	289.1	0.05		0.45	BQL

* Below Quantifiable Limit.

Gary L. Amato
Technical Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: INORGANICS

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

(All results are in mg/l)

Analytical Parameter(s)	Method No.	Quant. Limits	AES Lab No. - 2714 Sample ID - BLIND DUPLICATE (BW-6) GRAB Sample Date- 03/28/91
Total Iron	236.1	0.30	6.22
Soluble Iron	236.1	0.30	3.25
Total Potassium	258.1	1.00	2.53
Soluble Potassium	258.1	1.00	1.88
Total Zinc	289.1	0.05	BQL *
Soluble Potassium	289.1	0.05	BQL

* Below Quantifiable Limit.

Gary L. Amato
Technical Supervisor

AES INORGANICS DEPARTMENT TRACEABILITY
JOB CODE: CTC

Technician Signature	AES Sample #	Method	Date of Analysis
Mark Morell	2704-08 T/S	258.1	4-8-91
"	"	236.1	4-4-91
"	"	251.1	4-8-91

AES INORGANICS DEPARTMENT TRACEABILITY
JOB CODE: CTC

Technician Signature	AES Sample #	Method	Date of Analysis
[signature]	2709-14	236.1	4-4-91
Mark Morris	2709m-14	258.1	4-8-91
[signature]	2709 4 14	281.1	4-8-91

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: TCL SEMI-VOLATILES

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

Analytical Parameter(s)	Method No.	Quant. Limits	AES Lab No.-	2706	2708
			Sample ID -	BW-4 GRAB	TRIP BLANK GRAB
			Sample Date-	3/27/91	3/27/91
N-Nitrosodimethylamine	8270	10		BQL *	BQL
Aniline	"	"		"	"
Phenol	"	"		"	"
Bis(2-Chloroethyl) ether	"	"		"	"
1,3-Dichlorobenzene	"	"		"	"
1,4-Dichlorobenzene	"	"		"	"
Benzyl Alcohol	"	"		"	"
1,2-Dichlorobenzene	"	"		"	"
2-Methylphenol	"	"		"	"
bis(2-Chloroispropyl)ether	"	"		"	"
4-Methylphenol	"	"		"	"
N-Nitrosodinpropylamine	"	"		"	"
Hexachloroethane	"	"		"	"
Nitrobenzene	"	"		"	"
Isophorone	"	"		"	"
2-Nitrophenol	"	"		"	"
2,4-Dimethylphenol	"	"		"	"
Bis(2-Chloroethoxy)methane	"	"		"	"
Benzoic Acid	"	"		"	"
2,4-Dichlorophenol	"	"		"	"
1,2,4-Trichlorobenzene	"	"		"	"
Naphthalene	"	"		"	"
4-Chloroaniline	"	"		"	"
Hexachlorobutadiene	"	"		38	"
2-Chlorophenol	"	"		BQL	"

* Below Quantifiable Limits

Denise R. Tuhovak
Organics Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: TCL SEMI-VOLATILES

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

Analytical Parameter(s)	Method No.	Quant. Limits	AES Lab No.-	2706	2708
			Sample ID -	BW-4 GRAB	TRIP BLANK GRAB
			Sample Date-	3/27/91	3/27/91
4-Chloro-3-Methylphenol	8270	10		BQL *	BQL
2-Methylnaphthalene	"	"		"	"
Hexachlorocyclopentadiene	"	"		"	"
2,4,6-Trichlorophenol	"	"		"	"
2,4,5-Trichlorophenol	"	"		"	"
2-Chloronaphthalene	"	"		"	"
Dimethylphthalate	"	"		"	"
2,6-Dinitrotoluene	"	"		"	"
Acenaphthylene	"	"		"	"
3-Nitroaniline	"	"		"	"
Acenaphthene	"	"		"	"
2,4-Dinitrophenol	"	40		"	"
Dibenzofuran	"	10		"	"
2-Nitroaniline	"	"		"	"
2,4-Dinitrotoluene	"	"			
4-Nitrophenol	"	40		"	"
Diethylphthalate	"	10		"	"
4-Chlorophenyl-phenylether	"	"		"	"
Fluorene	"	"		"	"
4-Nitroaniline	"	"		"	"
4,6-Dinitro-2-methylphenol	"	40		"	"
N-Nitrosodiphenylamine	"	10		"	"
1,2-Diphylhydrazine	"	"		"	"
4-Bromophenyl-phenylether	"	"		"	"

* Below Quantifiable Limits

Denise R. Tuhovak
Organics Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: TCL SEMI-VOLATILES

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

Analytical Parameter(s)	Method No.	Quant. Limits	AES Lab No.-	2706	2708
			Sample ID -	BW-4 GRAB	TRIP BLANK GRAB
			Sample Date-	3/27/91	3/27/91
Hexachlorbenzene	8270	10		BQL *	BQL
Pentachlorophenol	"	40		"	"
Phenanthrene	"	10		"	"
Anthracene	"	"		"	"
Di-n-Butylphthalate	"	"		"	"
Fluoranthene	"	"		"	"
Benzidine	"	40		"	"
Pyrene	"	10		"	"
Butylbenzylphthalate	"	"		"	"
3,3-Dichlorobenzidine	"	40		"	"
Benzo(a)Anthracene	"	10		"	"
bis(2-ethylhexyl)Phthalate	"	20		"	"
Chrysene	"	10		"	"
Di-n-octylphthalate	"	"		"	"
Benzo(b)fluoranthene	"	"		"	"
Benzo(k)fluoranthene	"	"		"	"
Benzo(a)pyrene	"	"		"	"
Indeno(1,2,3-cd)pyrene	"	"		"	"
Dibenzo(a,h)anthracene	"	"		"	"
Benzo(g,h,i)perylene	"	"		"	"

* Below Quantifiable Limits

Denise R. Tuhovak
Organics Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: TCL VOLATILES

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

Analytical Parameter(s)	Method No.	Quant. Limits	AES Lab No.-	2706	2708
			Sample ID -	BW-4 GRAB	TRIP BLANK GRAB
			Sample Date-	3/27/91	3/27/91
Chloromethane	8240	5.0		BQL *	BQL
Vinyl Chloride	"	"		300	"
Chloroethane	"	"		BQL	"
Bromomethane	"	"		"	"
Acetone	"	50		150 **	2,000**
1,1-Dichloroethene	"	5.0		6.9	BQL
Carbon Disulfide	"	"		BQL	"
Methylene Chloride	"	"		"	"
trans-1,2-Dichlorethene	"	"		5.6	"
1,1-Dichloroethane	"	"		BQL	"
Vinyl acetate	"	"		"	"
2-Butanone	"	50		"	"
Chloroform	"	5.0		"	"
1,1,1-Trichloroethane	"	"		"	"
Carbon Tetrachloride	"	"		"	"
Benzene	"	"		"	"
1,2-Dichloroethane	"	"		"	"
Trichloroethene	"	"		280	"
1,2-Dichloropropane	"	"		BQL	"
Bromodichloromethane	"	"		"	"
2-Chloroethyl vinyl ether	"	"		"	"
4-Methyl-2-pentanone	"	50		"	"
cis-1,3-Dichloropropene	"	5.0		"	"
Toluene	"	"		"	"
trans-1,3-Dichloropropene	"	"		"	"
1,1,2-Trichloroethane	"	"		"	"
Tetrachloroethene	"	"		260	"

Denise R. Tuhovak

Denise R. Tuhovak
Organics Supervisor

* Below Quantifiable Limits
** See Narrative

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: TCL VOLATILES

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

Analytical Parameter(s)	Method No.	Quant. Limits	AES Lab No.-	2706	2708
			Sample ID -	BW-4 GRAB	TRIP BLANK GRAB
			Sample Date-	3/27/91	3/27/91
Chlorodibromomethane	8240	5.0		BQL *	BQL
Chlorobenzene	"	"		"	"
Ethylbenzene	"	"		"	"
Bromoform	"	"		"	"
1,1,2,2-Tetrachloroethane	"	"		"	"
2-Hexanone	"	50		"	"
m/p-Xylene	"	5.0		"	"
o-Xylene	"	"		"	"
Styrene	"	"		"	"

* Below Quantifiable Limits

Denise R. Tuhovak
Organics Supervisor

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

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

Analytical Parameters	Sample No.	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
Vinyl Chloride * (8240)	2706	310	280	300	30	10
Trichloroethene * (8240)	"	300	270	280	30	11
Tetrachloroethene * (8240)	"	270	250	260	20	8
Hexachlorobutadiene ** (8270)	"	36	39	38	3	8

Relative Percent Difference =
Range/Average X 100

* Diluted sample was duplicated, all others BQL

** All other analytes BQL

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

Type of Analysis: Matrix Spikes and E.P.A. Standards
Client: UNION CARBIDE CORP. 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	2706 ***	SPK	22.5	<50	20.0	112
Benzene	"	"	19.7	<50	"	98
Trichloroethene	"	"	48.4	2.82	"	101
Toluene	"	"	22.2	<50	"	111
Chlorobenzene	"	"	18.5	<50	"	92
Phenol	2706	SPK	25.9	BQL **	80	32
2-Chlorophenol	"	"	48.1	"	"	60
1,4-Dichlorobenzene	"	"	23.5	"	40	59
N-Nitrosodipropylamine	"	"	24.7	"	"	62
1,2,4-Trichlorobenzene	"	"	26.8	"	"	67
4-Chloro-3-Methylphenol	"	"	58.8	"	80	73
Acenaphthene	"	"	25.7	"	40	64
4-Nitrophenol	"	"	27.9	"	80	35
2,4-Dinitrophenol	"	"	29.8	"	40	75
Pentachlorophenol	"	"	105	"	80	131
Pyrene	"	"	26.6	"	40	66

* % Recovery=100 x ((Observed Conc. - "background" Original Conc.)/"Spike" Added Conc.)
** Below Quantifiable Limits
*** Diluted sample was spiked

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: TCL VOLATILES

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

Analytical Parameter(s)	Method No.	Quant. Limits	AES Lab No.-	2713	2714
			Sample ID -	BW-6	BLIND DUP (BW-6)
			Sample Date-	GRAB 03/28/91	GRAB 03/28/91
Chloromethane	8240	5.0		BQL *	BQL
Vinyl Chloride	"	"		"	"
Chloroethane	"	"		"	"
Bromomethane	"	"		"	"
Acetone	"	50		1800 **	1800 **
1,1-Dichloroethene	"	5.0		BQL	BQL
Carbon Disulfide	"	"		"	"
Methylene Chloride	"	"		"	"
trans-1,2-Dichloroethene	"	"		"	"
1,1-Dichloroethane	"	"		"	"
Vinyl acetate	"	"		"	"
2-Butanone	"	50		"	"
Chloroform	"	5.0		"	"
1,1,1-Trichloroethane	"	"		"	"
Carbon Tetrachloride	"	"		"	"
Benzene	"	"		"	"
1,2-Dichloroethane	"	"		"	"
Trichloroethene	"	"		"	"
1,2-Dichloropropane	"	"		"	"
Bromodichloromethane	"	"		"	"
2-Chloroethyl vinyl ether	"	"		"	"
4-Methyl-2-pentanone	"	50		"	"
cis-1,3-Dichloropropene	"	5.0		"	"
Toluene	"	"		"	"
trans-1,3-Dichloropropene	"	"		"	"
1,1,2-Trichloroethane	"	"		"	"
Tetrachloroethene	"	"		"	"

* Below Quantifiable Limit.
** See narrative

Denise R. Tuhovak
Organics Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: TCL VOLATILES

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

Analytical Parameter(s)	Method No.	Quant. Limits	AES Lab No.-	2713	2714
			Sample ID -	BW-6	BLIND DUP (BW-6)
			Sample Date-	GRAB 03/28/91	GRAB 03/28/91
Ethylbenzene	8240	5.0		BQL *	BQL
Bromoform	"	"		"	"
1,1,2,2-Tetrachloroethane	"	"		"	"
2-Hexanone	"	50		"	"
m/p-Xylene	"	5.0		"	"
o-Xylene	"	"		"	"
Styrene	"	"		"	"
Chlorodibromomethane	"	"		"	"
Chlorobenzene	"	"		"	"

* Below Quantifiable Limit.

Denise R. Tuhovak
Organics Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: TCL SEMI-VOLATILES

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

Analytical Parameter(s)	Method No.	Quant. Limits	AES Lab No.-	2713	2714
			Sample ID -	BW-6	BLIND DUP (BW-6)
			Sample Date-	GRAB 03/28/91	GRAB 03/28/91
N-Nitrosodimethylamine	8270	10		BQL *	BQL
Aniline	"	"		"	"
Phenol	"	"		"	"
Bis(2-Chloroethyl) ether	"	"		"	"
1,3-Dichlorobenzene	"	"		"	"
1,4-Dichlorobenzene	"	"		"	"
Benzyl Alcohol	"	"		"	"
1,2-Dichlorobenzene	"	"		"	"
2-Methylphenol	"	"		"	"
bis(2-Chloroispropyl)ether	"	"		"	"
4-Methylphenol	"	"		"	"
N-Nitrosodinpropylamine	"	"		"	"
Hexachloroethane	"	"		"	"
Nitrobenzene	"	"		"	"
Isophorone	"	"		"	"
2-Nitrophenol	"	"		"	"
2,4-Dimethylphenol	"	"		"	"
Bis(2-Chloroethoxy)methane	"	"		"	"
Benzoic Acid	"	"		"	"
2,4-Dichlorophenol	"	"		"	"
1,2,4-Trichlorobenzene	"	"		"	"
Naphthalene	"	"		"	"
4-Chloroaniline	"	"		"	"
Hexachlorobutadiene	"	"		"	"
2-Chlorophenol	"	"		"	"

Denise R. Tuhovak
Denise R. Tuhovak
Organics Supervisor

* Below Quantifiable Limit.

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: TCL SEMI-VOLATILES

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

Analytical Parameter(s)	Method No.	Quant. Limits	AES Lab No.-	2713	2714
			Sample ID -	BW-6	BLIND DUP (BW-6)
			Sample Date-	GRAB 03/28/91	GRAB 03/28/91
4-Chloro-3-Methylphenol	8270	10		BQL *	BQL
2-Methylnaphthalene	"	"		"	"
Hexachlorocyclopentadiene	"	"		"	"
2,4,6-Trichlorophenol	"	"		"	"
2,4,5-Trichlorophenol	"	"		"	"
2-Chloronaphthalene	"	"		"	"
2-Nitroaniline	"	"		"	"
Dimethylphthalate	"	"		"	"
2,6-Dinitrotoluene	"	"		"	"
Acenaphthylene	"	"		"	"
3-Nitroaniline	"	"		"	"
Acenaphthene	"	"		"	"
2,4-Dinitrophenol	"	40		"	"
Dibenzofuran	"	10		"	"
2,4-Dinitrotoluene	"	"		"	"
4-Nitrophenol	"	40		"	"
Diethylphthalate	"	10		"	"
4-Chlorophenyl-phenylether	"	"		"	"
Fluorene	"	"		"	"
4-Nitroaniline	"	"		"	"
4,6-Dinitro-2-methylphenol	"	40		"	"
N-Nitrosodiphenylamine	"	10		"	"
1,2-Diphenylhydrazine	"	"		"	"
Bromophenyl-phenylether	"	"		"	"

Denise R. Tuhovak

Denise R. Tuhovak
Organics Supervisor

* Below Quantifiable Limit.

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

Type of Analysis: TCL SEMI-VOLATILES

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

Analytical Parameter(s)	Method No.	Quant. Limits	AES Lab No.-	2713	2714
			Sample ID -	BW-6	BLIND DUP (BW-6)
			Sample Date-	GRAB 03/28/91	GRAB 03/28/91
Hexachlorbenzene	8270	10		BQL *	BQL
Pentachlorophenol	"	40		"	"
Phenanthrene	"	10		"	"
Anthracene	"	"		"	"
Di-n-Butylphthalate	"	"		"	"
Fluoranthene	"	"		"	"
Benzidine	"	40		"	"
Pyrene	"	10		"	"
Butylbenzylphthalate	"	"		"	"
3,3-Dichlorobenzidine	"	40		"	"
Benzo(a)Anthracene	"	10		"	"
bis(2-ethylhexyl)Phthalate	"	20		"	"
Chrysene	"	10		"	"
Di-n-octylphthalate	"	"		"	"
Benzo(b)fluoranthene	"	"		"	"
Benzo(k)fluoranthene	"	"		"	"
Benzo(a)pyrene	"	"		"	"
Indeno(1,2,3-cd)pyrene	"	"		"	"
Dibenzo(a,h)anthracene	"	"		"	"
Benzo(g,h,i)perylene	"	"		"	"
	"	"		"	"

Denise R. Tuhovak
Denise R. Tuhovak
Organics Supervisor

* Below Quantifiable Limit.

ADVANCED ENVIRONMENTAL SEVICES, Inc.
EXTRACTION TRACEABILITY REPORT
INORGANICS REPORT

A.E.S. Job Code: CTC A.E.S. Job Number: 911053

TECHNICIAN	ANALYTICAL METHOD	SAMPLE CODE(S)	DATE OF EXTRACTION
Lina Mull	8270	2706, 2708	4/2/91

AES ORGANIC DEPARTMENT TRACEABLITY

JOB CODE: CTC

Technician Signature	AES Sample #'s	Method	Date of Analysis
[signature]	2706, 2708	8270	4/5/91
[signature]	2706, 2708	8270	4/9/91

ADVANCED ENVIRONMENTAL SEVICES, Inc.
EXTRACTION TRACEABILITY REPORT
INORGANICS REPORT

A.E.S. Job Code: CTC A.E.S. Job Number: 911054

TECHNICIAN	ANALYTICAL METHOD	SAMPLE CODE(S)	DATE OF EXTRACTION
Lisa Mull	8270	2713,2714	4/2/91

AES ORGANIC DEPARTMENT TRACEABLITY

JOB CODE: CTC

Technician Signature	AES Sample #'s	Method	Date of Analysis
Jim Fuyl	2713, 2714	8240	4/8/91
Jim Fuyl	2713, 2714	8270	4/9/91

CHAIN OF CUSTODY RECORD

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

PROJECT NAME: Union Carbide Wells

SAMPLER'S SIGNATURE: Mike Clamp

JOB CODE: CTC

IDENTIFICATION OF BLIND FIELD DUPLICATE SITE: N/T

DATE	TIME	SAMPLE IDENTIFICATION	GRAB	COMP	SAMPLE TYPE	CONTAINER CLASSIFICATION: UNPRESERVED	HNO3	H2SO4	HCL	NAOH	VIAL (PRES.)	VIAL (UNPRES.)	TOTAL	PARAMETERS/REMARKS
3/27/91	11:25	BW-1	X		Groundwater		2	1					3	Ammo, Nitrite, TKN, Total
	16:00	BW-5					2	1					3	Sol metals.
	16:30	BW-3					2	1					3	
	9.00	Trip Blank			D.I. WATER	1	1	1			2		5	Ammonia, Nitrite, TKN, Total
	14:30	BW-4			Groundwater	3	2	2			3		10	& Sol metals, TCLSV, TCLV
														Note No Sol metals for the trip blank

TOTAL NUMBER OF CONTAINERS 24

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

	DATE	TIME	RECEIVED BY:
1. RELINQUISHED BY: Mike Clamp	3-27-91	5:40 pm	Kim Kusick
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

CHAIN OF CUSTODY RECORD

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

PROJECT NAME: Union Carbide

SAMPLER'S SIGNATURE: [signature]

JOB CODE: CTC

IDENTIFICATION OF BLIND FIELD DUPLICATE SITE: BW-6

DATE	TIME	SAMPLE IDENTIFICATION	GRAB	COMP	SAMPLE TYPE	CONTAINER CLASSIFICATION: UNPRESERVED	HNO3	H2SO4	HCL	NAOH	VIAL (PRES.)	VIAL (UNPRES.)	TOTAL	PARAMETERS/REMARKS
3/28/91	14:20	MW-1	X		Groundwater		2	1					3	Ammonia, Nitrite, TKN Total
	11:50	MW-2					2	1					3	& Sol metals
	14:55	MW-3					2	1					3	
	11:10	BW-2					2	1					3	
	15:30	Blind Dup				1	2	1			2		6	Same as above plus
	15:30	BW-6				1	2	1			2		6	TCLSV, TCLV

TOTAL NUMBER OF CONTAINERS 24

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

	DATE	TIME	RECEIVED BY:
1. RELINQUISHED BY: [signature]	3/28/91	5:00pm	Gerald & Tom
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY: