



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

August 3, 1990

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

1. DW-4
2. MM - H. H. H.
3. PLT: 32403
10. H. H. H.
11. H. H. H.
12. H. H. H.

Dear Mr. Mitrey:

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

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

<u>Sampling Date</u>	<u>Contaminate</u>	<u>Concentration ppb</u>
7/88	Hexachlorobutadine	13
3/89	Hexachlorobutadine	150
6/89	Hexachlorobutadine	22
9/89	Hexachlorobutadine	29
12/89	Hexachlorobutadine	10
3/90	Hexachlorobutadine	19
6/90	Hexachlorobutadine	37
11/88	Trichloroethylene	30
3/89	Trichloroethylene	570
6/89	Trichloroethylene	740
9/89	Trichloroethylene	350
12/89	Trichloroethylene	320
3/90	Trichloroethylene	290
6/90	Trichloroethylene	270
9/89	Vinyl Chloride	34
12/89	Vinyl Chloride	44
3/90	Vinyl Chloride	250
6/90	Vinyl Chloride	29
9/89	Chloroform	5.5
12/89	Chloroform	5.5
7/88	1,1,2,2-Tetrachloroethylene	44
11/89	1,1,2,2-Tetrachloroethylene	1300
3/89	1,1,2,2-Tetrachloroethylene	1600
6/89	1,1,2,2-Tetrachloroethylene	1500
9/89	1,1,2,2-Tetrachloroethylene	510
12/89	1,1,2,2-Tetrachloroethylene	380
3/90	Tetrachloroethylene	300
6/90	Tetrachloroethylene	290

Mr. Robert J. Mitrey
August 3, 1990
Page 2

As discussed in previous reports BW-4-86 well is located upgradient of the bulk of the Republic Solid Waste Management Facility fill in regards to the overburden groundwater flow direction; therefore, any contamination in the overburden at this location may, in fact, be originating off-site to the north.

We do not feel that this contamination at BW-4-86 well 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,

UCAR CARBON COMPANY, INC.



R.A. Bolton
Manager, HS & EA

RAB:nr

cc: Mr. Jim Devald, Sr. Public Health Engineer
Niagara County Health Department

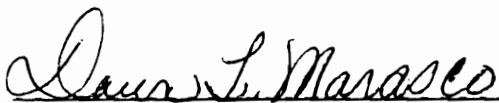
Mr. Dave O'Tool
New York Department of Environmental Conservation

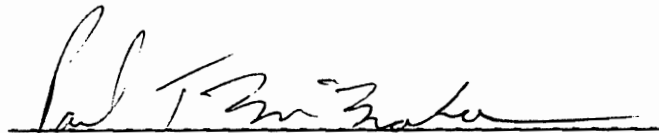
Mr. A.C. Ogg



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

Report Prepared For
UNION CARBIDE CORPORATION
CARBON PRODUCTS DIVISION


Dawn T. Marasco
Project Manager


Paul T. McMahon
Quality Control Officer

July 19, 1990
AES Report CTC

COMMITMENT
TO
HONESTY - QUALITY - SERVICE

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. -	6060	6061	6062
			Sample ID -	BW-1	BW-2	MW-3
			Sample Date-	GRAB 06/21/90	GRAB 06/21/90	GRAB 06/21/90
Ammonia (as N) (mg/l)	350.1	0.01		0.32	0.90	0.04
Nitrite (mg/l)	353.2	0.01		0.02	BQL *	0.01
Total Kjeldahl Nitrogen(mg/l)	351.2	0.1		0.4	1.2	BQL **

* Below Quantifiable Limits.
** See comment page please.



Gary L. Amato
Technical Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

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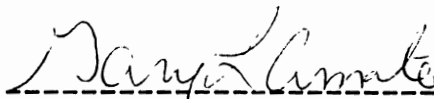
Type of Analysis: INORGANICS

Client: UNION CARBIDE

A.E.S. JOB CODE CTC

Analytical Parameter(s)	Method No.	Quant. Limits	AES Lab No. -	6063	6064
			Sample ID -	BW-5	TRIP BLANK
			Sample Date-	GRAB 06/21/90	GRAB 06/21/90
Ammonia (as N) (mg/l)	350.1	0.01		0.07	BQL *
Nitrite (mg/l)	353.2	0.01		BQL	BQL
Total Kjeldahl Nitrogen(mg/l)	351.2	0.1		0.1	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 A.E.S. Job Code: CTC

Analytical Parameters	Sample No.	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
Nitrite	6063	BQL *	BQL	BQL	NA **	NA
Total Kjeldahl Nitrogen	6061	1.2	1.2	1.2	0	0
Ammonia	6062	0.05	0.03	0.04	0.02	50

Relative Percent Difference =
Range/Average X 100

* Below Quantifiable Limits.

** Not Available.

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

=====

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

(Units:mg/l or ppm)

Analytical Parameters	Sample No.	Type	Observed Conc.	Original Conc.	Added Conc.	Percent Recovery*
Nitrite	6063	SPK	0.25	BQL **	0.25	100
Total Kjeldahl Nitrogen	6061	SPK	4.1	1.2	3.0	97
Total Kjeldahl Nitrogen	---	EPA	5.90	5.28	---	112
Ammonia	6062	SPK	0.54	0.04	0.50	100
Ammonia	---	EPA	1.91	2.00	---	96

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

** Below Quantifiable Limits.

JOB CODE: CTC

SAMPLE NUMBER: 6060-64

COMPANY:UNION CARBIDE

COMMENT: Upon analysis, sample MW-3 was found to contain Total Kjeldahl Nitrogen. However, due to the limited sensitivity of this parameter we are only able to quantify at 0.1 ppm of TKN.

AES ORGANIC DEPARTMENT TRACEABILITY
JOB CODE: CTC

Technician
Signature

AES
Sample #

Method

Date of
Analysis

T. Skov

6060-64

353.2

6-26-98

T. Skov

6060-64

351.2

6-28-98

T. Skov

6060-64

350.1

7-3-90

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. -	6084	6085	6086	6087
			Sample ID -	BW-3	BW-6	BW-4	BLIND DUP GRAB
			Sample Date-	GRAB 06/22/90	GRAB 06/22/90	GRAB 06/22/90	GRAB 06/22/90
Ammonia (as N) (mg/l)	350.1	0.01		1.55	0.23	4.60	4.70
Nitrite (mg/l)	353.2	0.01		0.01	BQL *	BQL	BQL
Total Kjeldahl Nitrogen(mg/l)	351.2	0.1		1.8	0.9	5.6	6.2

* 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 A.E.S. Job Code:CTC

Analytical Parameters	Sample No.	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
Nitrite	6085	BQL *	BQL	BQL	NA **	NA
Total Kjeldahl Nitrogen	6084	1.9	1.6	1.8	0.3	17
Ammonia	6087	4.60	4.80	4.70	0.20	4.2

Relative Percent Difference =
Range/Average X 100

* Below Quantifiable Limits.

** Not Available.

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

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

(Units:mg/l or ppm)

Analytical Parameters	Sample No.	Type	Observed Conc.	Original Conc.	Added Conc.	Percent Recovery*
Nitrite	6085	SPK	0.26	BQL **	0.25	104
Total Kjeldahl Nitrogen	6084	SPK	4.0	1.8	2.0	110
Total Kjeldahl Nitrogen	---	EPA	5.90	5.28	---	112
Ammonia	6087	SPK	30.5	4.70	25.0	103
Ammonia	---	EPA	1.91	2.00	---	96

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

** Below Quantifiable Limits.

JOB CODE: CTC

Technician
Signature

AES
Sample #

Method

Date of Analysis

T. A. Kov

6084-87

353.2

6-26-90

J. A. Kou

6084-87

351.2

6-28-90

T. Moore

6084-87

350.1

7-3-90

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

=====

Type of Analysis: INORGANICS .

Client: UNION CARBIDE

A.E.S. Job Code CTC

(All results are in mg/l)

			AES Lab No. -	6060	6061	6062
			Sample ID -	BW-1	BW-2	MW-3
				GRAB	GRAB	GRAB
Analytical Parameter(s)	Method No.	Quant. Limits	Sample Date-	6/21/90	6/21/90	6/21/90
Total Iron (Fe)	236.1	0.30		2.18	2.19	0.88
Soluble Iron (Fe)	236.1	0.30		1.60	2.05	BQL*
Total Potassium (K)	258.1	1.00		2.76	7.57	1.34
Soluble Potassium (K)	258.1	1.00		2.76	7.53	1.26
Total Zinc (Zn)	289.1	0.05		0.64	0.74	BQL
Soluble Zinc (Zn)	289.1	0.05		0.10	0.14	BQL

* Below Quantifiable Limits

Gary L. Amato

Gary L. Amato
Technical Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

=====
Type of Analysis: INORGANICS

Client: UNION CARBIDE

A.E.S. Job Code CTC

(All results are in mg/l)

			AES Lab No. -	6063	6064
			Sample ID -	BW-5	TRIP
				GRAB	BLANK
Analytical	Method	Quant.	Sample Date-	6/21/90	6/21/90
Parameter(s)	No.	Limits			
Total Iron (Fe)	236.1	0.30		3.90	BQL*
Soluble Iron (Fe)	236.1	0.30		0.53	N/A**
Total Potassium (K)	258.1	1.00		2.35	BQL
Soluble Potassium (K)	258.1	1.00		2.34	N/A
Total Zinc (Zn)	289.1	0.05		0.26	BQL
Soluble Zinc (Zn)	289.1	0.05		0.11	N/A

* Below Quantifiable Limits
** Not Applicable



Gary L. Amato
Technical Supervisor

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

=====

Type of Analysis: INORGANICS.

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

(All results are in mg/l)

			AES Lab No. -	6084	6085	6086	6087
			Sample ID -	BW-3	BW-6	BW-4	BLIND
				GRAB	GRAB	GRAB	DUP
Analytical	Method	Quant.	Sample Date-	6/22/90	6/22/90	6/22/90	6/22/90
Parameter(s)	No.	Limits					GRAB
Total Iron (Fe)	236.1	0.30		122	61.6	3.48	3.34
Soluble Iron (Fe)	236.1	0.30		1.44	13.8	2.68	3.04
Total Potassium (K)	258.1	1.00		8.28	4.09	24.0	23.7
Soluble Potassium (K)	258.1	1.00		7.90	3.62	23.6	23.7
Total Zinc (Zn)	289.1	0.05		8.00	0.19	0.29	0.14
Soluble Zinc (Zn)	289.1	0.05		0.45	0.08	0.08	0.07



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 A.E.S. Job Code:CTC

Analytical Parameters	Sample No.	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
Soluble Iron	6060	1.59	1.62	1.60	0.03	1.9
Soluble Iron	6084	1.46	1.43	1.44	0.03	2.1
Soluble Potassium	6060	2.77	2.76	2.76	0.01	0.4
Soluble Potassium	6084	7.92	7.88	7.90	0.04	0.5
Soluble Zinc	6060	0.09	0.11	0.10	0.02	20
Soluble Zinc	6084	0.45	0.45	0.45	0	0

Relative Percent Difference =
Range/Average X 100

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

=====

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

(Units:mg/l or ppm)

Analytical Parameters	Sample No.	Type	Observed Conc.	Original Conc.	Added Conc.	Percent Recovery*
Soluble Iron	6060	SPK	6.84	1.60	5.00	105
Soluble Iron	6084	SPK	6.60	1.44	5.00	103
EPA (Fe) STD	988	EPA	1.01	1.00	---	101
Soluble Potassium	6060	SPK	23.0	2.76	20.0	101
Soluble Potassium	6084	SPK	26.2	7.90	20.0	92
IND (K) STD		STD	10.3	10.0	---	103
Soluble Zinc	6060	SPK	1.10	0.10	1.00	100
Soluble Zinc	6084	SPK	1.34	0.45	1.00	89
EPA (Zn) STD	989	STD	0.50	0.50	---	100

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

Mark Morris

6060-64; 6084-87

236.1

6-27-90

6060-64; 6084-87

6-27-90

6060-64: 6084-87

7-5-90

6060-64

6-29-90

6084-87

7-5-90

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.- Sample ID -	6085 BW-6 GRAB	6086 BW-4 GRAB	6064 TRIP BLANK GRAB
			Sample Date-	6/22/90	6/22/90	6/21/90
Chloromethane	8240	10		BQL*	BQL	BQL
Vinyl Chloride	"	"		BQL	29	BQL
Chloroethane	"	"		BQL	BQL	BQL
Bromomethane	"	"		BQL	BQL	BQL
2-Chloroethylvinylether	"	"		BQL	BQL	BQL
Ethylbenzene	"	5.0		BQL	BQL	BQL
Methylene Chloride	"	"		BQL	BQL	BQL
Chlorobenzene	"	"		BQL	BQL	BQL
1,1-Dichloroethylene	"	"		BQL	BQL	BQL
1,1-Dichloroethane	"	"		BQL	BQL	BQL
trans-1,2-Dichloroethylene	"	"		BQL	BQL	BQL
Chloroform	"	"		BQL	BQL	BQL
1,2-Dichloroethane	"	"		BQL	BQL	BQL
1,1,1-Trichloroethane	"	"		BQL	BQL	BQL
Carbon Tetrachloride	"	"		BQL	BQL	BQL
Bromodichloromethane	"	"		BQL	BQL	BQL
1,2-Dichloropropane	"	"		BQL	BQL	BQL
trans-1,3-Dichloropropene	"	"		BQL	BQL	BQL
Trichloroethylene	"	"		BQL	270	BQL
Benzene	"	"		BQL	BQL	BQL
cis-1,3-Dichloropropene	"	"		BQL	BQL	BQL
1,1,2-Trichloroethane	"	"		BQL	BQL	BQL
Dibromochloromethane	"	"		BQL	BQL	BQL

* Below Quantifiable Limits

Wayne J. Juda
Organics 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.- Sample ID -	6085 BW-6 GRAB	6086 BW-4 GRAB	6064 TRIP BLANK GRAB
			Sample Date-	6/22/90	6/22/90	6/21/90
Bromoform	8240	5.0		BQL*	BQL	BQL
Tetrachloroethylene	"	"		BQL	290	BQL
1,1,2,2-Tetrachloroethane	"	"		BQL	BQL	BQL
Toluene	"	"		BQL	BQL	BQL
Acetone	"	50		BQL	BQL	BQL
Carbon Disulfide	"	5.0		BQL	BQL	BQL
2-Butanone	"	50		BQL	BQL	BQL
Vinyl Acetate	"	"		BQL	BQL	BQL
2-Hexanone	"	"		BQL	BQL	BQL
4-Methyl-2-Pentanone	"	"		BQL	BQL	BQL
Styrene	"	5.0		BQL	BQL	BQL
o-Xylene	"	"		BQL	BQL	BQL
m/p-Xylene	"	"		BQL	BQL	BQL

* Below Quantifiable Limits

Wayne J. Juda

Wayne J. Juda
Organics 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.- Sample ID -	6085 BW-6 GRAB	6086 BW-4 GRAB	6064 TRIP BLANK GRAB
			Sample Date-	6/22/90	6/22/90	6/21/90
Bis(2-Chloroethyl) Ether	8270	10		BQL*	BQL	BQL
1,3-Dichlorobenzene	"	"		BQL	BQL	BQL
1,4-Dichlorobenzene	"	"		BQL	BQL	BQL
1,2-Dichlorobenzene	"	"		BQL	BQL	BQL
Bis(2-Chloroisopropyl) Ether	"	"		BQL	BQL	BQL
Hexachloroethane	"	"		BQL	BQL	BQL
N-Nitrosodi-N-Propylamine	"	"		BQL	BQL	BQL
Nitrobenzene	"	"		BQL	BQL	BQL
Isophorone	"	"		BQL	BQL	BQL
Bis(2-Chloroethoxy)Methane	"	"		BQL	BQL	BQL
1,2,4-Trichlorobenzene	"	"		BQL	BQL	BQL
Naphthalene	"	"		BQL	BQL	BQL
Hexachlorobutadiene	"	"		BQL	37	BQL
Hexachlorocyclopentadiene	"	"		BQL	BQL	BQL
2-Chloronaphthalene	"	"		BQL	BQL	BQL
Dimethylphthalate	"	"		BQL	BQL	BQL
Acenaphthylene	"	"		BQL	BQL	BQL
2,6-Dinitrotoluene	"	"		BQL	BQL	BQL
Acenaphthene	"	"		BQL	BQL	BQL
2,4-Dinitrotoluene	"	"		BQL	BQL	BQL
Diethylphthalate	"	"		BQL	BQL	BQL
N-Nitrosodimethylamine	"	"		BQL	BQL	BQL

* Below Quantifiable Limits

Wayne J. Juda
Organics 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.- Sample ID -	6085 BW-6 GRAB	6086 BW-4 GRAB	6064 TRIP BLANK GRAB
			Sample Date-	6/22/90	6/22/90	6/21/90
Fluorene	8270	10		BQL*	BQL	BQL
4-Chlorophenylphenylether	"	"		BQL	BQL	BQL
N-Nitrosodiphenylamine	"	"		BQL	BQL	BQL
4-Bromophenylphenylether	"	"		BQL	BQL	BQL
Hexachlorobenzene	"	"		BQL	BQL	BQL
Phenanthrene	"	"		BQL	BQL	BQL
Anthracene	"	"		BQL	BQL	BQL
Di-N-Butylphthalate	"	"		BQL	BQL	BQL
Fluoranthene	"	"		BQL	BQL	BQL
Benzidine	"	30		BQL	BQL	BQL
Pyrene	"	10		BQL	BQL	BQL
Butylbenzylphthalate	"	"		BQL	BQL	BQL
Benzo(a) Anthracene	"	"		BQL	BQL	BQL
3,3'-Dichlorobenzidine	"	20		BQL	BQL	BQL
Chrysene	"	10		BQL	BQL	BQL
Bis(2-Ethylhexyl) Phthalate	"	20		38	BQL	BQL
Di-N-Octylphthalate	"	10		BQL	BQL	BQL
Benzo(b) Fluoranthene	"	"		BQL	BQL	BQL
Benzo(k) Fluoranthene	"	"		BQL	BQL	BQL
Benzo(a) Pyrene	"	"		BQL	BQL	BQL
Indeno(1,2,3-cd) Pyrene	"	"		BQL	BQL	BQL
Dibenz(a,h) Anthracene	"	"		BQL	BQL	BQL
Benzo(g,h,i) Perylene	"	"		BQL	BQL	BQL
1,2-Diphenylhydrazine	"	"		BQL	BQL	BQL

* Below Quantifiable Limits

Wayne J. Juda
Organics 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.- Sample ID -	6085 BW-6 GRAB	6086 BW-4 GRAB	6064 TRIP BLANK GRAB
			Sample Date-	6/22/90	6/22/90	6/22/90
Phenol	8270	10		BQL*	BQL	BQL
2-Chlorophenol	"	"		BQL	BQL	BQL
2-Nitrophenol	"	"		BQL	BQL	BQL
2,4-Dimethylphenol	"	"		BQL	BQL	BQL
4-Chloro-3-Methylphenol	"	20		BQL	BQL	BQL
2,4,6-Trichlorophenol	"	10		BQL	BQL	BQL
2,4-Dinitrophenol	"	50		BQL	BQL	BQL
4-Nitrophenol	"	"		BQL	BQL	BQL
4,6-Dinitro-2-Methylphenol	"	"		BQL	BQL	BQL
Pentachlorophenol	"	"		BQL	BQL	BQL
2,4-Dichlorophenol	"	10		BQL	BQL	BQL
4-Methylphenol	"	"		BQL	BQL	BQL
Benzoic Acid	"	50		BQL	BQL	BQL
2,4,5-Trichlorophenol	"	10		BQL	BQL	BQL
3-Nitroniline	"	50		BQL	BQL	BQL
Dibenzofuran	"	10		BQL	BQL	BQL
4-Nitroaniline	"	50		BQL	BQL	BQL
2-Methylphenol	"	10		BQL	BQL	BQL
2-Methylnaphthalene	"	"		BQL	BQL	BQL
Aniline	"	"		BQL	BQL	BQL
Benzyl Alcohol	"	20		BQL	BQL	BQL
4-Chloroaniline	"	"		BQL	BQL	BQL
2-Nitroaniline	"	50		BQL	BQL	BQL

* Below Quantifiable Limits

Wayne J. Juda
Organics Supervisor

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

=====

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

Analytical Parameters	Sample Code	Original Conc.	Duplicate Conc.	Average Conc.	Range	Rel. % Difference
Chloromethane	6085	<10	<10	<10	None	None
Vinyl Chloride	6085	<10	<10	<10	None	None
Chloroethane	6085	<10	<10	<10	None	None
Bromomethane	6085	<10	<10	<10	None	None
2-Chloroethylvinyl Ether	6085	<10	<10	<10	None	None
Ethylbenzene	6085	<5.0	<5.0	<5.0	None	None
Methylene Chloride	6085	<5.0	<5.0	<5.0	None	None
Chlorobenzene	6085	<5.0	<5.0	<5.0	None	None
1,1-Dichloroethylene	6085	<5.0	<5.0	<5.0	None	None
1,1-Dichloroethane	6085	<5.0	<5.0	<5.0	None	None
trans-1,2-Dichloroethylene	6085	<5.0	<5.0	<5.0	None	None
Chloroform	6085	<5.0	<5.0	<5.0	None	None
1,2-Dichloroethane	6085	<5.0	<5.0	<5.0	None	None
1,1,1-Trichloroethane	6085	<5.0	<5.0	<5.0	None	None
Carbon Tetrachloride	6085	<5.0	<5.0	<5.0	None	None
Bromodichloromethane	6085	<5.0	<5.0	<5.0	None	None
1,2-Dichloropropane	6085	<5.0	<5.0	<5.0	None	None
trans-1,3-Dichloropropene	6085	<5.0	<5.0	<5.0	None	None
Trichloroethylene	6085	<5.0	<5.0	<5.0	None	None
Benzene	6085	<5.0	<5.0	<5.0	None	None
cis-1,3-Dichloropropene	6085	<5.0	<5.0	<5.0	None	None
1,1,2-Trichloroethane	6085	<5.0	<5.0	<5.0	None	None
Dibromochloromethane	6085	<5.0	<5.0	<5.0	None	None
Bromoform	6085	<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
Tetrachloroethylene	6085	<5.0	<5.0	<5.0	None	None
1,1,2,2-Tetrachloroethane	6085	<5.0	<5.0	<5.0	None	None
Toluene	6085	<5.0	<5.0	<5.0	None	None
Acetone	6085	<50	<50	<50	None	None
Carbon Disulfide	6085	<5.0	<5.0	<5.0	None	None
2-Butanone	6085	<50	<50	<50	None	None
Vinyl Acetate	6085	<50	<50	<50	None	None
2-Hexanone	6085	<50	<50	<50	None	None
4-Methyl-2-Pentanone	6085	<50	<50	<50	None	None
Styrene	6085	<5.0	<5.0	<5.0	None	None
o-Xylene	6085	<5.0	<5.0	<5.0	None	None
m/p-Xylene	6085	<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
N-Nitrosodimethylamine	6086	<10	<10	<10	None	None
Bis(2-Chloroethyl) Ether	6086	<10	<10	<10	None	None
1,3-Dichlorobenzene	6086	<10	<10	<10	None	None
1,4-Dichlorobenzene	6086	<10	<10	<10	None	None
1,2-Dichlorobenzene	6086	<10	<10	<10	None	None
Bis(2-chloroisopropyl) Ether	6086	<10	<10	<10	None	None
Hexachloroethane	6086	<10	<10	<10	None	None
N-Nitrosodi-N-Propylamine	6086	<10	<10	<10	None	None
Nitrobenzene	6086	<10	<10	<10	None	None
Isophorone	6086	<10	<10	<10	None	None
Bis(2-chloroethoxy) Methane	6086	<10	<10	<10	None	None
1,2,4-Trichlorobenzene	6086	<10	<10	<10	None	None
Naphthalene	6086	<10	<10	<10	None	None
Hexachlorobutadiene	6086	50	24	37	26	70
Hexachlorocyclopentadiene	6086	<10	<10	<10	None	None
2-Chloronaphthalene	6086	<10	<10	<10	None	None
Dimethylphthalate	6086	<10	<10	<10	None	None
Acenaphthylene	6086	<10	<10	<10	None	None
2,6-Dinitrotoluene	6086	<10	<10	<10	None	None
Acenaphthene	6086	<10	<10	<10	None	None
2,4-Dinitrotoluene	6086	<10	<10	<10	None	None
Diethylphthalate	6086	<10	<10	<10	None	None
Fluorene	6086	<10	<10	<10	None	None
4-Chlorophenylphenylether	6086	<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
N-Nitrosodiphenylamine	6086	<10	<10	<10	None	None
1,2-Diphenylhydrazine	6086	<10	<10	<10	None	None
4-Bromophenylphenylether	6086	<10	<10	<10	None	None
Hexachlorobenzene	6086	<10	<10	<10	None	None
Phenanthrene	6086	<10	<10	<10	None	None
Anthracene	6086	<10	<10	<10	None	None
Di-N-Butylphthalate	6086	<10	<10	<10	None	None
Fluoranthene	6086	<10	<10	<10	None	None
Benzidine	6086	<30	<30	<30	None	None
Pyrene	6086	<10	<10	<10	None	None
Butylbenzylphthalate	6086	<10	<10	<10	None	None
Benzo(a)Anthracene	6086	<10	<10	<10	None	None
3,3'-Dichlorobenzidine	6086	<20	<20	<20	None	None
Chrysene	6086	<10	<10	<10	None	None
Bis(2-Ethylhexyl) Phthalate	6086	<20	<20	<20	None	None
Di-n-Octylphthalate	6086	<10	<10	<10	None	None
Benzo(b) Fluoranthene	6086	<10	<10	<10	None	None
Benzo(k) Fluoranthene	6086	<10	<10	<10	None	None
Benzo(a) Pyrene	6086	<10	<10	<10	None	None
Indeno(1,2,3-cd) Pyrene	6086	<10	<10	<10	None	None
Dibenz(a,h) Anthracene	6086	<10	<10	<10	None	None
Benzo(g,h,i) Perylene	6086	<10	<10	<10	None	None
Phenol	6086	<10	<10	<10	None	None
2-Chlorophenol	6086	<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-Nitrophenol	6086	<10	<10	<10	None	None
2,4-Dimethylphenol	6086	<10	<10	<10	None	None
4-Chloro-3-Methylphenol	6086	<20	<20	<20	None	None
2,4,6-Trichlorophenol	6086	<10	<10	<10	None	None
2,4-Dinitrophenol	6086	<50	<50	<50	None	None
4-Nitrophenol	6086	<50	<50	<50	None	None
4,6-Dinitro-2-Methylphenol	6086	<50	<50	<50	None	None
Pentachlorophenol	6086	<50	<50	<50	None	None
2,4-Dichlorophenol	6086	<10	<10	<10	None	None
4-Methylphenol	6086	<10	<10	<10	None	None
2,4,5-Trichlorophenol	6086	<10	<10	<10	None	None
2-Methylphenol	6086	<10	<10	<10	None	None
Benzoic Acid	6086	<50	<50	<50	None	None
Benzyl Alcohol	6086	<20	<20	<20	None	None
Aniline	6086	<10	<10	<10	None	None
2-Methylnaphthalene	6086	<10	<10	<10	None	None
2-Nitroaniline	6086	<50	<50	<50	None	None
4-Nitroaniline	6086	<50	<50	<50	None	None
3-Nitroaniline	6086	<50	<50	<50	None	None
Dibenzofuran	6086	<10	<10	<10	None	None
4-Chloroaniline	6086	<20	<20	<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: ug/l, or ppb)

Analytical Parameters	Sample No.	Type	Observed Conc.	Original Conc.	Added Conc.	Percent Recovery*
1,1-Dichloroethene	6085	SPK	13.6	<5.0	20.0	68
trans-1,2-Dichloroethene	"	"	16.8	<5.0	20.0	84
1,1-Dichloroethane	"	"	17.0	<5.0	20.0	85
Benzene	"	"	21.5	<5.0	20.0	108
Trichloroethene	"	"	18.8	<5.0	20.0	94
Toluene	"	"	22.6	<5.0	20.0	113
2-Chlorophenol	6086	"	67	<10	100	67
1,2,4-Trichlorobenzene	"	"	76	<10	100	76
4-Chloro-3-Methylphenol	"	"	78	<20	100	78
Acenaphthene	"	"	64	<10	100	64
2,4-Dinitrotoluene	"	"	95	<10	100	95
Pentachlorophenol	"	"	64	<50	100	64
Pyrene	"	"	93	<10	100	93

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

JOB CODE: CTC

Technician
Signature

AES
Sample #

Method

Date of Analysis

Shin-tail

6064, 6085, 6086

EPA 8240

7/3/90

Yours Truly

6064 6085 6096

EPA 8270

7/5/90



CHAIN OF CUSTODY RECORD

PROJECT NAME: UNION CARBIDE WELLS

SAMPLER'S SIGNATURE: Paul D. H. + (SCOTT MAC.)

JOB CODE: CTC

[illegible]

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

1. RELINQUISHED BY: 	DATE 12/1/90	TIME 3:30 PM	RECEIVED BY: 	2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	4. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:



SAMPLER'S SIGNATURE: Scott MacIsaac

JOB CODE: ETC

UNPRESERVED
HNO,
H.S

 HNO_3 H_2SO_4

HCl

NAC

VIA

74

১০৮

3

RE

REMARK

RKS

 $\frac{d}{dt} \left(\frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}$ [illegible]

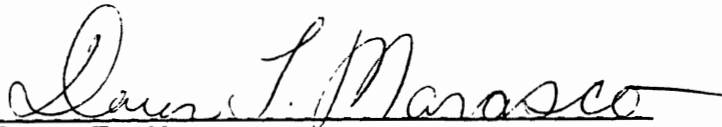
NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

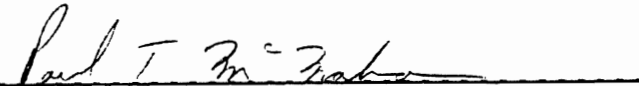
1. RELINQUISHED BY: 	DATE 6/22/90	TIME 3:01	RECEIVED BY: 	2. RELINQUISHED BY: _____	DATE	TIME	RECEIVED BY: _____
3. RELINQUISHED BY: _____	DATE	TIME	RECEIVED BY: _____	4. RELINQUISHED BY: _____	DATE	TIME	RECEIVED BY: _____



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

Report Prepared For
UNION CARBIDE CORPORATION
CARBON PRODUCTS DIVISION


Dawn T. Marasco
Project Manager


Paul T. McMahon
Quality Control Officer

July 17, 1990
AES Report CTC

COMMITMENT
TO
HONESTY - QUALITY - SERVICE

ADVANCED ENVIRONMENTAL SERVICES, INC.

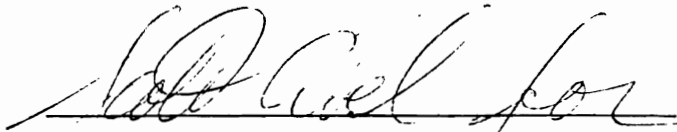
FIELD REPORT

CLIENT: UNION CARBIDE AES JOB CODE: CTC

DATE PURGED: 6/21/90 DATE SAMPLED: 6/21/90

WELL IDENTIFICATION	TOP OF PIPE ELEVATION	ELEVATION BEFORE PURGING	AMOUNT PURGED	ELEVATION BEFORE SAMPLING
B-W-1	610.72	594.62	25.0 gal.	594.42
* M-W-1	609.43	598.08	2.0 gal.	591.13
B-W-2	608.43	594.78	26.0 gal.	594.58
* M-W-2	607.54	585.74	.50 gal.	**
*** B-W-3	604.72	593.49	27.0 gal.	593.49
M-W-3	601.61	590.91	3.0 gal.	590.16
*** B-W-4	607.08	595.78	50.0 gal.	595.78
B-W-5	603.33	593.88	37.8 gal.	593.73
B-W-6	607.04	592.99	24.0 gal.	592.86
O-W-1 South	608.81	602.46	N/A	N/A
O-W-2 North	607.06	599.77	N/A	N/A

- * Well purged to dryness
- ** Well still dry after 72 hours - no samples collected.
- *** Purged and sampled on 6/22/90
- **** Purged on 6/21/90 - sampled on 6/22/90


SCOTT MAC FARLANE
FIELD TECHNICIAN

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

=====

Type of Analysis: INORGANICS

Client: UNION CARBIDE

A.E.S. JOB CODE CTC

		AES Lab No. -	6138
		Sample ID -	MW-1
Analytical Parameter(s)	Method No.	Quant. Limits	GRAB
		Sample Date-	06/25/90
Ammonia (as N) (mg/l)	350.1	0.01	7.90
Nitrite (mg/l)	353.2	0.01	0.01
Total Kjeldahl Nitrogen(mg/l)	351.2	0.1	9.5

Gary L. Amato

Gary L. Amato
Technical Supervisor

JOB CODE: CTC

Signature

Sample #

Method

Analysis

T. Skow

6138

353.2

6-26-90

7:45 am

6138

350.1

7-3-90

T. Akov

6138

351.2

7-6-90

ADVANCED ENVIRONMENTAL SERVICES, INC.
LABORATORY REPORT

=====

Type of Analysis: INORGANICS

Client: UNION CARBIDE

A.E.S. Job Code CTC

(All results are in mg/l)

			AES Lab No. -	6138
			Sample ID -	MW-1
Analytical	Method	Quant.		
Parameter(s)	No.	Limits	Sample Date-	GRAB
				06/25/90
Total Iron (Fe)	236.1	0.30		14.0
Soluble Iron (Fe)	236.1	0.30		BQL *
Total Potassium (K)	258.1	1.00		46.2
Soluble Potassium (K)	258.1	1.00		44.6
Total Zinc (Zn)	289.1	0.05		0.23
Soluble Zinc (Zn)	289.1	0.05		BQL

* Below Quantifiable Limits.



Gary L. Amato
Technical Supervisor

JOB CODE: CTC.

Signature

Sample #

Method

Analysis

Mack Morris

6138

236.1

6-27-90

Mack Morris

6138

258.1

7-5-90

Mack Moers

6138

289.1

6-29-90



SAMPLER'S SIGNATURE: Scott Mayfield

JOB CODE: CTC

UNPRESERVED
HNO₃
H₂SO₄
HCl
NaOH
VIAL

[illegible]

1. RELINQUISHED BY: 	DATE 8/25/90	TIME 5:00 PM	RECEIVED BY: 	2. RELINQUISHED BY: _____	DATE	TIME	RECEIVED BY: _____
3. RELINQUISHED BY: _____	DATE	TIME	RECEIVED BY: _____	4. RELINQUISHED BY: _____	DATE	TIME	RECEIVED BY: _____